Towards A Learning Culture of Safety and Resilience

Technical Guidance for Integrating Disaster Risk Reduction in the School Curriculum

This publication is recommended to be used with its companion volume: *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*, published in 2012 by UNESCO/UNICEF.
Available at: http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

Cover photo: © CRIC 2009
DIPECHO project in Nicaragua.
Children are among the most vulnerable to disasters. Training schoolchildren on disaster risk reduction is an important part of DIPECHO projects. Through training and simulation exercises, children gain practical experience in responding to emergency situations.
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Preface

Reducing disaster risks is becoming an urgent task and an enormous challenge for many countries. From 2000 to 2010, 4,014 disasters were reported, killing more than 1 million people and incurring an economic loss of US$986,000 million.

In order to reduce the risks and impact of disasters, the Hyogo Framework for Action 2005-2015, "Building the Resilience of Nations and Communities to Disasters", was adopted by 168 Member States of the United Nations as a joint platform for achieving disaster resilience. It recognizes that the impacts of disasters can be substantially reduced if populations are well-prepared and equipped with the knowledge and capacities for effective disaster management. UNESCO's and UNICEF's work on education for disaster risk reduction (DRR) addresses in particular Priority Area for Action 3 of the Hyogo Framework: "Use knowledge, innovation and education to build a culture of safety and resilience at all levels".

UNESCO and UNICEF believe that quality education can provide life-saving and life-sustaining information and skills that protect in particular children and young people, during and after emergencies. Therefore, the inclusion of DRR components in school curricula increases the level of preparedness and protection of individual learners and entire communities.

The two agencies, with funding from the Government of Japan, developed this technical guidance instrument for education planners and curriculum specialists to support the inclusion of DRR in education. The document provides a thorough rationale for including DRR in school curricula within an Education for Sustainable Development framework. It also guides those with responsibility for curricula on appropriate teaching and learning methods for disaster preparedness, that is to say the methods that empower and motivate learners and support the development of a comprehensive culture of disaster resilience.

UNESCO and UNICEF hope that this publication will provide innovative solutions and support to all countries in the process of integrating disaster risk reduction into their curricula.

Acknowledgements

Executive Summary

In line with the *Hyogo Framework for Action (HFA)* 2005-2015, UNICEF and UNESCO have developed this technical guidance to support national efforts of integrating Disaster Risk Reduction (DRR) into school curriculum. This technical guidance is the most comprehensive resource to date advocating for the holistic integration of DRR into the curriculum. It is written for those working at all levels of curriculum development process – from policy makers and curriculum developers to headmasters and teachers.

The HFA itself is a response to the increasing number and scale of disasters worldwide. Throughout the 2000s, the average frequency of disasters was 384 per annum, which represents a dramatic increase since the 1970s and 1980s. Among those who are most vulnerable to disaster are children. Often excluded from DRR decision-making and education, they make up more than half of those affected by disasters worldwide.

The HFA was adopted by 168 governments in January 2005 at the World Conference on Disaster Reduction in Kobe, Japan. Among the five HFA priorities, Priority 3 is the most relevant to the education sector. It calls upon governments, regional and international organizations and other stakeholders, including local jurisdictions and communities, to 'use knowledge, innovation and education to build a culture of safety and resilience at all levels' and identifies the following school-related key activities:

- Inclusion of DRR knowledge in relevant sections of school curricula at all levels;

- Implementation of local risk assessment and disaster preparedness programmes in schools and institutions of higher education;

- Implementation of programmes and activities in schools for learning how to minimize the effects of hazards.

This technical guidance builds upon case studies from 30 countries[1]. It is based on the five dimensions of DRR education, elaborates on the four stages of curriculum development, and situates DRR education as one of the three pillars of safe schools.

Five dimensions of disaster risk reduction education

DRR education comprises five essential dimensions, laid out in Figure I. They are essential in that, collectively, they allow for a full and systematic treatment of DRR in the curriculum, while encouraging DRR learning in both the school and the community.

This technical guidance encourages the incorporation of Education for Sustainable Development (ESD) insights and criteria into DRR curriculum review and development. This allows for a better coverage of all five dimensions of DRR education, considering that up to now, dimensions 3, 4 and 5 are less frequently or rarely addressed within DRR curricula. It also situates DRR education as compatible with Climate Change Education and as part of Quality Education, Life-skills Education and Child-friendly Education.

This technical guidance also recognizes the importance of adopting a holistic risk and resilience education framework. In addition to looking at natural hazards, this framework looks at man-made hazards that the education sector faces, such as violent conflicts. While not covering this topic in detail, the technical guidance supports the integration of conflict risk reduction education and DRR education. The methods and tools

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1   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/ UNICEF. Available at: http://unesdoc.unesco.org/ images/0021/002170/217036e.pdf

FIGURE ES-1

Five Essential Dimensions of DRR Education

Dimension 1
Understanding the Science and Mechanisms of Natural Disasters

Dimension 5
Building an Institutional Culture of Safety and Resilience

Dimension 2
Learning and Practicing Safety Measures and Procedures

Dimension 4
Building Community Risk Reduction Capacity

Dimension 3
Understanding Risk Drivers and How Hazards Can Become Disasters

in this technical guidance can be easily adapted and applied to conflict/disaster risk reduction education (C/DRRE).

Four stages of curriculum development

While a curriculum development process is rarely linear, it usually involves four major stages.

Stage 1: Planning and preparing the curriculum

DRR takes the world of education and curriculum into new and unfamiliar territory, which calls for alliance and partnership. Experience shows that integrating and mainstreaming DRR into the curriculum works best when the ministry or bureau responsible for national disaster and emergency management provides scientific and technical insights on hazard and DRR, while the ministry responsible for education, and/or its curriculum arm, provides curricular and pedagogical experience and expertise. In addition, a wide range of stakeholders should be involved in the curriculum development process. Here, partnership building and networking are important elements.

Conducting a 'state of the art' investigation of the existing curriculum, its operation, and delivery through a curriculum review, baseline study or needs assessment is another important preparatory step. This should be followed

FIGURE ES-2

Shallow through Deep Horizontal Curriculum Infusion of DRR

Approach 1 — Concurrent/Time Co-ordinated Programme Delivery

Approach 2 — Multidisciplinary Programme Delivery

Approach 3 — Dedicated Interdisciplinary Programmes

Approach 4 — Interdisciplinary Cross-curricular Blending of DRR Learning

SHALLOW → DEEP

by consensus-building on curriculum development needs, establishment of a curriculum development team and a schedule for the curriculum development process, including milestones and deadlines.

Stage 2: Conceptualizing and writing the curriculum

Among the first tasks in developing a DRR curriculum is to determine the learning outcomes. While most DRR curricula narrowly focus on knowledge outcomes, the technical guidance advocates for one that takes into account students' knowledge, skills and attitudes as learning outcomes. Once determined, learning outcomes need to be sequenced into the curriculum. DRR can be integrated into the curriculum *horizontally* (i.e., by infusing DRR into a range of subjects) and *vertically* (i.e., by infusing DRR into a range of grade levels).

The different approaches to horizontal integration can be understood as a spectrum. At one end is infusion of disaster-related elements into *existing subjects*, and at the other end is *interdisciplinary* curriculum provision. The spectrum of approaches is illustrated in Figure

FIGURE ES-3

Ten Steps to Develop Age-appropriate Learning Materials

1. Establish Contextual Clarity
2. Determine Intended DRR Learning Outcomes and Key Concepts
3. Develop a Topic Web
4. Draw up the Programme Outline
5. Develop the Learning Materials
6. Design the Learning Activities
7. Apply Matrices to the Draft Programme
8. Plan Learning Assessment
9. Develop a Teacher Guidance Document
10. Finalization

II. In addition to these, this technical guidance describes two additional approaches: the *symbiosis approach* and the *special events* approach.

Vertical curriculum integration focuses on infusing DRR knowledge in the curriculum progression. Curriculum developers and planners must identify how each particular theme, topic or concept can be taught effectively, with learning reinforced and enriched at different

stages of development. This underpins the notion of the spiral curriculum, the cumulative reinforcement, deepening and refinement of knowledge, conceptual understanding, skills and dispositions through the grade levels.

Once horizontal and vertical integration have been achieved, the learning materials for DRR need to be developed. This technical guidance proposes a 10-step process for developing age-appropriate learning materials. DRR learning should involve a wide array of learning modalities to support the different learning styles of students.

Another area addressed in Stage 2 is the assessment of DRR learning. So far, student assessment is the least considered and least developed aspect of DRR curriculum innovation. Assessment of DRR learning outcomes calls for diverse assessment tools. Some tools, such as written examinations and essay writing, are more fitted for assessing knowledge learning outcomes. Practical skills outcomes, however, call for assessment through observation of learners in interaction with peers or through demonstration of skills in real life or simulated situations.

Stage 3: Implementing the curriculum

The implementation phase of curriculum development focuses on pilot testing, capacity development and the system-wide roll-out of the curriculum through scaling-up and mainstreaming.

The guidance tool discusses capacity development for DRR. Teacher education, must be preceded by the training of trainers and the inclusion of DRR learning into teacher education institutions. Systematized professional development for teachers calls for the following elements: needs assessment, comprehensive

planning, effective and appropriate programme delivery, reinforcement, and aftercare. To fully develop the potential of DRR learning, teachers need to be trained in the method of facilitation. Teachers should also be able to support aspects of emotional learning, particularly because future DRR learning may take place in areas that have experienced disasters. Going further, a holistic, systematic conception of DRR professional development needs to include not only teachers, but to encompass principal and district officer training so they can fulfill significant supporting, legitimizing and catalyzing roles.

This guidance tool describes, using real-world examples, scaling-up and mainstreaming as two methods for integrating DRR into the education sector. A number of different scaling-up approaches are examined, including the explosion, the roll-out and the association approaches. Mainstreaming supports the sustainability of DRR learning within the education sector by providing a conducive context for movement to scale.

Stage 4: Monitoring, evaluating and refreshing the curriculum

Monitoring and evaluation are important parts of the curriculum development process and should be considered from the outset. Evaluation takes place at pre-determined points during the process and involves a more in-depth study of a curriculum development initiative by collecting detailed evidence. Successful evaluation and monitoring requires the establishment of both qualitative and quantitative indicators. This guidance tool explores several indicators that may be useful for evaluating DRR curriculum integration and also makes a strong point for stakeholder involvement in evaluation and monitoring activities at all stages of curriculum development.

FIGURE ES-4

A Comprehensive School Safety Framework

Education Sector Policies and Plans

Pillar 1. Safe Learning Facilities
- Safe site selection
- Building codes
- Performance standards
- Disaster resilient design
- Builder training
- Construction supervision
- Quality control
- Remodelling
- Retrofit

- Building maintenance
- Non-structural mitigation
- Fire safety

- Structural safety education
- Construction as educational opportunity

Pillar 2. School Disaster Management
- Assessment & Planning
- Physical & Environmental Protection
- Response Skills & Provision
- Representative/participatory SDM committee
- Educational continuity plan
- Standard operating procedures
- Contingency planning

- Household disaster plan
- Family reunification plan
- School drills

Pillar 3. Risk Reduction & Resilience Education
- Formal curriculum integrations & infusion
- Teacher training & staff development
- Extracurricular & community-based informal education

Aligned to national, subnational and local disaster management plans

- multi-hazard risk assessment
- education sector analysis
- child-centred assessment & planning

Source: Global Alliance on Risk Reduction and Resilience in the Education Sector. 2013.

Namibia
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(see full captions pp. 224-9)

DRR education as a pillar of safe schools

DRR curriculum is one of three important pillars of safe schools, the two other pillars being safe learning facilities and school disaster management. A comprehensive school safety framework integrates DRR learning activities with the other pillars and engages students', teachers' and parents' involvement in wider school safety issues.

A holistic form of DRR education also integrates four C's, curriculum, campus (the physical environment of the school and its grounds) and community - encircled by a fourth sphere, that of (institutional) culture. Implementing comprehensive school safety, which embraces the interconnectedness of the four C's, leads to a shift from seeing the school as a DRR teaching organization to a DRR learning organization (or learning community). Such a shift requires that all members of the school community see themselves as potential learners open to learning from every facet of school culture and life, including its engagement on multiple fronts with DRR.

Using partnerships to integrate DRR into the curriculum

While the integration of DRR into school curriculum takes place within national jurisdictions, the technical guidance encourages countries to engage in partnerships with national and international actors, from UN agencies, such as UNICEF, UNESCO and UNISDR, to global, regional and national organizations and networks working on DRR education, as well as regional organizations and initiatives.

SECTION 1
INTRODUCING CURRICULUM FRAMEWORKS FOR DISASTER RISK REDUCTION

Chapter 1
Conceptualizing Disaster Risk Reduction Learning

Chapter 1 highlights the rise in disasters in recent decades. It points out that disasters are one of the main factors inhibiting school attendance in many countries with children being one of the groups most affected by disasters.

This is followed by a broad overview of concepts and frameworks that shape disaster risk reduction (DRR) education, introducing three frameworks for integrating DRR into the education sector:

- The Hyogo Framework of Action (HFA)
- A holistic risk and resilience education framework, and
- Education for Sustainable Development (ESD)

Next, it explores the five core dimensions of DRR education, analyzing which dimensions are frequently and less frequently addressed in existing DRR curricula. It then introduces the comprehensive school safety framework as a model for the holistic integration of DRR. In addition, the chapter discusses the synergies between DRR education and related education fields, such as climate change education (CCE) and conflict risk reduction education (CRRE), as well as how DRR education contributes to quality education.

1.1 The Global Disaster Landscape

Human risk from disaster is on the rise globally. Over the decade of the 2000s, the average annual frequency of disasters was 384 per year.[2] This represents a dramatic increase in the average annual number of disasters since the 1970s and 1980s (see Figure 1). Climatological hazards such as cyclones, hurricanes and floods, geo-seismic hazards such as earth-quakes, tsunamis and volcanoes, technological hazards, and slow-onset hazards such as environmental degradation and desertification are triggering catastrophes affecting the lives and livelihoods of millions of people more often. Statistics paint a devastating picture:

- An annual average of 232 million people worldwide were affected by disasters between 2001 and 2010, the figure for 2011 being calculated at 244.7 million;

- From 2000 to 2010, economic damage as a result of disasters amounted to around US$1 trillion. The estimate for 2011 is US$366.1 billion, which surpasses the previous record set in 2005 of US$246.8 billion;

2   Guha-Sapir, D., Vos, F., Below, R. with Ponsere S. 2012. *Annual Disaster Statistical Review 2011: The Numbers and Trends*. Brussels: CRED. http://cred.be/sites/default/files/2012.07.05.ADSR_2011.pdf

FIGURE 1

Time Trends of Reported Natural Disasters, 1975-2011

Source: EM-DAT/UNISDR. 2011 *Disasters in Numbers*.

- More than 680,000 people died in earthquakes between 2000 and 2010 mainly due to poorly constructed buildings;

- Since 1980, drought and associated famine have claimed nearly 558,000 lives and affected more than 1.6 billion people, with drought being the highest disaster-related killer in Africa;

- On yearly average, 102 million people are affected by floods; 37 million people by cyclones, hurricanes and typhoons; and nearly 366,000 people by landslides;

- Most of the 3.3 million deaths from disasters in the last 40 years have been in poorer nations;

- Much of the increasing world population is literally 'on the edge,' living in flood-prone river basins, on exposed coastlines and in cities located in areas of high seismic activity.[3]

Often falling below the threshold of media attention, tens of hundreds of small-scale disasters caused by natural hazards have also severely impacted the lives, well-being and prospects of peoples and communities around the world.[4]

Women and children, two groups often excluded from DRR decision-making and education, are amongst the most vulnerable to disasters. Save the Children reports that more than fifty per cent of all those affected by disasters worldwide are children.[5] The UNICEF and UNESCO Global Initiative on Out-of-School Children cites disaster as one of the key factors inhibiting school attendance of approximately 57 million school aged children, therefore slowing the pace of progress towards universal primary education.[6]

The serious impacts of disasters caused by natural hazards on educational systems and school communities are evident around the world. 'Worldwide, approximately 1.2 billion students are enrolled in primary and secondary school; of these, 875 million school children live in high seismic risk zones and hundreds of millions more face regular flood, landslide, extreme wind and fire hazards. Although children spend a lot of hours in school facilities, all too often schools are not constructed or maintained to be disaster resilient'.[7] For example, the earthquake in Sichuan, China in 2008 caused severe structural damage to more than 6,500 school buildings and took the lives of 10,000 children, while the 2010 earthquake in Haiti caused a death toll of more than 4,000 children and 7,000 teachers in school buildings.[8] The 2010 floods in Pakistan affected 1.8 million children and more than 8,600 schools were fully or partially damaged.[9]

3   The figures are extracted from the following: Guha-Sapir, D., Vos, F., Below, R. with Ponsere S. 2012. *Annual Disaster Statistical Review 2011: The Numbers and Trends*. Brussels: CRED. http://cred.be/sites/default/files/2012.07.05.ADSR_2011.pdf; UNISDR. 2011. *Disaster Through a Different Lens: Behind Every Effect There is a Cause*. Geneva: UNISDR; UNISDR. 2011. *Preparing for Rio+20: Redefining Sustainable Development.* http://www.unisdr.org/we/inform/publications/23344

4   UNISDR. 2011. *Global Assessment Report on Disaster Risk Reduction. Revealing Risk, Redefining Development*. http://www.preventionweb.net/english/hyogo/gar/2011/en/home/download.html

5   UNISDR. 2011. *Disaster Through a Different Lens: Behind Every Effect There is a Cause*. Geneva: UNISDR, 22; Save the Children. 2008. In the Face of Disaster: Children and Climate Change.

6   http://www.unicef.org/education/files/OOSCI_flyer_EN_lowres.pdf

7   ISDR/INEE/World Bank. 2009. *Guidance Notes on Safer School Construction*. p. 1. http://toolkit.ineesite.org/toolkit/Toolkit.php?PostID=1138

8   INEE. Rio+20: *Including Education in the Sustainability Agenda.* http://www.ineesite.org/post/blog_rio-20-including-education-in-the-sustainability-agenda/; UNICEF. 2011. *Sichuan Earthquake: Three Year Report*. Beijing: UNICEF Office for China.

9   UNICEF. 2011. *Children in Pakistan: One Year after the Floods - Turning Towards a Brighter Future. Progress Report*. Islamabad: UNICEF Pakistan Country Office

BOX 1

Definition of Disaster Risk Reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Source: UNISDR. 2009.
http://www.unisdr.org/we/inform/terminology

1.2 Frameworks for Integrating Disaster Risk Reduction into the Education Sector

Education can be a decisive sector to push back against the global rise in disaster risks from both natural and man-made hazards. Inclusion of DRR into the education sector has particularly been fostered by the Hyogo Framework for Action (HFA), which 'encompasses disasters caused by hazards of natural origin and related environmental and technological hazards and risks'.[10] DRR curricula have, for the most part, been developed within these parameters. However, in some countries the notion of 'disaster' also includes, for instance, civil unrest, conflict, biohazards, terrorism and pandemics.[11] With this in mind, a more holistic conceptualization of risk reduction and resilience that takes into account the risks from climate change and conflicts can be beneficial for certain countries. In Western and Central Africa, in particular,

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10   UNISDR. 2005. *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*. Geneva: ISDR. p. 1.

11   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*.Paris/ Geneva: UNESCO/UNICEF.

incorporation of disaster- and conflict-related education has gained ground under the notion of 'conflict and disaster risk reduction' (C/DRR). Another framework that serves DRR education well is Education for Sustainable Development (ESD). Here, DRR is conceptualized as a process that contributes to a sustainable future.

The following section elaborates on the three frameworks upon which DRR education can be built – HFA, holistic risk and resilience education and ESD.

A. The Hyogo Framework for Action: Global Action for Disaster Risk Reduction Education

Against a background of increasing incidence and scale of disaster, the *Hyogo Framework for Action (HFA) 2005-2015* was adopted by 168 governments in January 2005 at the World Conference on Disaster Reduction held in Kobe, Japan. Sub-titled *Building the Resilience of Nations and Communities to Disasters*, HFA lays out a strategic and systematic approach to reducing risk from natural hazards, incorporating strategic goals, priorities for action and key activities. While each of the five priorities has implications for school systems, schools and other learning institutions, HFA priority 3 is of most direct relevance to education. Priority 3 calls upon governments, regional and international organizations and other stakeholders including local jurisdictions and communities to 'use knowledge, innovation and education to build a culture of safety and resilience at all levels' and identifies the following school-related key activities:

- Inclusion of DRR knowledge in relevant sections of school curricula at all levels;
- Implementation of local risk assessment and disaster preparedness programmes in schools and institutions of higher education;

Policy Makers:
Draw upon this globally agreed framework for DRR Education

- Implementation of programmes and activities in schools for learning how to minimize the effects of hazards.

In 2007 the UN General Assembly established a biennial Global Platform for Disaster Risk Reduction to support the implementation of the HFA. At its second session in 2009, the Global Platform resolved to integrate disaster risk reduction into school curricula by 2015, a commitment confirmed when the Global Platform met for its third session in 2011.[12]

In the 2011 progress report on school curricula, educational materials and relevant training, slightly more than half of the 70 countries, reporting their national progress on the HFA priorities, confirmed the inclusion of DRR

12 UNISDR. 2009. *Chair's Summary: Third Session of the Global Platform for DRR and World Reconstruction Conference.* http://www.preventionweb.net/files/10750_GP09ChairsSummary.pdf

BOX 2

Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disaster

Three Strategic Goals

- The integration of disaster risk reduction in sustainable development policies and planning
- Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards
- The systemic incorporation of risk reduction approaches into the implementation of emergency preparedness, responses and recovery programmes

Five Priorities for Action

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

Four Cross-Cutting Issues

- Multi-hazard approach
- Gender perspective and cultural diversity
- Community and volunteers' participation
- Capacity building and technology transfer

Source: Taken from ISDR http://www.unisdr.org/we/inform/publications/1037

themes and topics in the curriculum, mainly at primary level.[13] The HFA Mid-term Review of 2011 reveals great enthusiasm for the integration of DRR into school curricula but also goes on to note that 'There are few examples that address DRR education needs in a systematic manner'.[14] The 2013 Global Platform highlighted again that 'integrating disaster risk management into education at all levels including higher education curricula should be a priority.'[15]

B. Holistic Risk and Resilience Education Framework

Given the multiple intersections of conflict, disaster and climate risk that many countries are facing, a holistic risk education approach, which simultaneously takes into account multiple risks, has gained advocates in recent years. It is grounded on a multi-risk analysis, which analyzes the impacts of both man-made and natural hazards to the education system, as well as assesses the vulnerabilities of the system. This analysis is coupled with an appraisal of the system's capacities to withstand shocks caused by the aforementioned hazards and of the improvements needed to make the system more resilient.

The concept of resilience is a good umbrella for this multi-risk paradigm as it encompasses the long-term well-being of individuals, households,

BOX 3

Defining a Resilient Education System

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.

Source: IIEP/UNESCO/UNICEF. 2011. http://www.iiep.unesco.org/fileadmin/user_upload/News_And_Events/pdf/2011/IIEP_Guidancesnotes_EiE_en.pdf

communities and societies, while acknowledging that shocks can stem from an array of hazards, both man-made and natural, which at times are interwoven.

Conflict and Disaster Risk Reduction: A Multi-Risk Framework

One example of a holistic risk and resilience education approach is the C/DRR education framework developed by UNICEF, UNESCO and the International Institute for Education Planning (IIEP). It suggests that the integration of C/DRR in the education sector should be preceded by a broad education sector diagnosis looking at the following factors:

- Analysis of the context and ascertain what hazards or vulnerabilities exist and how they are likely to impact the education system;

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13   UNISDR. 2011. *Compilation of National Progress Reports on the implementation of Hyogo Framework for Action (2009-2011). HFA Priority 3, core indicator 3.2.* http://www.preventionweb.net/english/hyogo/progress/documents/hfa-report-priority3-2(2009-2011).pdf

14   UNISDR. 2011. *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disaster. Mid-term Review.* 26. http://www.preventionweb.net/files/18197_midterm.pdf

15   UNISDR. 2013. *Chair's Summary: Third Session of the Global Platform for DRR and World Reconstruction Conference.* http://www.preventionweb.net/files/33306_finalchairssummaryoffourthsessionof.pdf

- Analysis on how conflict or disaster has affected the education system in the past: organizationally, institutionally, delivery capacity, outputs, and outcomes;

- Analysis of the performance of the education system (including access, quality, and management) to determine whether the services delivered address the conflict or disaster risks that (could potentially) affect the system;

- Analysis of the management and policy environment to determine how conflict and disaster have been addressed in the past, the lessons learned, and the strengths of the system;

- Analysis of the cost and financing available as part of the overall budget framework in order to prepare for, mitigate, or respond to conflict and disaster.[16]

The education sector diagnosis, which should also include a thorough curriculum review, can then be taken as the basis for revising education policies and mainstreaming C/DRR education into the education sector. See Box I (Annex 1, p. 143) for a range of policy options that might result from an education sector diagnosis.

A simultaneous integration of both conflict and DRR education as based on the C/DRR education approach, brings a range of benefits, particularly to countries that face multiple risks and have neither integrated conflict nor DRR into their education systems. While a comprehensive C/DRR education integration might require intensive groundwork, the education system is only faced with one major transformation, rather than two if the two issues should be introduced through separate processes. Economies of

scale should come to work, making it cheaper than separate integration of the two topics, not to mention the synergy effects that come to play through holistically addressing risks in the education sector. Particularly in post-conflict societies, integration of C/DRR can significantly contribute to peacebuilding by reducing vulnerabilities in communities, eliminating discrimination in the education sector and by fostering a culture of peace among learners and school communities.

C. Education for Sustainable Development (ESD) as Fertile Framework for DRR Education

Education for Sustainable Development is an approach to quality education advocated by UN agencies and civil society organizations, and is attracting worldwide adherence as the 2005-14 UN Decade of Education for Sustainable Development unfolds. ESD offers a coherent, fertile and increasingly mainstreamed conception within which the full spectrum of DRR education learning dimensions, individually and in their interplay, can better flourish.

ESD offers a holistic framework for considering and integrating issues of environmental, economic and social (including cultural) sustainability in the name of realizing a sustainable future. It addresses the complexity and interconnectedness of global issues. It sets learning within a framework of underlying values:

- Respect for the dignity and human rights of all;

- A commitment to social and economic justice for all;

- Respect for the human rights of future generations;

- Respect for the greater community of (other-than-human) life and protection of ecosystems;

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16 IIEP/UNESCO/UNICEF. 2011. *Guidance Notes for Educational Planners. Integrating conflict and disaster risk reduction into education sector planning*. Paris: IIEP. 35-36.

- Respect for cultural diversity and commitment to building a culture of tolerance, non-violence and peace.[17]

ESD calls for change that is informed by consideration of the past, present and future. It offers a vision of cross-curricular and interdisciplinary treatment of sustainability precepts and principles, and advocates a multi-method and participatory pedagogy that integrates critical thinking and reflection with concrete and practical engagement towards building sustainability in the community.[18]

ESD also embraces the fundamentally transformative goal of securing a better future by steering the world away from unsustainable patterns of economic growth, environmental exploitation and social injustice.[19]

Integrating DRR education within an ESD Framework

The integration of DRR education and ESD has been described as a 'winning combination' that 'will be conducive to more sustainability at global and societal levels and better disaster preparedness of communities'.[20] What mutual benefits follow from their integration?

ESD brings a broader, deeper and integrated understanding of vulnerability and resilience to DRR education, by focusing on the three sustainability dimensions. It can help ensure that all key vulnerability factors find a place in the curriculum and, importantly, that the interactions between them (see Figure 2), potentially leading to a 'downward spiral of vulnerability' are given proper consideration.

- ESD is regarded as a major contributor to the achievement of the eight Millennium Development Goals (MDGs) agreed by all UN member states in 2000. Teaching how disaster impedes the realization of the MDGs as well as how the achievement of each MDG can be supported by DRR should be a significant aspect of the MDG support function of ESD (Find a list of the eight MDGs in Box III, Annex 1, p. 144).

- ESD helps reinforce the idea that disasters are always more than natural occurrences. It reinforces the idea that a hazard becomes a disaster, not only from 'natural' causes, but as a consequence of a particular combination of vulnerabilities in the afflicted area and population.

FIGURE 2

Interaction of Vulnerability Factors

Source: ISDR. 2004. Living with Risk: A Global View of Disaster Risk Reduction Initiatives. Geneva: ISDR. p. 41.

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17   UNESCO. 2005. *United Nations Decade of Education for Sustainable Development (2005-2014): International Implementation Scheme*. Paris: UNESCO. pp. 7-8.

18   Ibid. 17; 30-31.

19   De Haan, G, Bormann, I., & Leicht, A. 2010. 'Introduction: The midway point of the UN Decade of Education for Sustainable Development: current research and practice in ESD', *International Review of Education*, pp. 56, 2-3, 199.

20   Laboulle, O. & Richmond, M. 2011. 'Education for sustainable development and education for disaster risk reduction: a winning combination'. In UNISDR. *Risk Returns*. Leicester, UK: Tudor Rose. pp. 119-122.

- ESD stretches the context and extends the horizons of DRR education. It underscores the need to address sustainability at various spatial levels - local, sub-national, national through global The ESD learner is encouraged to understand how the local affects the global and the global shapes (and is present in) the local.

- The interdisciplinary nature of ESD can help DRR education cross the curriculum. The multi-pronged nature of ESD encourages interdisciplinary treatment in that 'no one discipline can claim ESD for its own but all disciplines can contribute to ESD'. This is particularly valuable for DRR education which historically has been largely confined to science classes.

- ESD and DRR education pedagogical practice can be mutually reinforcing. Both ESD and DRR education have been in the forefront of the movement away from a textbook-driven, passive pedagogy towards an active, interactive and action-oriented pedagogy.

Policy Makers/ Curriculum Developers: 1.3 is vital reading for understanding the scope and sway of DRR curriculum.

How the Three Frameworks are Addressed in this Guidance Tool

As with most DRR curricula, this guidance tool mainly follows the HFA. Though it focuses on what the HFA calls 'disasters caused by hazards of natural origin and related environmental and technological hazards and risks', this tool incorporates climate change, a mostly man-made hazard, which in recent years has been frequently integrated into DRR curricula. Taking an approach to DRR education as a part of ESD, this technical guidance also integrates ESD's principles.

Though this technical guidance describes the utility of incorporating a holistic risk and resilience approach including conflict risk reduction, a thorough treatment of this approach goes beyond scope of this publication. Nevertheless, it provides support for infusing a multi-risk approach to education into the curriculum and suggests some resources on the integration of conflict risk reduction education at the end of Chapters 1, 3, 4 and 5. In addition, many of the methods and tools introduced in the following chapters of this technical guidance can be easily adapted and applied to support the integration of a multi-risk approach including conflict risk reduction education into the curriculum.

1.3 Disaster Risk Reduction Education

The Five Essential Dimensions of DRR Learning

A systematic, coherent and implementable conception of DRR education is laid out below described through five essential dimensions of DRR learning.[21] These five dimensions are essential in that, collectively, they scope out what the full and systematic treatment of DRR involves while enriching the potential for DRR learning in both school and community. As we move through the dimensions, the importance of active, participatory and experiential learning becomes clear.

Dimension 1: Understanding the Science and Mechanisms of 'Natural' Disasters

The first dimension concerns developing understanding of the science and mechanisms of natural hazards such as cyclones, tsunamis and volcanic eruptions: why they happen; how they develop; where they occur; their frequency

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21   The dimensions are extracted from a comprehensive mapping and analysis of DRR curricula globally. See: UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.*

and power; their physical impacts; trends and patterns in their occurrence. The recent global mapping of DRR curriculum found that, in many instances, disaster-related learning was more or less confined to parts of the curriculum, such as physical and natural science and geography, where there has been traditional and long-standing textbook coverage of natural weather and geo-seismic hazard.[22] But just as science dominated early disaster-related international discourse before the social and economic consequences of disaster became the focal point of attention,[23] so disaster-related education spearheaded by science is giving way to a broader, multi-disciplinary, socially oriented approach. Understanding the science of natural hazards nonetheless remains an important dimension of DRR education. Cultivating rich understanding of mechanisms involves moving beyond the textbook and/or workbook toward engaging students in active enquiry, experimentation, project work, analysis and discussion of stimulus learning material and active engagement with DRR professionals, meteorologists, climate change researchers, community DRR activists and those with indigenous insight.

Dimension 2: Learning and Practicing Safety Measures and Procedures

Instruction and practice in safety measures and procedures in the event of hazard, at school, at home or out in the community or local environment form the second dimension of DRR education. This includes familiarization with hazard early warning signs and signals, instruction in evacuation or sheltering procedures, drills and exercises, familiarization with basic first aid and the contents of a first aid kit, health and safety measures, and guidance on how to stay safe after a hazard has subsided. Safety awareness has so far tended to find a place in the student learning experience as a co- or extra-curricular element or as an addition to the textbook study of hazard in science lessons. [24]A cross-curricular approach is needed in which safety behaviors are internalized and continually improved through reinforced practice. Occasional learning that is inactive in nature, limited in its practical, action and decision-making scope, and unreflective is not best suited to fostering safety knowledge and practice.

Dimension 3: Understanding Risk Drivers and How Hazards Can Become Disasters

By focusing on the science of natural or man-made hazards and/or on safety procedures in the face of hazard, learning programmes can inadvertently give learners the impression that little that can be done to combat against disaster. The third dimension of DRR learning seeks to encourage learners to act and be proactive in mitigating risk through a thorough examination of the elements at work in the fundamental disaster risk formula:

$$\text{Disaster Risk} = \frac{\text{Natural Hazard} \times \text{Vulnerability}}{\text{Capacity of Societal System}}^{[25]}$$

Hazards and disasters are different. A hazard is an event with the potential to cause harm. A disaster happens when the hazard exceeds people's capacity to cope, to devastating effect. Clearly, the more intense is the hazard, the greater the likelihood of disaster. But the level of disaster risk is also fundamentally influenced

22   Ibid.

23   UNCSD Secretariat. *Disaster Risk Reduction and Resilience Building,* Rio 2012 Issues Briefs, no. 8. http://www.preventionweb.net/english/professional/publications/v.php?id=24076&pid:0

24   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*.Paris/Geneva: UNESCO/UNICEF.

25   UNESCO/UNEP. 2011. *Climate Change Starter's Guidebook*. Paris: UNESCO. p. 63.

by prevailing conditions of vulnerability. Forms of vulnerability that drive up the likelihood of disaster risk in any context – risk drivers - can be social (e.g. illiteracy and lack of knowledge and education) or economic (e.g. poverty and inequality) or environmental (e.g. deforestation and other forms of ecosystem degradation).

A key question to regularly review with learners is whether at any level, local through global, there is such a thing as an exclusively 'natural' disaster. Having learners actively examine local conditions, drivers and processes of vulnerability through participation, even leadership, in community enquiry projects, is an essential, but as yet insufficiently addressed aspect of DRR education.

Dimension 4: Building Community Risk Reduction Capacity

The formula noted under Dimension 3 demonstrates that disaster risk can be reduced by increasing the capacity of a society to protect itself against hazard. The fourth dimension of DRR education learning engages learners in processes of resilience building in their own community through grassroots level initiatives such as undertaking local vulnerability assessment and mapping initiatives, identifying hazards, developing resilience action plans, and implementing those plans. The action-oriented learning dimension of DRR education offers hands-on experience of participatory citizenship education.

Resilience building embraces both *mitigation* and *adaptation*. *Mitigation*, at one level, is about reducing or limiting the potential threat from hazard. At this level, it overlaps considerably with *adaptation*, (i.e., adjusting human or natural processes to modify the effects of hazard, for example, changing an agricultural method to cope with drought). At a deeper level, mitigation concerns examining how and to

what extent human activities may contribute to increasing frequency and severity of hazard, and how to effect fundamental changes in human behavior (e.g., encouraging consumer behavior changes toward sustainable consumption). In practice most DRR education has stopped short of this deeper level, limiting itself to mitigating the *effects* of hazard.[26]

Dimension 5: Building an Institutional Culture of Safety and Resilience

DRR in education is understood to have both structural components, such as school buildings and facilities, and non-structural elements, such as school disaster management, school policy development, disaster drills and procedures and formal, non-formal and informal learning.[27] The latter covers 'any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts'.[28] The fifth and final dimension places an emphasis on blending the structural and non-structural elements so that the school becomes a *DRR learning community or organization* oriented towards building a culture of safety and resilience. It involves principals and teachers in looking for possibilities to give a voice to students in the curriculum, in their daily lives and in the processes of the school regarding both structural and non-structural aspects of safety and resilience building. In such a blending

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26   Kagawa, F. & Selby, D. 2012. 'Ready for the Storm: Education for Disaster Risk Reduction and Climate Change Adaptation and Mitigation', *Journal of Education for Sustainable Development*, 6 (2) (forthcoming).

27   UNISDR/ECHO/UNICEF. Undated. *Safe Schools in Safe Territories: Reflections on the Role of the Educational Community in Risk Management*. http://www.unisdr.org/we/inform/publications/8962

28   http://www.unisdr.org/we/inform/terminology
See also: Wisner, B. 2006. *Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction*. Bangalore: Books for Change. pp. 32, 44.

the school becomes a DRR learning laboratory – the campus becomes part of the curriculum.

Possible elements/activities include learner involvement in school DRR policy development, learner engagement with technical personnel on structural safety aspects of the school, learner management of school hazard bulletin boards, student run vulnerability assessments of the school as practice for their resilience building projects in the community, student presentations of in-class or in-community DRR work at school assemblies, and establishment of a school and community DRR council with student membership.

Implementation of the Five Dimensions

The implementation of the five DRR education dimensions outlined above is based upon a way of seeing the world and education that is holistic, integrative, interdisciplinary (i.e. involving and interrelating all school subjects) and also trans-disciplinary (i.e. involving 'real-life' experience unconstrained by disciplinary considerations).

The recent global mapping study of DRR curriculum makes clear that so far fully-fledged implementation of DRR education is a rare occurrence. Drawing on the study, Figure 3 below offers an indicative representation of the

Curriculum Developers: Use Tool 1 (Annex 2, p. 176) as a baseline study exercise or at various points in the DRR curriculum development process

FIGURE 3

Frequently, Less Frequently and Rarely Addressed Dimensions of DRR Education

Dimension 1
Understanding the Science and Mechanisms of Natural Disasters

Dimension 5
Building an Institutional Culture of Safety and Resilience

Dimension 2
Learning and Practicing Safety Measures and Procedures

Dimension 4
Building Community Risk Reduction Capacity

Dimension 3
Understanding Risk Drivers and How Hazards Can Become Disasters

Frequently addressed

Less Frequently addressed

Rarely addressed

degree to which each of the five dimensions of DRR education are currently being addressed in practice. Dimensions 3, 4 and 5, the figure indicates, are less frequently or rarely addressed within DRR curricula. (To analyze the baseline in your country, you can use Tool 1 that is provided in Annex 2, p. 176)

FIGURE 4

Integration of DRR in a Comprehensive School Safety Framework

Source: Global Alliance on Risk Reduction and Resilience in the Education Sector. 2013.

Locating DRR Education Curricula within a Broader School DRR Framework

Curriculum integration of DRR is only one small area of a comprehensive approach to creating safe schools. As Figure 4 shows, comprehensive school safety rests on three pillars:

1. Safe Learning Facilities
2. School Disaster Management
3. Risk Reduction and Resilience Education

Integration of DRR into the curriculum falls under pillar number 3, *risk reduction and resilience education*, but also encompasses important overlaps with pillars 1 and 2.

A multi-hazard risk assessment is the foundation for planning of Comprehensive School Safety. It is part of a broader analysis of education sector policy and management in order to provide the basis for planning and action.

1.4 Bringing Together DRR Education and Climate Change Education

Like DRR education, climate change education (CCE) is an educational response to present and anticipate an increase in both the severity and frequency of hazard around the world. A report on the human impact of climate change from the Global Humanitarian Forum describes a 'silent crisis' of climate change that is already causing over 300,000 deaths, seriously affecting 325 million people and bringing about economic loses of US$125 billion every year.[29] Rising average temperatures are causing sea levels to rise and are threatening low-lying coastal areas, while bringing drought and aridity to other environments and communities where once crops

grew well, and generating unpredictable storm behaviors threatening still other communities with flooding and destruction. These effects, in turn, are exacerbating poverty, hunger and disease, threatening economies, heightening inequalities, and leading to increasing population displacement. Disasters are, in many cases, the tangible outcomes of climate change's 'silent crisis'.

DRR education and CCE have followed a broadly parallel development path:

- CCE, like DRR education, was initially seen as the curriculum domain of science and geography, CCE focusing on understanding the mechanics of greenhouse gas release and the consequent warming of the climate, DRR education focusing on the mechanics of weather-related and geo-seismic events;

- Recently both fields have adopted more of an interdisciplinary stance in which social, economic, cultural and scientific dimensions of hazard and disaster are treated across the curriculum;

- Both fields also recently turned their attention to in-community learning engagement for resilience building, adaptation and impact mitigation in the face of hazard,

Somewhat belatedly both CCE and DRR education have recognized the importance of having learners critically engage with driving forces that exacerbate global warming and increase the threat of hazard such as growth models of development, unsustainable consumption patterns including energy usage, environmental degradation and unequal distribution of social and economic rights.

There is a strong case for convergence of DRR education and CCE, because they both work with many of the same concepts and seek to mobilize communities behind reducing disaster

Policy Makers/ Curriculum Developers: 1.4 argues that DRR and climate change awareness, adaptation and mitigation should be addressed as one curriculum initiative.

29 Global Humanitarian Forum. 2009. *The Anatomy of a Silent Crisis*. Geneva: Global Humanitarian Forum. p. 1.

vulnerability and effects. Furthermore, there are emerging positive synergies in efforts to promote CCE as an adaptation strategy and efforts to integrate DRR into the education sector.

1.5 Bringing Together DRR Education and Conflict Risk Reduction Education

Violent conflict is an even larger factor contributing to children staying out of school or dropping out of school than disasters are. Education in conflict-affected and fragile contexts remains an unfulfilled promise for many. Of the 57 million children worldwide who are out of primary school, more than half live in conflict-affected fragile states.[30] Not only school attendance, but also the quality of education of those affected by violent conflict or disasters is negatively impacted by those phenomena. It is therefore important not only to minimize the negative effects of conflict on education systems, but to see education as one of the key areas where the foundations for a peaceable society can be built. That being the case, the integration of peace and conflict skills into the education sector brings tangible benefits for all societies, not just those which are experiencing violent conflict or are post-conflict societies.

There are several frameworks that aim to comprehensively integrate conflict issues into the education sector. This guidance tool has already discussed the conflict and disaster risk reduction (C/DRR) education framework earlier in this chapter. Another framework, developed by the International Network for Emergency Education is conflict sensitive education, which offers strategies for developing and

implementing programs and policies in all types and phases of conflicts.[31]

The curriculum content for conflict risk reduction (CRR) education and conflict sensitive education frameworks is largely based on peace education, a discipline that has been developing steadily since the 1970/80s and is therefore more developed than the relatively young field of DRR education.

CRR and DRR education have an array of synergies, which make them mutually enriching if integrated:

- Both take a thorough look at risks and risk drivers;
- Both have embraced multi-disciplinary and trans-disciplinary teaching and learning;
- Both have developed a strong focus on mixing curricular and extra-curricular activities;
- Both are resilience-oriented and have a natural direction towards community integration into teaching and learning activities;

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30 UNESCO. 2011. *The Hidden Crisis: Armed Conflict and Education. Education for All Global Monitoring Report.* Paris:UNESCO

31 INEE. *Conflict Sensitive Education Toolkit.* http://toolkit.ineesite.org/toolkit/Toolkit.php?PostID=1148

BOX 4

Defining Peace Education

Peace education is the process of promoting the knowledge, skills, attitudes and values needed to bring about behavior changes that will enable children, youth and adults to prevent conflict and violence, both overt and structural; to resolve conflict peacefully; and to create the conditions conducive to peace, whether at an intrapersonal, interpersonal, intergroup, national or international level.

Source: Fountain, S. 1999. Peace Education in UNICEF. Working Paper. Education Section Programme Division. UNICEF: New York

- Both use methods of quality education (see section 1.6) and both are based on a whole school picture;

- Both focus on strengthening relationships and are transformative in nature, therefore having a strong potential of fostering peacebuilding.

Despite the above synergies, there are certain issues that might complicate a joint and comprehensive integration of CRR and DRR education into the curriculum. CRR education is often seen as more politically sensitive than DRR education and therefore the decision making processes surrounding the integration of CRR into the education sector might take longer and slow down that of DRR education. Given that the terminology of peace and conflict can be politically sensitive in certain countries, peace education has been and can alternatively be framed, for example, as civics education, human rights education, or peacebuilding education with most of the core concepts remaining unaltered in the process. Integrating both conflict and disaster risk creates a larger scope than a single issue focus, requires the inclusion of at least two different groups of experts and more ambitious efforts on teacher training, since both, while multi-disciplinary, have different carrier subjects. Currently, there are few materials supporting a comprehensive integration of both DRR and CRR education.

1.6 DRR Education as Contribution to Quality Education

The Nature of Quality Education

As understandings and expressions of the nature of quality education evolve, some constant elements remain. Among these are *relevance, learner-friendliness, change responsiveness and participation*. Quality education curriculum:

- Keeps abreast of change in a fast-changing world while fostering skills and competencies enabling responsiveness to change;

- Has context-, social- and culture-specific relevance to the learner, building from the learner's already rich storehouse of knowledge and lived, local experience;

- Enables the learner to be change-adept, deploying diverse interactive and participatory learning processes;

- Offers safe and inclusive learner-friendly environments that recognize individual learning needs and styles and the rights of the child;

- Fosters skills, values and dispositions for community participation.[32]

32   UNESCO. Undated. *Contributing to a More Sustainable Future: Quality Education, Life Skills and Education for Sustainable Development*. Paris: UNESCO. No pagination. and INEE. 2010. *INEE Minimum Standards for Education: Preparedness, Response and Recovery*. New York: INEE. p. 122

Policy Makers/ Curriculum Developers: 1.6 brings together a number of key initiatives under the one heading of quality education.

BOX 5

Quality Education

Quality is a dynamic concept that has constantly to adapt to a world in which societies are undergoing profound social and economic transformation. Encouragement for future-oriented thinking and anticipation is gaining importance. Old notions of quality are no longer enough. Despite the different contexts there are many common elements in the pursuit of quality education, which should equip all people to be fully participating members of their own communities and also citizens of the world.

Source: Taken from Ministerial Round Table on Quality Education, 2003 cited in UNESCO. Undated. *Contributing to a More Sustainable Future: Quality Education, Life Skills and Education for Sustainable Development*. Paris: UNESCO. p. 2.

Bringing DRR edcuation and CCE together within an ESD framework presents a major opportunity for taking quality education forward. Education directed towards building resilience and sustainability is:

- Of core *relevance* to nations and communities around the world;
- Significantly *change responsive* while fostering participation in change processes;
- *Learner-friendly* in its focus on the immediate world of the child and its pedagogy of engagement.

Inextricably bound together with DRR education/CCE/PCE/ESD in the achievement of quality education are two further initiatives: *Life Skills Education* and the *Child-Friendly Learning*.

Life Skills Education

Life skills are identified as skills required for personal and social competence, for exercising social responsibility, for contributing to the wider community and for lifelong adaptation to change. Life skills education is concerned with the systematic practice and learning of life skills within learning programmes. By definition, acquiring a skill involves active participation in its practical application rather than passive learning.[33]

Although there are diverse listings of what constitute life skills depending on cultural and national contexts, the following three broad categories capture the essence:

- Communication and interpersonal skills (e.g. interpersonal communication skills; empathy building; cooperation and team work; advocacy skills);
- Decision making and critical thinking skills (e.g. problem solving skills; lateral thinking skills);
- Coping and self-management skills (e.g. skills for increasing personal confidence and abilities to assume control, take responsibility, make a difference, or bring about change; skills for managing feelings; skills for managing stress).[34]

Life skills education is designed to address urgent challenges which children and youth face in today's world, including disease, poverty, violence, environmental threats, and discriminations. It is already incorporated into the formal national curriculum of some 70 developing countries.[35]

Life skills are fundamental to the five dimensions of DRR education laid out in Section 1.3. Skills such as critical thinking, decision making, problem solving, negotiation, conflict management, information management and change agency and advocacy are crucial for active engagement with processes of community resilience building, disaster adaptation and mitigation.

Child-Friendly Learning

The 1989 UN Convention on the Rights of the Child (CRC) has provided a framework for the development of a rights-based and

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33   Pike, G. & Selby, D. 1999. *Global Education: Making Basic Learning a Child-friendly Experience*. Amman: UNICEF MENARO. pp. 23-8; and UNESCO. Undated. *Contributing to a More Sustainable Future: Quality Education, Life Skills and Education for Sustainable Development.* Paris: UNESCO. No pagination.

34   WHO. 2001. *Skills for Life*. Geneva: WHO. p. 8.

35   UNICEF. *Life Skills Based Education*. http://origin-www.unicef.org/education/index_focus_lifeskills.html

child-centered, or child-friendly, approach to achieving the overall goals of quality education. Over its 53 articles the Convention considers the child holistically as rights holder and beneficiary, deserving of protection and safeguarded development, while also having a voice and the right to participate.[36]

The child survival and protection rights enshrined in CRC clearly find resonance in the safety dimension of DRR. It is a child's right to learn how to stay safe in home, school and community.

Translated into the context of DRR education, it follows that children have the right to participate in decisions and efforts to protect their own safety and well-being in the face of actual and potential threats, and to join in reducing vulnerabilities and building resilience in their own

community. It is for these reasons that child-led and child-centered DRR education is already being advocated and practiced by child-focused agencies such as UNICEF, Plan International and Save the Children, among others.[37] Further application of accumulated experience and insight from child-centered pedagogies to DRR curriculum reinforces the letter and spirit of CRC while also contributing to quality education in terms of content, process, learning environment and learning outcomes.

The characteristics of rights-based, child-friendly learning enhance a vision of quality learning that brings together sustainability-underpinned DRR education and CCE infused throughout with life skills practice.

36   OHCHR. 1989. *Convention of the Rights of the Child*, http://www.ohchr.org/en/professionalinterest/pages/crc.aspx

37   For more information see: http://www.unicef.org/files/DDR_final.pdf; http://plan-international.org/about-plan/resources/publications/emergencies; http://www.savethechildren.org.au/what-we-do/climate-change-and-disasters/disaster-risk-reduction

BOX 6

Children's Charter: An Action Plan for Disaster Risk Reduction for Children by Children

The Children's Charter for Disaster Risk Reduction has been developed through consultations with more than 600 children in 21 countries in Africa, Asia and Latin America.

1. School must be safe and education must not be interrupted.
2. Child protection must be a priority before, during and after a disaster.
3. Children have the right to participate and to access the information they need.
4. Community infrastructure must be safe, and relief and reconstruction must help reduce future risk.
5. Disaster risk reduction must reach the most vulnerable.

Source: Taken from http://www.childreninachangingclimate.org/database/CCC/Publications/children_charter.pdf

STRATEGIC POINTERS FOR CHAPTER 1

→ **Policy Makers/Curriculum Developers**: Use the background material presented in 1.1 for legitimizing and prioritizing the need for fast action to integrate DRR in the curriculum.

→ **Policy Makers/Curriculum Developers/Teacher Educators/ Principals/ Teachers/ Local Officials/DRR Education Stakeholders**: Use the five essential dimensions of DRR learning as a yardstick in developing a holistic and comprehensive approach to DRR integration in curriculum development, teaching and learning, institutional and professional development.

→ **Policy Makers/Curriculum Developers**: Consider a holistic multi-risk approach to curriculum integration, including both conflict risk reduction and disaster risk reduction education.

→ **Policy Makers/Curriculum Developers**: Implement ESD and DRR education together as a cost-effective and time-effective strategy to reduce the demands on teachers and pressure on an overloaded curriculum.

→ **Policy Makers/Curriculum Developers**: Proceed with DRR education curriculum development, even where no ESD platform exists.

→ **Policy Makers/Curriculum Developers**: Link DRR and CCE as a theoretically sound and pragmatic move that saves time and money and avoids teachers feeling 'curriculum overload'.

→ **Policy Makers/Curriculum Developers**: If the context allows, link all the initiatives described in Section 1.5 under the one heading of quality education.

1.7 Selected Tools and Resources

- Anderson, A. 2010. *Combating Climate Change through Quality Education.*
  http://www.brookings.edu/research/papers/2010/09/climate-education-anderson

  This policy review offers a framework to address climate change education by mobilizing the existing education communities of practice through promotion of an education for sustainable development agenda that incorporates disaster risk reduction, quality learning as well as environmental and climate change education.

- *IIEP/UNESCO/UNICEF. 2011. Guidance Notes for Educational Planners. Integrating conflict and disaster risk reduction into education sector planning. Paris: IIEP.*

  This guidance notes put forward strategies on how to mainstream conflict and disaster risk reduction measures in the education sector planning process.

- *INEE. 2013. Guidance Note on Conflict Sensitive Education. New York: INEE.*
  http://toolkit.ineesite.org/toolkit/Toolkit.php?PostID=1148

  This guidance note offers strategies for developing and implementing conflict sensitive education programs and policies. It offers guidance on conflict sensitive education design and delivery at all levels and in all types and phases of conflict.

- Karpinska, Z. 2008. *Disaster Risk Reduction: Education Policy Review*. Johannesburg: ActionAid.

  This report critiques the tendency in the DRR education field to focus only on natural and technological disasters and calls for a more holistic rendition of DRR to cover disasters such as conflict and HIV/AIDS.

- OECD. 2010. *Policy Handbook on Natural Hazard Awareness and Disaster Risk reduction Education.*
  http://www.oecd.org/dataoecd/24/51/42221773.pdf

  This handbook offers policy guidance on natural hazard awareness and DRR education.

- UNESCO. 2010. *Education for Sustainable Development and Climate Change. Policy Dialogue 4*. UNESCO, Paris.
  http://unesdoc.unesco.org/images/0017/001791/179122e.pdf

  After highlighting rationales for re-orienting education to address the causes and consequences of climate change, this short document lists key concepts, contents, values and skills to be integrated into educational programmes.

- *UNESCO. 2010. UNESCO Strategy for the Second Half of the United Nations Decade of Education for Sustainable Development. Paris: UNESCO.*
  http://www.preventionweb.net/files/15341_unescostrategyfortheunitednationsde.pdf

  This paper highlights key regional challenges and opportunities as well as key strategic areas of action for the second half of the UN Decade of Education for Sustainable Development. DRR appears as one of the key considerations.

- *UNESCO Bangkok/ UNICEF. 2011. Disaster in Education: An Imperative for Education Policymakers. Bangkok: UNESCO Bangkok.*
  http://unesdoc.unesco.org/images/0021/002139/213925e.pdf

  This brochure highlights why and how Ministry of Education policy makers should mainstream DRR education in all aspects of the education sector.

- *UNESCO/UNEP. 2011. Climate Change Starter's Guidebook: An Issues Guide for Education Planners and Practitioners.*

SECTION 2

A FOUR STAGE APPROACH TO DRR CURRICULUM DEVELOPMENT

Introducing the Four Stages in Disaster Risk Reduction Curriculum Development

This technical guidance breaks the DRR curriculum development process into four stages. This enables a clear description of the process in an easy to follow format and can be adapted into a checklist for the different actors invovled.

Users of this technical guidance should be aware that curriculum development is not a straightforward process. Given the range and number of stakeholders involved and their respective levels of engagement, following four stages in sequence may be difficult in reality. For example, a small number of dynamic champions of change may push ahead with curriculum development leaving those tasked with preparing the ground and legitimizing the development to catch up; enthusiasts may take the first tentative implementation steps before learning outcomes are fully determined; field pilot tests may bring to the surface learning outcomes not anticipated by the curriculum developers in their planning and preparation. In situations where decentralization or even localization of control and responsibility for curriculum is taking place, but where central government retains a monitoring and potential interventionist role, the process can become even more complicated.

A Detailed Breakdown of the Four Stages

STAGE 1 — Initial Planning and Ground Preparation

- Determining the need for curriculum development and building broad-based general consensus around the need
- Unifying stakeholders around the general need
- Conducting a 'state of the art' investigation of the existing curriculum, its operation and delivery through a curriculum review, baseline study or needs assessment
- Building consensus around specific needs revealed through the 'state of the art' investigation
- Determining the focus (curriculum and grade location) for curriculum development
- Establishing a schedule, with milestones and deadlines, for the curriculum development process
- Setting up a curriculum development team, determining the roles and responsibilities of team members, and establishing the modus operandi for collaboration, teamwork and meetings

STAGE 1 is discussed in Chapter 2 which looks at planning and progressing DRR curriculum development.

STAGE 2 — Preparing the Curriculum

- Determining learning outcomes (knowledge, skills, attitudes and behaviors) to be realized through the new curriculum
- Selecting and sequencing curriculum content that will help realize the outcomes determined
- Translating the selected content into age-appropriate learning materials.
- Developing learning activities with supporting stimulus materials designed to realize the outcomes determined
- Reviewing and analyzing existing curriculum materials and activities and evaluating them for possible inclusion in the curriculum programme (i.e., to avoid 'reinventing the wheel')
- Soliciting feedback from stakeholders, including panels of experienced teachers on the curriculum materials, and redrafting where appropriate

STAGE 2 is divided into three chapters, with Chapter 3 looking at DRR learning outcomes and competencies, Chapter 4 looking at horizontal and vertical integration of DRR into the curriculum, and Chapter 5 looking at the development of DRR learning programs, activities and materials.

STAGE 3 — Implementing the Curriculum

- Identifying schools and teachers for pilot delivery of the new curriculum
- Training the pilot teachers to teach the new curriculum
- Undertaking, monitoring and evaluating the pilot implementation
- Revising the curriculum materials and activities and training programme in the light of the pilot evaluation
- Undertaking further rounds of teacher training and pilot testing (with a widening population of schools and teachers)
- Conducting widespread training of teachers (following their participation in 'training of trainers' events)
- Incorporating the new materials and activities into pre-service teacher training
- Securing formal acceptance of the curriculum by national, regional or local jurisdictions

STAGE 4 — Monitoring, Evaluating and Refreshing the Curriculum

- Developing data collection strategies for periodic evaluation of the impact and quality of the new curriculum, its effectiveness in realizing anticipated learning outcomes, and to identify any unanticipated effects and impacts (positive or negative)
- Writing monitoring and evaluation reports
- Establishing mechanisms for evaluation-informed periodic curriculum revision

The detailed description of the four stages is followed by Chapter 10 which goes a step further to discuss the whole school approach and how DRR curriculum can be connected with safe school management.

Chapter 2
Getting Started with Disaster Risk Reduction Curriculum Development

Chapter 2 looks at the first of the four stages of the curriculum development process, focusing on initial planning and ground preparation. It makes the point that the important groundwork for curriculum development not only comprises the inclusion of substance and process, but also partnership building among different stakeholders. It starts by looking at the importance of partnerships in developing DRR curricula, providing a list of stakeholders in the curriculum development process. It also highlights the importance of networking mechanisms to support the curriculum development process.

Following this, it discusses the importance of a baseline study or curriculum review in the preparatory stage of the process. It also notes that in countries where a radical revision of the curriculum is already underway, forward-looking roadmaps can be developed instead of baseline studies or curriculum reviews. In addition, the chapter highlights the need for consensus building once baseline studies and curriculum reviews have been finished, as key stakeholders need to develop deep understanding and consensus around their tasks throughout the process. This is best achieved through a process of consultations.

2.1 Getting Started

Curriculum development is a complex process that involves a large number of stakeholders with different levels of technical knowledge. Therefore, laying the necessary groundwork is important to the overall success of the process. This groundwork not only comprises the inclusion of substance and process, but also the building of partnerships between different stakeholders.

For that reason, this chapter looks at the aspect of partnerships, networking and consensus building, in addition to discussing more substantive issues, such as baselines, reviews and roadmaps. The chapter closes by discussing several methodologies for curriculum development processes.

As part of the HFA process, UNISDR has developed some recommended steps on how

BOX 7

DRR Curriculum Development: A Way of Getting Started

Education authorities eager to incorporate DRR and climate change education into their curricula often begin with the question "what is it, anyway?" In order to answer this question in a very practical way that every learner, teacher and their families can relate to, it is very helpful to start with those things that everyone agrees can and should be undertaken at the household and family level to reduce disaster risks.

The International Federation of Red Cross and Red Crescent Societies (IFRC) has compiled a template of the most universally found messages providing guidance to households in the areas of assessment and planning, physical and environmental protection, and developing response capacity. This template is available to serve as a starting point for the national or sub-national disaster management organization and key DRR/CC education stakeholders to select, localize and come to a consensus on the key messages with which citizens should become familiar. These personal and measurable behaviors can and should be explicitly linked to community risk reduction and broader policy advocacy processes, which citizens often feel are beyond their control.

Source: Marla Petal. See further details of key messages from the following: International Federation of Red Cross and Red Crescent Societies (IFRC). 2013. *Public Awareness and Public Education for Disaster Risk Reduction: Key Messages.* IFRC: Geneva.

to include DRR in the education sector and research community. (Tool 2. Annex 2, p. 177)

2.2 The Importance of Partnership

DRR takes the world of education and curriculum into new and unfamiliar territory. Entering this new territory calls for alliance and partnership. Experience shows that DRR curriculum integration and mainstreaming works best when the ministry or bureau responsible for national disaster and emergency management provides scientific and technical insights on hazard and DRR, while the ministry responsible for education, and/or its curriculum arm, provides curricular and pedagogical experience and expertise. This fundamental arrangement has been further enhanced through the involvement of other ministries and representatives of UN

BOX 8

DRR Curriculum Development Stakeholders

- Educators and professionals from the educational sector
- Ministry of education representatives and higher education policy makers
- Disaster and risk management experts
- Academics and research community representatives
- Parent and teacher associations
- Children and youth
- Private sector, public sector and communities
- Non-governmental and community-based organizations

Source: Taken from ISDR. 2007. *Words into Action: A Guide to Implement the Hyogo Framework*. p. 65.

agencies and non-governmental organizations working in the field of DRR or emergencies. The presence of disaster, emergency and climate change expertise and curriculum development expertise from higher education or research centers can also significantly enrich the process and outcomes of partnership.

Partnership is essential throughout the curriculum planning and development process. To strengthen the process, a high level agreement reinforced by memoranda of understanding and other agreements between key stakeholders is essential. As the detailed curriculum development work advances through the work of a technical working group, expert group or curriculum development group, ongoing and intensive partner engagement and collaboration are needed. At key moments throughout the curriculum development process, high-level personnel representing all partners need to visibly demonstrate their support and engagement.

Box 8 lists the stakeholders that should be involved in DRR curriculum development. This list is not exclusive and other possible stakeholders that bring practical experience and expertise in ESD to the curriculum development process depending on the context should be included. For example: stakeholders that can link DRR learning to climate change learning, such as climate researchers and meteorologists, or others involved in CCE. Life skills and child-friendly learning expertise are important in linking DRR curriculum development to the broader notion of quality education, as discussed in Chapter 1. In post-conflict situations, the inclusion of peacebuilding specialists should be considered.

While national partnerships are key, so are partnerships of regional stakeholders, especially

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where control of education and curriculum has been decentralized. Equally, with DRR's strong emphasis on learner community engagement (e.g., through vulnerability mapping and resilience building, hazard adaptation and mitigation, and safety procedures) there is a strong case for establishing local and community partnerships from the very outset of the curriculum development process. Pilot testing of curriculum and associated teacher professional development may be undertaken at a regional level while incorporating context-specific and indigenous experience into curriculum via local collaborations. Commitment to child-friendly learning would involve engaging children and youth in discussions on learning needs within local forums.

2.3 Networking

Networking mechanisms represent another form of partnership. They are not usually planned in the early stages of a national DRR curriculum development process but rather emerge as key non-governmental players recognize the need for greater coordination of efforts to influence and effect change. Box V. (Annex 1, p. 146) describes this scenario through the case of the Indonesian Consortium for Disaster Education.

A variant on the networking consortium approach is the Education Cluster. At the global level the 'cluster approach' was adopted by the Inter-Agency Standing Committee (IASC) to address gaps in humanitarian response and coordinate technical capacity. The cluster model has been replicated at country level with 38 national Education Clusters active as of March 2011.[38] In many cases Clusters, originally formed for emergency humanitarian response, have re-oriented themselves so as to provide education coordination dedicated to promoting comprehensive school safety, safe facilities, school disaster management and C/DRR and climate change adaptation education. In Vanuatu, for example, an Education in Emergency Cluster was established in 2007, led by the Ministry of Education with co-leadership from UNICEF and Save the Children. What began as a coordination mechanism for education in emergencies, the Cluster has transformed itself into an ongoing education sector coordination mechanism. It maintains an 'essential link' with the National Disaster Management Office (NDMO) at both national and regional levels, conducts participatory and community-based needs assessments, and gives attention to priority cross-cutting issues such as human rights and environmental protection. Its work plan includes integration of DRR into formal curriculum in consultation with the Curriculum Development Unit (CDU) of the

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38   http://oneresponse.info/GlobalClusters/Education/
Pages/Country%20Implementation.aspx

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Ministry of Education, CDU being represented in the cluster. The Ministry of Education as such is also represented, as are the NDMO, UNICEF, Save the Children and other non-governmental organizations. The Cluster, meeting periodically to share and review developments, maintains a documentary clearinghouse of DRR curricular materials.[39]

In addition to the IASC Education Cluster discussed above, Box VI lists a number of global networks and partnerships for DRR education initiatives, such as Children in a Changing Climate, the Coalition for Global School Safety and Disaster Prevention Education, the Global Facility for Disaster Reduction and Recovery, the Inter-Agency Network for Education in Emergencies, among others (Annex 1, p. 147).

2.4 Baselines, Reviews and Roadmaps

During the preparatory stages of the curriculum development process, an examination of the 'state of the art' of existing DRR curriculum and curriculum-related policy is a key element for a number of reasons:

- If a baseline study, curriculum review or needs assessment is not undertaken, there is a risk

that what is developed, however promising, will neither meet the needs of learners and teachers nor fill gaps in curriculum provision.

- The study, review or assessment establishes a benchmark against which subsequent developments can be measured and evaluated.

- A report identifying strengths, weaknesses, blind spots, gaps in provision and unfulfilled needs as perceived by students, teachers, trainers and curriculum developers can shift consensus amongst key stakeholders from one of passive good intention to one of active commitment.

- A study, review or assessment enables broader awareness of existing education authority guidance on school disaster management, emergency procedures and school drills that the curriculum can reinforce and of the education authorities' full curriculum renewal cycle for each subject.

A comprehensive approach to DRR integration into the education sector, particularly if it follows a holistic risk and resilience approach should start with an education sector diagnosis which should only then be followed by baseline studies, curriculum reviews or needs assessment.

Undertaking a baseline study or curriculum review is a task that often falls to members of a DRR curriculum development team but

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39   Vanuatu Ministry of Education. Undated. *Memorandum of Understanding: Education Cluster*. Port Vila: Ministry of Education.

is sometimes handed over to independent consultants. A consultant can bring an independent, interrogative and freshly critical perspective to the task, in many cases having no history of involvement in the DRR curriculum landscape under review. On the other hand, if hired from outside, a consultant may be less familiar with the relevant contexts, including the culture of schooling.

While overlapping in many regards, the curriculum review and baseline study differ somewhat in scope and methodology. A curriculum review is a largely documentary-focused and desk-based process for reviewing curriculum policy and curriculum. Interviews, questionnaires and workshop sessions are sometimes used in addition to elicit views on actual and potential DRR-related curriculum content and materials. Similarly, a baseline study involves documen-tary review of curriculum policy and curriculum, but often employs a broader range of empirical research approaches to analyze pedagogy, teacher education provision, student needs and perceptions, community perspectives and the potential of curriculum development mechanisms to enable change, and institutions and networks ranging from the national through local level. For some examples on how countries approached this task, see Box VII. (Annex 1, pp. 148-9)

In countries where a radical revision of curric-ulum is already underway, curriculum reviews or baseline studies of existing but soon out-of-date disaster-related provision are an unneces-sary exercise. Instead, a more forward-looking mechanism that maps out DRR potential within the new national curriculum framework tends to be employed. For example, in Lesotho, a new national curriculum – replacing the standard academic model with a skills-clusters ('curric-ulum aspects') and broad 'learning area' model – is being incrementally implemented from

January 2012. In October 2009, UNDP and the National Disaster Management Authority (NDMA) of Lesotho hosted a two-day workshop on curriculum mainstreaming of DRR for members of the National Curriculum Development Centre (NCDC), the body responsible for planning the new curriculum. By the end of the workshop, participants had developed a detailed roadmap for integrating DRR into the new national curriculum for all grades of basic education (grades 1-10). The outcome is the integration of DRR in the new national curriculum through eight modules, each of which is being linked to specific skills development and learning areas. Pilot tests of the new curriculum in grades 1-3 began in January 2012.[40]

More frequently, curriculum revision will be addressed through a multi-year cycle, subject-by-subject. Those undertaking curriculum base-line studies or reviews need to understand this cycle and, in their proposals and recommenda-tions, factor in long-term support for all subject curriculum development efforts according to respective subject cycles. While necessitating longer-term commitment, the trend towards increasing international cooperation in sharing curriculum development resources makes things easier.

2.5 Consensus Building and Consultative Processes

Initial readiness on the part of stakeholders to meet together to discuss integration of DRR in the curriculum is itself an indication that some degree of consensus exists. Building the needed consensus to develop curriculum and bringing it to scale is achieved through

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40   UNESCO/UNICEF 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. pp. 118-21.

negotiated stakeholder agreement on values, aims and objectives, curriculum content, pedagogical development, programmes and modes of professional development as well as on processes of curriculum writing, monitoring and evaluation, reporting, advocacy and dissemination.

Some consensus will be achieved while those involved in the curriculum development process digest, debate and discuss the findings and analysis of a curriculum review or baseline study. There is, however, a case for incorporating a series of exercises into the process that enable key stakeholders with hands-on responsibility in the process to reach deep understanding and consensus around their task.

Three examples of consensus building processes are included in the Tool Box (Annex 2, pp. 176-202). Tool 4 describes a highly structured consensus and collegiality-building programme providing a pathway into curriculum development. Tools 4 and 5 (pp. 179-81) are exercises that can be employed to reach a shared understanding of aspects of the curriculum development task.

BOX 9

Four Key Approaches to Mainstreaming DRR in School Curricula

Key Approach 1: Plan in advance of the National Curriculum Development Cycle

- In every country curriculum revision is conducted on a 3 to 5 year cycle, the revision requiring a minimum of one year at any grade level. This infers a need to agreement in principle on the integration of disaster risk reduction well in advance of the year of revision to allow for all stages and steps of the curriculum development process to be undertaken in a measured way. Ideally, agreement in principle should also be reached early enough for cost implications of the proposed curriculum revision to be factored into future budgeting.

Key Approach 2: Establish Partnership between the Ministry of Education and National Disaster Management Office (or equivalent)

- While other collaborations are also important, a working relationship between the two branches of government are vital, with the Ministry of Education leading and NDMO providing technical and advocacy support.

Key Approach 3: Adopt a Consultative Process

- Collaboration should be widened to include other relevant ministries, key national and international agencies, non-governmental agencies and research institutes.

Key Approach 4: Link with other Education Sector Programmes and Processes

- Opportunities to link with and feed DRR into other national, provincial or district-based educational initiatives should be leveraged.

Source: Asian Disaster Preparedness Center (ADPC)/Regional Consultative Committee on Disaster Management (RCC). 2007. *Integrating Disaster Risk Reduction into School Curriculum*. RCC Guideline 6.1. 3-7.

Policy Makers/ Curriculum Developers: For linking DRR to key aspects of quality education, including ESD, refer back to Chapter 1 (pp. 17-35

2.6 Curriculum Development Processes

The Asian Regional Consultative Committee (RCC) on Disaster Management has developed four key approaches to mainstreaming DRR in school curricula. They are outlined below, providing a means to summarize, synthesize, and concretize the stages and steps discussed thoughout this chapter.

The RCC also suggests a six-step approach to curriculum development, very much overlapping with the stages and steps described in this chapter, but viewing the process from a governmental perspective. For details, see Tool 6 (Annex 2, p. 182).

For an illustration of a successful, government-supported process of DRR curriculum integration, see Box VIII (Annex 1, p. 149).

STRATEGIC POINTERS FOR CHAPTER 2

→ **Policy Makers/Curriculum Developers**: At all levels - national, regional and local – ensure and maintain a link with the National Disaster Management Office (NDMO) in the DRR curriculum integration process.

→ **Policy Makers/Curriculum Developers**: Ensure that a wide range of other partners are brought into the curriculum development process including, circumstances allowing, those versed in education for sustainable development, climate change education, life skills education and child-friendly schooling.

→ **Policy Makers/Curriculum Developers**: Encourage and give importance to the development of national and sub-national networks dedicated to implementing and advocating DRR education.

→ **Policy Makers/Curriculum Developers**: Ensure that a quality DRR baseline study, curriculum review and/or needs assessment is undertaken early in the process using participatory and community-based consultation processes to enhance stakeholder consensus and engagement.

→ **Curriculum Developers**: If radical national curriculum change is underway, look for DRR potential within the new curriculum and determine a roadmap for its inclusion.

→ **Curriculum Developers**: Take time to deepen consensus around the curriculum to be developed and the detailed process to be followed in developing and implementing curriculum, using tools such as those described in this chapter.

→ **Curriculum Developers**: Wherever possible, plan in advance of the national curriculum cycle to ensure that DRR curriculum development takes place in step with the cycle and that costs for moving curriculum development to scale are factored into budgeting.

→ **Policy Makers/Curriculum Developers**: Plan to embed DRR curriculum development initiatives into other national, sub-national and local education initiatives.

2.7 Selected Tools and Resources

- *Asian Disaster Preparedness Center (ADPC)/Regional Consultative Committee on Disaster Management (RCC). 2007. Integrating Disaster Risk Reduction into School Curriculum. RCC Guideline 6.1.*
  http://www.rccdm.net/index.php?option=com_docman&task=doc_view&Itemid=215&gid=25

  After a brief exploration of reasons for teaching DRR in school and brief discussion of DRR integration in the school curriculum, four key approaches to mainstreaming DRR in curriculum are reviewed as well as six implementation steps. Several case study examples are given.

- *Global Education Cluster. Undated. Disaster Risk Reduction in Education in Emergencies: A Guidance Note for Education Clusters and Sector Coordination Groups. UNICEF/Plan/ Save the Children.*
  http://haiti.humanitarianresponse.info/Portals/0/Education%20Cluster/DRR/Full_report_96.pdf

  This paper offers guidance on strategy, practical steps and examples of good practice before and during an emergency at national, sub-national and school/community levels.

- *Hovland, O. 2005. Successful Communication: A Toolkit for Researchers and Civil Society Organizations. London: ODI.*
  http://www.odi.org.uk/resources/docs/192.pdf

  Twenty-three tools are presented under four categories (planning tools, packaging tools, targeting tools, monitoring tools) are highly applicable to DRR education curriculum development context.

- *International Federation of Red Cross and Red Crescent Societies (IFRC). 2011. Public Awareness and Public Education for Disaster Risk Reduction: A Guide. IFRC: Geneva.*
  http://www.ifrc.org/Global/Publications/disasters/reducing_risks/302200-Public-awareness-DDR-guide-EN.pdf

  By synthesizing a range of DRR approaches used by the IFRC movement, this guide focuses on the following: campaigns, participatory learning, informal education and formal-school based interventions.

- *International Federation of Red Cross and Red Crescent Societies (IFRC). 2012. Public Education and Public Awareness for Disaster Risk Reduction: Key Messages. (Validation Project Version June 2012) Geneva: IFRC.*

  This publication provides a template of key messages for multi-hazard family and household disaster prevention, as well as for the following specific hazards: cyclones, drought, earthquakes, floods, pandemics and wildfires. Guidance is included for a process towards consensus-based adaptation and localization.

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- *INEE. 2010. Guidance Notes on Teaching and Learning. New York: INEE Coordinator of Network Projects and Communications.*
  http://toolkit.ineesite.org/toolkit/INEEcms/uploads/1004/
  Guidance_Notes_on_Teaching_and_Learning_EN.pdf

  This is designed to accompany and supplement the INEE Minimum Standards for Education: Preparedness, Response, Recovery. Guidance notes are given in the following four areas: curricula; training, professional development, and support; instruction and learning processes; assessment of learning outcomes. DRR is included as one of the thematic issues.

- *UNESCO IIEP & UNICEF WCARO. 2011. Integrating Conflict and Disaster Risk Reduction into Education Sector Planning. Paris: UNESCO IIEP.*
  http://www.iiep.unesco.org/fileadmin/user_upload/News_And_Events/pdf/2011/
  IIEP_Guidancesnotes_EiE_en.pdf

  This guide aims at assisting Ministry of Education officials in integrating conflict and disaster risk reduction (C/DRR) into an education sector plan, including guidance on: education sector diagnosis, policy and programme development, monitoring and evaluation, costing and finance.

- *UNISDR. 2007. Words into Action: A Guide for Implementing the Hyogo Framework. Geneva: UNISDR.*
  http://www.unisdr.org/files/594_10382.pdf

  This guide aims at providing useful advice on strategies for implementing the Hyogo Framework for Action. Section 3.2 addresses building a culture of safety and resilience through the educational system and research community.

Chapter 3
Formulating Disaster Risk Reduction Outcomes and Competencies

Chapter 3 focuses on the development of *learning outcomes*, introducing two approaches to learning-outcome development. It starts by defining the nature of learning outcomes, noting that DRR education should aim for learning outcomes that develop not only students' knowledge, but also skills and attitudes.

This is followed by the introduction to the learning outcomes approach to curriculum development, including a comprehensive list of generic DRR learning outcomes, including ten clusters of knowledge and understanding outcomes, seven clusters of skills outcomes and seven clusters of attitudinal and dispositional outcomes. Next, it introduces the competency-based approach to learning outcome development, which aims at developing students' competencies in line with future labor market and work force needs.

In addition, the chapter looks at ways to assess DRR learning, discussing formative and summative assessment methods. It also explores how best to align learner assessment and learning outcomes.

3.1 The Nature of Learning Outcomes

Learning comprises a complex mix of knowledge, understanding and skills, which endow the learner with a particular set of capacities and capabilities. Learning also includes the cultivation of values and attitudes that, along with our personal traits, help form our character, motivating us to use our knowledge, understanding and skills in particular ways and to particular ends.

Some initial explanations:

- A *learning outcome* is what results from a consciously structured process of learning. Statements of learning outcomes in curriculum documents are lists of what knowledge, understanding, skills and attitudes learners are intended to gain from a particular learning programme.

- Curriculum documents often begin with a list of aims. Aims are broad, aspirational statements that convey the intended overall purpose of a course. Unless broken down into specific learning outcomes, they are not easily translatable into concrete action steps in the learning process or into measurable yardsticks for assessment.

- Learning outcomes themselves should be sequenced through the grade levels so that an outcome achieved earlier in a learner's development paves the way for learning directed towards subsequent,

more sophisticated outcomes. This is called vertical curriculum integration and discussed in detail in Chapter 4.4, pp. 68-71.

The chosen learning outcomes in turn inform syllabus content, design of learning and teaching activities, the style and ethos of the learning and teaching process, the conduct of learning facilitation, as well as forms, styles and purposes of learner assessment. But, as Figure 5 indicates, this is not a linear arrangement. The chosen curriculum themes and topics, teaching/learning methods and forms of assessment all interact with each other, and

FIGURE 5

Learning Design

this influences the ultimate learning outcomes. As the detailed content of a programme is decided and materials and activities developed, overlooked learning outcomes will surface. Further, the delivery of a learning programme may result in *unintended learning outcomes*. If these are desirable, they can be added to the learning outcomes list and more consciously structured into the programme. If undesirable, remedial programme revision may be called for. Key elements in programme evaluation focus on the appropriateness of designated learning outcomes, the level of alignment between programme elements and learning outcomes, the degree of efficacy in realizing intended learning outcomes and in identifying and handling unintended learning outcomes.

Under the learning outcomes approach, what the curriculum developer is being asked to do is to find a balance between learning outcomes on the one hand, and all elements of course design, delivery and assessment on the other.

There are dangers in an overly rigid adherence to a learning outcomes approach to planning, development, delivery, assessment and evaluation. However, curriculum planners and evaluators need to bear in mind that real life is not as orderly as the approach assumes, and that real life involves disorderly forward movement, surprises, chaotic twists and turns, the unexpected and the unpredictable.

3.2 The DRR Learning Outcomes Landscape

A recent global mapping study of DRR curricula found no comprehensive listing of DRR-related learning outcomes. Most lists in evidence are linked to subject-based courses with hazard- and disaster-related learning outcomes based on the language of the carrier subject and written to primarily satisfy subject, rather than DRR, learning requirements.[41]

Amongst the learning outcome lists available, knowledge-based learning outcomes dominate, and only occasionally do knowledge outcomes appear in conjunction with outcomes directed towards conceptual understanding. DRR skills-based learning outcomes are evident but tend to be limited to practical safety-oriented skills rather than offering the full range of life skills that would arise from thoroughly addressing the five essential dimensions of DRR education. Learning outcomes geared toward the cultivation of attitudes and dispositions are rarely encountered. The overall impression is that learning outcomes are generally limited to what is strictly and easily measurable, as influenced by the prevailing assessment culture. Outcomes requiring the use of qualitative assessment modalities are generally avoided.

Just as the scoping and sequencing of DRR curriculum content remains a work in progress, so does the scoping and sequencing of learning outcomes. There is, as yet, no comprehensive elaboration of how learning outcomes can be vertically structured and no attempt to elaborate the weighting that different subjects might be given in any particular grade – nor cumulatively through the grades – toward realizing DRR learning outcomes.

3.3 Generic DRR Learning Outcomes

Only recently has the first comprehensive articulation of DRR learning outcomes been

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41   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 45.

published[42]. Box 10 lists ten clusters of knowledge and understanding outcomes, seven clusters of skills outcomes and seven clusters of attitudinal and dispositional outcomes. It aims to elaborate 'what a graduate from a *through-the-grades* and *across-the-curriculum* exposure to DRR should optimally know and understand, have the capacity to do and have internalized as a set of values and attitudes'.[43]

The outcomes are described as 'generic' in two senses. First, with appropriate adjustment, they can be applied to learning and teaching about any hazard. Second, with appropriate cultural and contextual modification, they have application and relevance to DRR curriculum development in different national, regional and local contexts.[44]

The connection between specific learning outcomes and the five essential dimensions of DRR learning is complex. Certain learning outcomes solely and substantively connect to one of the five dimensions. Other learning outcomes have a substantive connection to more than one dimension with some limited or indirect connection to the remainder. Some skills and most attitudes/dispositions outcomes have generalized relevance to all dimensions. Substantive linkages to one or more of DRR education essential dimensions 1-5 are noted in brackets in the list below while learning outcomes with generalized relevance to all dimensions are left unmarked.

42   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

43   Ibid. p. 51.

44   Ibid. p. 45.

BOX 10

DRR Learning Outcomes [with connections to the five essential dimensions of DRR learning indicated]

KNOWLEDGE AND UNDERSTANDING

Knowledge of self and others

- Learners understand their personal roles and responsibilities in times of hazard and disaster [2,5]

- Learners know their personal needs, concerns, hopes, aspirations, fears and preferred futures concerning hazards, disasters and disaster risk reduction [3,4]

- Learners have an understanding, grounded in practice, of personal attributes and competencies they can each call upon in times of hazard and disaster [2,5]

- Learners know of the special contribution that women in the community can make before, during and after a hazard has struck, the special roles they can play in social organization, and their special needs [4]

Knowledge of hazards and disasters

- Learners know of the causes and effects of various hazards and disasters (e.g. earthquakes, drought, floods, tsunamis, landslides, volcanic activity) [1]

- Learners know of past local disasters [1,3,4]

- Learners know of local bioregional hazards and potential sources of disaster [1,3,4]

- Learners know of local areas and populations that are vulnerable to disaster [1,3,4]

BOX 10 continued

- Learners know of the seasonality of particular hazards [1,3,4]
- Learners have a knowledge of local, national and global hazard and disaster trends [1,3,4]

Understanding of key disaster risk reduction concepts and practices

- Learners understand key disaster risk reduction concepts (e.g. hazard, disaster, emergency, risk, risk reduction, vulnerability, resilience), their application to specific hazard circumstances, and their concrete applications in the local community [2,3,4]
- Learners understand that disaster risk multiplies with the intensity of the hazard and the level of environmental and social vulnerability but that it can be reduced according to society's capacity to cope (see equation, p.7) [3,4]
- Learners understand the idea of a 'culture of safety' and how it applies to everyday personal and community life [2,4,5]
- Learners understand the economies of disaster risk reduction and the cost-effectiveness of disaster prevention [3,4]
- Learners have a practical understanding of key DRR practices (e.g. hazard mapping and monitoring, early warning, evacuation, forecasting) [2,4]

Knowledge of basic safety measures

- Learners know of precautionary, safety and self-protection measures to be taken before, during and after a disaster by their family, at community level, and at school [2]
- Learners know of warning systems in place to alert people to impending hazard [2]
- Learners know of first aid procedures [2]

Knowledge of disaster management mechanisms and practices

- Learners know of local, regional, national and international disaster response infrastructures and mechanisms [2,4,5]
- Learners know the roles and responsibilities of local, regional and national government, as well as of private and civil society sectors, before, during and after times of disaster [2,4,5]
- Learners know of locally-valued indigenous disaster risk reduction and disaster coping behaviors and mechanisms [4]

Knowledge of the environment and of the environmental/human society interrelationship

- Learners understand the idea of an ecosystem, how humans are actors within ecosystems, and that the consequences of environmentally unfriendly behaviors will work through the system to harm humans [3]
- Learners understand the specifics of how human behaviors and practices can harm the environment [3]
- Learners know of environmental issues impacting on their community; their causes, effects and amelioration [1,3]
- Learners know of examples, local through global, of how damage to the environment aggravates the incidence and severity of hazards [3]
- Learners understand the meanings and principles of conservation and know of practical conservation measures in their locality [3,4]
- Learners understand the concept of sustainable development and know of concrete and practical ways of living sustainably (including sustainable usage of land and natural resources) [3,4]
- Learners understand the inverse relationship between sustainable development and disaster [3,4]

Knowledge of climate change

- Learners understand the difference between 'weather' and 'climate' [1]
- Learners understand the dynamics of climate change [1,3]
- Learners understand that climate change is primarily human-induced and can identify patterns of behavior,

BOX 10 continued

practices and lifestyles that are causing the climate to change [1,3]

- Learners understand that climate change is exacerbating the incidence and severity of disasters [1,3]
- Learners know how to apply climate change learning to their own lives and to patterns of behavior in their community [4,5]

Knowledge of differential and disproportionate impacts of hazards on people

- Learners understand how and why disasters are more devastating for some communities while others are left relatively unscathed [3]
- Learners understand the concept of climate injustice, (i.e., that climate change is falling disproportionally on those least responsible, and know and understand proposals for 'climate justice') [3]
- Learners understand that children are often especially affected by disaster [3,5]
- Learners understand that disasters have differential impacts according to gender and socio-cultural status [3]

Knowledge of the conflict/disaster risk reduction interface

- Learners understand that personal or direct violence and structural or indirect violence (i.e. violence built into social structures and mores) can both cause and exacerbate disaster [3]
- Learners understand that climate change and other looming and imminent hazards can trigger violent conflict, and know of mechanisms and processes, interpersonal through international, for managing conflict and pre-empting violence [3,4]

Knowledge of human rights/child rights aspects of disasters

- Learners know of internationally agreed human and child rights and their implications for and applications in disaster scenarios [4,5]
- Learners know of rights likely to be curtailed and undermined by disasters, including the rights lost through disaster- and environmentally-induced migration [3]
- Learners know how to apply a rights and responsibilities perspective to disaster risk reduction and mitigation measures and procedures [4]

SKILLS

Skills of information management

- Learners have the ability to gather, receive, express and present information on disaster risk reduction
- Learners have the ability to classify, organize and sequence gathered information on disaster risk reduction
- Learners have the ability to determine and gauge the quality, likely accuracy, appropriateness, provenance, soundness and priority level of information received on disasters
- Learners have the ability to research and devise hazard maps and conduct vulnerability assessment [4,5]

Skills of discernment and critical thinking

- Learners have the ability to discern and interpret signs and signals of impending hazard [2]
- Learners have the ability to assess the level of danger presented by impending hazards [2]
- Learners have the ability to think creatively and divergently and move outside their established frameworks of reference in response to changing environments and emerging and evolving threats [2,4]
- Learners have the ability to think creatively and laterally so they can identify and facilitate opportunity within crisis [4,5]
- Learners possess the skills to pre-empt and circumvent threat and hazard through effective information management, out of the box thinking and intuition [4,5]

BOX 10 continued

- Learners have the ability to make ethical judgments about present and looming disaster situations [4,5]
- Learners have the ability to decode, deconstruct and learn from spoken, written and visual media information about hazards and disaster

Skills of coping, self-protection and self-management

- Learners have the practical skills set required to enable them to take all necessary measures for personal safety and self-protection before, during and after a disaster [2,5]
- Learners have the skills set required to collaboratively undertake hazard mapping and vulnerability assessment exercises [4,5]
- Learners possess first aid and other health-related skills [2]

Skills of communication and interpersonal interaction

- Learners have the ability to communicate warnings of impending hazard clearly and effectively [2,4]
- Learners have the ability to communicate what they have learned about hazards and disasters to families and members of the school and local community [2,4,5]
- Learners can communicate messages about risk, risk management options and environmental protection to family and community members, and can receive and understand messages through careful, active listening [2,4,5]
- Learners have the ability to engage in dialogue and discussion with peers, teachers, family and community members about hazards, disasters and disaster risk reduction, expressing opinions, feelings and preferences firmly but constructively and respectfully [2,4,5]
- Learners have the ability to effectively communicate about disasters and disaster risk reduction with people from different socio-cultural backgrounds [4,5]
- Learners have the ability to build and maintain the trust required from family, school and community enabling them to play a part in disaster risk reduction [2,4,5]
- Learners have the ability to work collaboratively and cooperatively with others towards reaching disaster risk reduction goals [2,4,5]
- Learners have the skills to negotiate to mutual satisfaction and manage conflict productively as they work towards disaster risk reduction [4,5]
- Learners have the ability to communicate disaster risk reduction messages using appropriate and creative modes of communication (e.g. brochures, arts, music, song, theatre, puppetry, posters, poems, social media, radio, film) [4,5]

Social/emotional Skills

- Learners have the ability to work through and express their emotional responses to threat and disaster openly and effectively [4,5]
- Learners have to ability to listen to, receive and empathize with the emotions felt and expressed by others [4,5]
- Learners have the ability to empathize with those threatened by hazard and harmed by disaster [4,5]

Skills of action

- Learners have the ability to make informed action decisions based on available data, observation, intuition, dialogue and discussion [2,4,5]
- Learners have the ability to work alone and/or with others in school and community contexts to effect change towards sound disaster risk reduction practices and behaviors [2,4,5]
- Learners have the ability to campaign for sounder disaster risk reduction measures using electronic and traditional media, drama performance, art, petitioning, lobbying and engaging in public forums where ideas are

BOX 10 continued

shaped and shared and decisions are made [4,5]

- Learners have the necessary skills set to implement precautionary and safety measures against hazard in the classroom, school, home and community [2,4,5]
- Learners have the necessary skills set to be able to assist victims and the vulnerable in case of disaster (e.g. first aid skills, rescue skills) [2]
- Learners have the skills set necessary for participating in early warning and evacuation drills [2,5]
- Learners have the skills set necessary for emergency response in times of hazard (e.g. light search, swimming, evacuation and creating an emergency shelter) [2]

Systemic Skills

- Learners have the ability to perceive relationally and identify interrelationships and interactions within ecosystems and between nature and human society, between eco-systemic wellbeing (or its absence) and community wellbeing and development (or their absence) [3,4]
- Learners have the ability to identify patterns, commonalities and relationships between different hazards and risks as well as different prevention and response mechanisms [3,4,5]

ATTITUDES/DISPOSITIONS

Altruism/valuing

- Learners recognize the intrinsic value of nature and wish to help protect their natural environment
- Learners recognize the intrinsic value of human life and of their community and wish to help protect all from harm
- Learners show a willingness to be involved in voluntary community activity
- Learners value and want to protect the special place where they live
- Learners value the global community of humankind and planet Earth

Respect

- Learners respect the diversity of perspective and opinion on disaster risk reduction in their community
- Learners respect the special contribution that all can make to disaster risk reduction
- Learners respect the rights of others in their concern for disaster risk reduction

Compassion, care and empathy

- Learners feel compassion for those threatened or affected by disaster
- Learners commit to an ethic of mutual help in times of hazard and disaster [2,4,5]
- Learners approach disaster risk reduction from an ethic of caring for future generations

Confidence and caution

- Learners appreciate the need to follow safety rules and procedures on any occasion [2,5]
- Learners apply a precautionary principle and risk awareness in their daily decision making and behaviors [2,5]
- Learners feel confident, empowered and resilient enough to cope with disasters

Responsibility

- Learners embrace a sense of responsibility to help protect themselves, their peers, their family and community from hazard and disaster
- Learners embrace a 'responsibility of distance' to those living far away who live with the threat of disaster

BOX 10 continued

Commitment to fairness, justice and solidarity

- Learners commit to fairness and justice as the basis upon which relationships between individuals, groups and societies should be organized [3]

- Learners commit to a stance of solidarity with those who are affected by natural disasters in their own and other societies

Harmony with the environment

- Learners embrace an ethic of care, kindness and respectfulness towards living things

- Learners acknowledge the specialness, beauty and fragility of nature and embrace an ethic of environmental protection and conservation

Source: Adapted from UNICEF/UNESCO. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.* pp. 46-51.

The selection of learning outcomes in any particular context will largely be determined by the prevailing view of the nature and scope of DRR education and of the depth and breadth of DRR curriculum integration felt to be feasible. Those seeing DRR education as limited to understanding natural hazards and building safety awareness will tend to opt for outcomes marked '1' and '2' together with some generalized outcomes. Those committed to a conception of DRR education framed and informed by education for sustainable development (ESD) will additionally give prominence to outcomes marked '3', '4' and '5' while integrating the full range of generalized outcomes. Those interested in establishing a DRR learning community or organization will also tend to work across the comprehensive range of learning outcomes listed above.

3.4 Developing Context- and Purpose-specific Learning Outcomes

The generic learning outcome clusters and specific learning outcomes listed in section 3.3 were arrived at by examining global DRR curriculum practice and cross-referencing these with DRR goals within a holistic ESD perspective. The result is not a final product, but a contribution to ongoing research, development, debate and exchange, rather than a final, definitive statement. DRR education curriculum developers should arrive at a list of learning outcomes appropriate to their context and task.

In this regard, the generic list can provide a starting point for discussion and development.

Tools 8, 9, 10, 17 (Annex 2, pp. 184-98) are a series of exercises in which the list of learning outcomes can be employed for the purpose of developing the curriculum and formulating and/or refining context-specific learning outcomes.

3.5 Competency-based DRR Curriculum Development

Another approach to DRR curriculum development originated with the idea of building students' competencies. A competency has been defined as: 'the ability to mobilize an integrated resource set (acquired knowledge, capacities, skills, etc.) to achieve a goal such as completing a complex task or solving a problem'.[45]

Competency-based curriculum planning reorients learning to meet workforce needs as defined by employers and professions. The approach asks what students need to know and be able to do in varying and complex workforce and real life situations. For each situation 'different bundles of skills, knowledge and attitudes' need to be drawn up, the challenge being to 'determine which competencies can be bundled together to provide the optimal grouping for performing tasks'.[46] In this case, curriculum is developed

45   UNESCO IBE. *Leading and Facilitating Curriculum Change: A Resource Pack for Capacity Development.* http://www.ibe.unesco.org/Curriculum/Rpack/des_structure.htm

46   http://www.ceph.org/pdf/Competencies_TA.pdf

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by identifying the types of situations in which students are likely to find themselves and need to handle competently in their post-schooling lives. From this, appropriate competency bundles are determined,[47] which then shape the content of learning programmes, the processes of teaching and learning, and the types of assessment.

Using competence as an organizing principle for curriculum development has been described as a 'way to bring real life back into the classroom'.[48] Implementing this approach requires active and participatory learning approaches that provide practice in using and applying competencies. Also essential is the use of a complex portfolio of diverse forms of assessment appropriate to testing the range of competencies in question. As with the learning outcomes approach, the vertically staged development of competencies is a challenge.

A weakness of the competency approach lies in its focus on competencies called for in existing and/or foreseen situations. There are concerns that teachers and students come to understand a competency only in relation to the identified situation and not as being transferable in other situations. The possibility also exists that the student may become accepting of, and competent within, existing contexts, including those marked by unsustainable modes of development, and will be unable to analyze and act to change those contexts. Caution is therefore recommended here because fields such as DRR education, CCE and ESD require students to, among other things, identify how human activity has exacerbated hazard and threat, and develop the capacities to participate in processes of fundamental change.

Nonetheless, a competency-based approach to DRR curriculum development is a viable option. Integrating DRR into the curriculum can follow the path of identifying hazard and disaster situations and challenges that students are likely to face, determining competency bundles for each situation and developing learning and assessment programmes based on the competencies identified. A process for employing the learning outcomes list in section 3.3 as part of a competency-based approach is described under Tool 10 in the Tool Box (Annex 2, p. 187).

3.6 Assessment of Learning

What is assessed and what is not assessed clearly indicates learning priorities. To be effective, a well-structured, cohesively integrated framework of DRR learning outcomes must be clearly reinforced through the

Curriculum Developers: Go to Chapter 4.4 (pp. 68-71) for discussion of DRR vertical curriculum integration

47   UNESCO IBE. *Competency-based Approaches*. http://www.ibe.unesco.org/en/communities/community-of-practice-cop/competency-based-approaches.html

48   Jonnaert, P., Masciotra, D., Barrette, j., Morel, D., Mane, Y. 2007. From Competence in the Curriculum to Competence in Action. *Prospects*, vo.37, no.2. p. 191.

appropriate assessment of students' learning. However, so far, DRR student assessment is the least considered and least developed aspect of DRR curriculum innovation.[49] For DRR to become fully infused in curriculum, 'constructive alignment' needs to be achieved between learning outcomes, on the one hand, and purposes, forms and structures of learner assessment, on the other.

There are primarily two types of student assessment: *summative* and *formative*. Summative assessment takes place at the end of school year or at predetermined milestones during the school year as a formal process. It aims at finding out what students have and have not learned relative to intended learning outcomes, with the results featured in some form of formal reporting. Formative assessment is an integral, ongoing component in the learning process. Its purpose is to highlight what is being learned and what is not so that timely programmatic and pedagogical adjustments and improvements can be made. In other words, summative assessment is assessment *of* learning and formative assessment is assessment *for* learning.

A range of assessment tools have been developed for both summative and formative assessments. While all tools can be used for both purposes, some tools lend themselves more easily to one type of assessment than the other. For example, essay writing has been traditionally employed as a tool towards summative assessment especially in senior grades, while student self- and peer-assessment is more generally employed for formative purposes.

When asking any basic question about student learning, it is important to gather information from

49   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

different sources (e.g., teachers, students themselves, peers, third parties including parents) and to use different methods to obtain more holistic feedback on changes that have occurred in students as a result of curriculum interventions.[50]

50   Fountain, S. & Gillespie, A. 2003. *Assessment Strategies for Skills-Based Health Education with a Focus on HIV/AIDS and related issues (Draft)*. New York: UNICEF.

BOX 11
Examples of Student Assessment Tools

- Written (including computer based) exams/tests/quizzes
- Oral questions/quizzes
- (As part of written and/or oral questions) multiple choice questions; true-false questions; ranking exercises (e.g. ranking statements according to given criteria); scales (e.g. five-point Likert scales)
- Essays/papers
- Journals/diaries
- Analysis of case study or fictional scenarios
- Exhibitions
- Projects
- Interviews (individual/group focus group)
- Portfolios
- Observations
- Self-/peer assessment
- Oral presentation/demonstration (including plays, skits, role plays, miming, singing, speeches, debates, storytelling)
- Simulations
- Artifacts (e.g. drawing, student notebooks)

Sources: INEE. 2010. *Guidance Notes on Teaching and Learning*. New York: INEE; WHO. 2003. Skills for Health. Geneva: WHO.

Assessment of DRR learning outcomes calls for the employment of a diverse range of assessment tools. Some tools, such as written examinations and essay writing, are more fitted for assessing knowledge and understanding learning outcomes. Practical skills outcomes, however, are better assessed through observation of learners in interaction with peers or demonstrating a skill while in a real life or simulated situation. Assessment using such tools as teacher and peer assessment of learner contributions to discussion groups, drama, role-play, and other forms of presentation offers opportunities to assess learners' ability to draw upon both acquired knowledge and skills while also revealing much about their attitudes and dispositions.

All in all, the range of DRR learning outcomes suggests that a portfolio approach to assessment is optimal. Portfolio assessment involves the gathering of a portfolio of work from, and data about, each student using multiple assessment approaches. This enables the learner to be assessed through several perspectives while being sensitive to the fact that learners perform differently across different assessment methods. Portfolio assessment is a balanced approach that can be used for both summative and formative purposes.

BOX 12

Regular Use of a Variety of Assessment Tools and Methods

Assessment tools and methods that reflect the agreed learning outcomes and their indicators should be used at regular intervals to measure individual progress. A non-exhaustive list of assessment tools for various learning outcomes includes:

- **Knowledge**: closed-ended questions (e.g., true-false or multiple choice questions), open-ended questions (e.g., essays, sentence completion), analysis of a case study or fictional scenario, time lines, picture sorting, role-plays and simulations

- **Attitudes**: closed-ended questions, open-ended questions, analysis of a case study or fictional scenario, role plays and simulations, and scales (e.g. Likert scales)

- **Skills**: closed-ended questions, analysis of a case study or fictional scenario, role-play and simulations, checklists, diaries and journals

- **Behavioral intent**: closed-ended questions, analysis of a case study or fictional scenario, role-plays and simulations, checklists, diaries and journals and 'intent to behave' statements

Source: Taken from INEE. 2010. *Guidance Notes on Teaching and Learning.* New York: INEE. p. 42.

BOX 13

Child-centred (or Learner-centred) Learning and Teaching Assessment Modalities

Child-centred learning and teaching includes relevant, specific and measurable learning outcomes. It is based on students' needs and assets and uses of active and participatory learning and assessment methods that mimic situations students might face in real life. In schools, it is referred to as child-centred learning and refers to instruction and learning processes that are designed around the experiences, skills, knowledge and interests of the children.

Source: Taken from INEE. 2010. *Guidance Notes on Teaching and Learning.* New York. p. 52.

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It is also important that DRR assessment modalities reflect the child participation dimensions of the Convention on the Rights of the Child, for example, through the incorporation of student self- and peer-assessment. Students are not passive objects of assessment, but rather subjects in a participatory assessment process.

In many countries, assessment is confined to a centrally orchestrated national examination system, which cannot assess student acquisition of the multitude of learning outcomes called for by DRR education. The move to integrate DRR into school curricula thus aligns itself with the move to effect reform of learner assessment.

See Annex 3 (pp. 205-6) for Checklists 3 and 4 on DRR learning outcomes and DRR student assessment.

STRATEGIC POINTERS FOR CHAPTER 3

→ **Curriculum Developers (national, sub-national, local)**: Work to ensure constructive alignment between DRR learning outcomes, curriculum themes/topics, learning and teaching approaches and student assessment.

→ **Curriculum Developers (national, sub-national, local**): Aim to adopt or develop a sufficient range of learning outcomes to address all five essential dimensions of DRR learning.

→ **Curriculum Developers (national, sub-national, local)**: Use one or more of the competency or learning outcome development tasks described in this chapter to develop an appropriate list of competencies/outcomes for the jurisdiction in question (a broader stakeholder representation results in a richer outcome and a bigger buy-in).

→ **Principals**: Use one or more of the competency/learning outcome tasks described in this chapter as a means of engaging teachers in developing the school as a DRR learning community/organization.

→ **Curriculum Developers/Principals/Teachers**: Ensure that a diverse range of tools are used in assessing DRR learning.

→ **Curriculum Developers/Principals/Teachers**: Ensure that assessment of student DRR learning is used for both summative and formative purposes.

→ **Curriculum Developers/Principals/Teachers**: Incorporate student participation in DRR assessment processes as much as possible.

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3.7 Selected Tools and Resources

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries. Paris/Geneva: UNESCO/UNICEF.*

  Section 6, 'Disaster Risk Reduction Learning' and Section 8, 'Disaster Risk Reduction Education: Learning Outcomes' are particularly relevant for this chapter.

- *Sinclair, M. 2004. Learning to Live Together: Building Skills, Values and Attitudes for the Twenty-First Century. Geneva: UNESCO IBE.*

  Values, knowledge, attitude and skills goals for 'learning to live together' offer valuable insights for DRR curriculum development. Some 11 programme case studies and lessons learned are included.

Chapter 4
Horizontal and Vertical Integration of Disaster Risk Reduction in the School Curriculum

Chapter 4 explores a spectrum of approaches to integrating DRR in the curriculum, looking at both *horizontal* (across each grade) and *vertical* (through the grade levels) integration of DRR into the curriculum. It starts by discussing the direct and indirect potential of the curriculum for introducing DRR. It highlights that infusing DRR across the curriculum involves determining the key DRR-related knowledge, skills and attitudes/dispositions that students need to acquire, and identifying the potential of each subject to carry and deliver those learning needs. This is followed by an overview of how DRR elements can be integrated into different subjects in the curriculum.

It then introduces four main approaches to horizontal integration of DRR into the curriculum. The main approaches are situated on a spectrum from *shallow infusion* (i.e., infusion into a limited number of carrier subjects where the DRR element is thinly connected) through to *deep infusion* (i.e., fully-fledged interdisciplinary and cohesively integrated cross-curricular provision of DRR learning). Two additional alternative approaches to DRR curriculum development are also described – first, embedding of DRR in facets of *quality education* such as life skills and environmental education, and second, using *special DRR-related school and community events* for DRR curriculum development.

Following this, the chapter discusses curriculum integration of DRR through the grade levels, known as *vertical integration*. It provides several examples of how DRR learning outcomes can be infused across different grades by creating a spiral curriculum that, by revisiting topics in different grade levels cumulatively reinforces, deepens and refines DRR knowledge, skills and attitudes.

4.1 Infusing Disaster Risk Reduction across the Curriculum

Integrating DRR into the formal school curriculum is the single most important way of developing a sustained culture of safety and resilience in a school and its community.

There is a spectrum of approaches to integrating DRR in the curriculum. At one end of the spectrum is the *infusion* of disaster-related elements into existing school subjects. At the other end lie forms of *interdisciplinary* curriculum provision. Other points, falling in between, combine elements of infusion and the interdisciplinary.

Infusing DRR across the curriculum involves determining the key DRR-related knowledge (themes, topics and concepts), skills and attitudes/dispositions that students need to acquire, and identifying the potential of each subject to carry and deliver those learning needs.

The curriculum can carry *direct* potential for DRR learning. For example, if the mechanics of earthquakes are covered in the geography curriculum,

that presents a direct opportunity for enriching the curriculum by also looking at earthquake preparedness and degrees of earthquake vulnerability and resilience in the community.

The curriculum can also carry *indirect* potential for infusing DRR, that is, it can capitalize on parts of the curriculum with no direct linkages into which hazard- and disaster-related study can be injected. For example, a unit in the visual arts curriculum on poster painting can be utilized for a hazard awareness poster campaign in the school and community or a unit in the language and literature curriculum, if not tied to a set body of poems, can be used for considering disaster-related poetry. Table 1 (next page) offers examples of how DRR can be infused across the curriculum.

Infusion can be limited to a narrow group or stretched across a broad range of subjects, but as can be seen above, almost all subjects lend themselves to accommodate DRR learning. This is particularly important to keep in mind when developing a DRR curriculum, because (as discussed in Chapter 1) there has been

Curriculum Developers/ Principals/ Teachers: Use 4.1 to generate ideas on how each subject can be a carrier for DRR

TABLE 1

DRR across the Curriculum	
Subject	Examples
Arts (Visual and Performing)	• Creating murals, collages, posters and displays on hazard and disaster themes • Composing and performing song, dance, marionette shows and plays to build community awareness of DRR • Using mime and body sculpture to convey the nature of hazards and possible human responses
Language and Literature	• Reading and discussing stories, fables, poems and news articles on disasters and hazards • Composing essays, poems and stories in response to disaster-related print and visual stimulus material • Letter writing to local newspapers and bodies on local DRR issues
Science and Technology	• Learning about mechanisms of climatological and geo-seismic natural phenomena • Model building and experimentation to understand basic principles of disaster-resistant construction • Learning about the effects of human activities on ecosystems
Biology	• Learning how a healthy ecosystem, such as forest or mangrove swamp, can protect a community from hazards such as landslides and tsunamis • Examining the role of wetlands in absorbing excessive rainwater and preventing floods downstream • Reviewing how local deforestation has increased hazards in communities
Mathematics	• Working on measurement aspects of home and school safety • Graphing natural hazard data (e.g., total number of people affected and total economic cost of cyclones in different time periods) • Extrapolating disaster trends based on recent statistics
History	• Exploring impacts of natural hazards and climate change periods on past civilizations • Studying past major national/community disasters and identifying lessons to be drawn • Researching indigenous/traditional DRR wisdom/practice and considering its present applicability
Geography	• Re-drawing national maps to show the effects of different degrees of rise in sea level on coastlines • Studying impacts of natural disasters on urban and rural communities • Looking at changes in land use as a means of resilience building and as a source of hazard
Social Science/ Studies	• Reviewing disaster vulnerability through human rights and child rights lenses • Interviewing local community members on their hazard/disaster perspectives, memories and past practices • Field visits to examine local disaster support services
Civics/Citizenship	• Meeting with locally elected officials to find out about disaster preparedness strategies and structures • Undertaking DRR advocacy projects in the local community • Engagement in community resilience-building initiatives
Health/Wellbeing Education	• Learning basic first aid • Learning safety practices and procedures to follow with the onset of a hazard • Learning about potential post-disaster health threats
Agriculture	• Studying and practicing adaptation of crop growing cultures in response to increasingly dry/wet climatic conditions • Learning about food preservation and food security • Learning about soil degradation
Vocational/Technical Education	• Studying and practicing adaptation through tree and/or mangrove planting projects • Constructing equipment to measure rainfall in school area • Learning principles of disaster resistant design and construction
Life Skills	• Holding a debate competition on disaster related topics • Simulating international climate change negotiations • Preparing a family disaster plan

a tendency to only include disaster-related learning to the physical and natural sciences and geography. The problem with that approach is that these subjects are not natural carriers of issues concerning social, economic, cultural and community dimensions of hazard and disaster. It may also be the case that teachers trained in the culture of these subjects may not feel comfortable facilitating discussion and reflection on values-related aspects of DRR education. An infusionist approach that integrates the five dimensions of DRR education as laid out in Chapter 1 might involve all subjects, or at least a sufficient cross-section of subjects to enable the inclusion of the five dimensions. Box XI (Annex 1, p. 153) demonstrates how, in different countries, DRR curriculum is being delivered primarily through various combinations of science, social science, health-related and language subjects.

Curriculum developers also need to pay attention to the amount of DRR infusion. For example, an approach distributing DRR knowledge across subjects by incorporating some new learning materials and activities would not require a fundamental revision of the curriculum. If the aim is to reorganize the curriculum by moving some topics and re-orientating and re-conceptualizing others, a more fundamental

process of curriculum renewal must be set in motion. The approaches described in the next section begin with re-orientation and progressively move toward re-conceptualization.

4.2 A Spectrum of Approaches to Connecting DRR Learning Across the Curriculum

Simply infusing DRR themes and topics at points across the curriculum provides no guarantee that a school is offering a coherent and systematic program of DRR education. A recurring problem with infusion is that it can leave the aspects of hazard and disaster that are treated in different subjects isolated and disconnected. Teachers of particular subjects can organize their DRR programme paying no attention to what is taught in other subjects, leaving it up to the student to discover any connections. Infused curriculum that is not linked falls short of reflecting the multidisciplinary 'real world' nature of DRR. What is infused needs to be connected. In this regard, building teacher awareness of, and commitment to, connected DRR curriculum is an important aspect for teachers' professional development.

There is a continuum of horizontal (i.e., across one grade level) approaches to building interconnections between subjects (see Figure 6).

FIGURE 6

Shallow through Deep Horizontal Curriculum Integration of DRR

Approach 1
Concurrent/Time Co-ordinated Programme Delivery

Approach 2
Multidisciplinary Programme Delivery

Approach 3
Dedicated Interdisciplinary Programmes

Approach 4
Interdisciplinary Cross-curricular Blending of DRR Learning

SHALLOW   DEEP

Principals/ Teacher Educators: Have teachers map how DRR is approached in their school curriculum according to the four approaches described in 4.2

Approach 1 – Concurrent or Time Coordinated Programme Delivery

An easily achieved first step, involving a very limited level of collaboration, is for two or more subject teachers to agree to re-order the scheduling of DRR-related topics they teach so that they are taught either simultaneously or in sequenced order. In this way, learners reap the benefits of having DRR messages reinforced within an agreed timeframe in two or more classrooms. In this shallow approach to cross-curricular DRR provision, links between knowledge and skills taught in each subject are not necessarily consciously and deliberately made. This approach normally requires little in the way of clearance from central government.

Approach 2 - Multidisciplinary Programme Delivery

A slightly deeper approach can evolve from Approach 1, when subject teachers agree to teach an overarching DRR theme such as 'Reducing Disaster Risks' and incorporate the concepts, content, skills development and learning activities as appropriate to their respective subjects. Because the theme is broad, subject teachers have considerable freedom in terms of what they contribute and their focus remains on subject content, while assessing learners in ways that are appropriate to the culture of the subject.

The multidisciplinary approach tends to focus on themes during the early and middle school years and often moves toward a problem-based approach at secondary level (i.e., a particular problem in the society or community is addressed through the unique perspective of each subject).

Finding time to plan a multidisciplinary approach to DRR may be problematic for teachers and the choice of theme may feel forced in the case of some subjects. Multidisciplinary teaching tends to leave the question of whether links are made between subject DRR offerings to chance, since in this approach, subjects and teachers more or less retain their autonomy. If more substantive and thorough links are made between the subjects, the integration through this approach can become *deeper*. Again, this approach involves no fundamental departure from existing curriculum and is 'value added' curriculum development, frequently determined at school level.

Approach 3 – Dedicated Interdisciplinary Programmes

Moving again to a deeper level of infusion, the third approach creates a new course with a new title and a new syllabus, combining DRR content and skills derived from some, most or all subjects. The course can be taught by an individual teacher, or by a team of teachers working actively together or taking turns in teaching. It might continue for the whole school year or be of limited duration. Different ways of looking at disaster issues are approached in a relatively seamless way. Creating space for a dedicated interdisciplinary programme requires substantive curriculum revision and development, significant professional development of the teachers involved and a systematic writing of tailored resources. Approach 2 and approach 3 are not mutually exclusive, and can indeed be mutually beneficial as the case of DRR curriculum in Georgia indicates (see Box XII, Annex 1, p. 154). The Georgia case also demonstrates the need for significant leadership and intervention by central government.

Approach 4 - Interdisciplinary Cross-curricular Blending of DRR Learning

A fourth approach, that is the most systematic, but also the most demanding, starts from the

idea that links and overlaps between DRR themes and topics across different subject areas need to be integrated into whole curriculum programming, so learners can achieve a holistic understanding of hazard and disaster. Under this approach:

- The knowledge and skills to be taught in each subject, learning materials to be used and activities to be carried out are identified. During the process, DRR knowledge and skills already taught in each subject can be referenced, further developed and capitalized upon (even challenged) by other subjects. This assumes a clear mutual understanding of the sequence and timetable of DRR topics across all subjects among all teaching staff. It also assumes that whole curriculum overview and monitoring mechanisms are in place.

- From time to time, certain subjects borrow another subject's approaches, concepts and focuses to emphasize their importance (for example, time in science lessons can be allocated to an examination of the social and economic impacts of hazards; time can be allocated in social studies to revisit the science of climate change).

- Opportunities are created for occasional shared sessions in which two or more teachers of different subjects teach together applying their unique perspectives on a DRR topic or theme. DRR-related field trips and in-community projects are used as opportunities for bringing subjects together and for emphasizing interdisciplinary (and transdisciplinary) ways of seeing the world.

Building synergies between DRR learning across the curriculum involves creating more flexible subject boundaries and a move away from an ethos of subject territoriality on the part of teachers. The positioning of subjects within the curriculum is adjusted, demonstrating a deeper and seamless integration.

Some key understandings become evident as one examines the continuum of *shallow* to *deep* approaches to DRR integration:

- DRR education, like other facets of Quality Education, breaks from narrowly defined school disciplines. Subjects reinvent themselves as spaces for active and broad-based enquiry with great relevance to the learner's life and reality.

- The above shift is paralleled by a move away from didactic, content-driven teaching to child centered, constructivist learning in which the learners shape their own ideas and understandings.

- A move towards interdisciplinary approaches requires significant and sustained professional development.

- As we move from approach to approach, it becomes increasingly the case that teachers need to see their role as one of functioning within a dynamic and collaborative *DRR learning community or organization*, working together to improve the quality and relevance of the education they offer.

Interdisciplinary blending of DRR across the curriculum requires significant and sustained leadership and commitment by school principals and regional and national Ministry of Education personnel.[51] See Box XIII (Annex 1, p. 155) for some real-world examples of interdisciplinary curriculum integration.

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51   This section draws from the following: Burns, R.C. & Beth, S. 2002. *Dissolving the Boundaries: Planning for Curriculum Integration in Middle and Secondary Schools*. Charleston, WV: Appalachia Education Laboratory; Harden, R. 2000. The Integration Ladder: A Tool for Curriculum Planning and Evaluation. *Medical Education*, 34, pp. 551-7; Loepp, F. 1999. Models of Curriculum Integration. *Journal of Technology Studies*, XXV, 2. Summer/Fall 1999, pp. 21-5.

Teachers/Teacher Educators: Turn to Chapter 7 (pp. 93-100) for discussion of DRR pedagogy

Policy Makers/ Curriculum Developers/ Teacher Educators: Turn to Chapter 6 (pp. 87-92) for discussion of teacher professional development

Principals/ Teachers: Turn to 10.1, p. 125 for discussion of the DRR learning community

TABLE 2

Advantages and Disadvantages of the Four Key Approaches and Two Additional Approaches to DRR (Horizontal) Integration		
Approach	Advantages	Disadvantages
Approach 1 Concurrent/ Time Coordinated Programme Delivery	• Easy to start through collaboration between two or more subject teachers • DRR learning messages can be reinforced within pre- arranged timeframe • No change in exisitng curriculum	• A one-off arrangement with no planned follow-up, any momentum created is not reinforced by design • Wider reinforcement of student learning missing
Approach 2 Multidisciplinary Programme Delivery	• Relatively easy to start through collaboration between a small number of subject teachers • No fundamental change in existing curriculum • Well-structured DRR links between subjects might result • Suitable for problem-based learning at secondary level	• Teachers may lack the time and commitment to prepare (and review) together • Consequently, links between subjects may be haphazard • Links made to theme in some subjects may feel forced
Approach 3 Special Subject (Dedicated Space)	• Backed by central government, there can be quick implementation, large scale piloting and rapid movement to scale • Attracts special attention, resources and status, giving a clear and strong message that DRR learning is important in the formal curriculum • 'Halo' effect among programme pioneers can build strong momentum • Complex and can require significant curriculum readjustment • Requires teachers to work together on DRR which can have spin-offs for their other work	• May lead to view that DRR is being dealt with in a prominent new part of the curriculum so wider DRR infusion not necessary • Very limited student exposure to DRR learning, if the special subject is limited to a specific grade level or an optional course • Approach can lead to an under-valuing of the cross-cutting nature of DRR learning • Significant time and resource investment in teacher capacity building, tailored learning materials and assessment methods
Approach 4 Interdisciplinary Cross-curricular Blending of DRR Learning	• Structured exposure to DRR learning across the curriculum • DRR learning in different subjects harmonized and reinforced • Approach is vital to achieve Dimension 5 of DRR education in which the school becomes a DRR learning community / organization, and build a culture of safety and resilience	• Re-examination of ethos, assumptions and boundaries of each subject demanding significant buy-in from entire staff • Necessitates whole curriculum monitoring and review • Calls for sustained commitment to professional development requiring significant time and resources
Additional Approach 1 The Symbiosis Approach	• Relatively easy matter to weave further threads into existing cross-curricular components and to support with minimal additional professional development • Symbiosis of DRR with, for example, ESD and/or Life Skills can bring extra depth and substance to DRR learning	• Some danger of losing the intrinsic purposes and imperatives of DRR education by folding DRR learning into an already established quality education curriculum initiative
Additional Approach 2 The 'Special Event' Approach	• Showcases DRR through a 'special event' can bring added momentum to DRR curriculum and whole-school development enriching both through community partnerships. • Offers a pragmatic solution when 'overloaded teachers' feel they cannot introduce DRR learning into an 'overcrowded curriculum'. • Offers additional space where students can apply DRR learning in practice.	• Danger of 'special event' appearing as less-demanding, one-off gesture as opposed to meaningful curriculum development revision • Danger of sidelining or disrupting substantive DRR curriculum development, especially if special event is a one-off event superficially linked to curriculum, teaching and learning development

Principals/ Teacher Educators: Use Table 2 with teachers to discuss the relative strengths of approaches to DRR integration

The **Halo effect** is an effect whereby the perception of positive qualities in one thing or part gives rise to the perception of similar qualities in related things or in the whole.

4.3 Two Additional Approaches to Embedding DRR in the Curriculum

Beyond the four key approaches outlined above are two additional approaches that merit description here: the symbiosis approach and the special events approach. Each of these two approaches can be used to support the curriculum infusion in the four key approaches discussed in section 4.2.

The Symbiosis Approach: Embedding DRR within Various Facets of Quality Education

Another broad approach to integrating DRR in the curriculum relies upon the shared qualities between DRR education and other facets of Quality Education such as Life Skills, Child-friendly Schools, Civic/Citizenship Education, Environmental Education, Conflict Risk Reduction Education and Education for Sustainable Development. Embedding disaster-related themes into one or more of these facets that are already strongly present in a national, regional or local curriculum as cross-curricular dimensions provides a pragmatic way to weave DRR into the curriculum. This has a potential two-way value-added effect. The content and competencies addressed in each facet can be enriched by DRR elements, while conversely, each facet can bring additional depth, scope, substance and diversity to understandings of DRR education. This is especially so in the case of ESD.

In a number of countries, particularly in Africa, the task of developing climate change curriculum has taken on increasing urgency and has become a vehicle for DRR integration. In Benin, a 2008 to 2011 climate change curriculum change project for lower secondary level addressed issues of vulnerability and capacity building related to climate change. In Nigeria, in 2012, climate change and DRR curriculum integration

at both the primary and secondary level began. Malawi has begun integrating issues of climate change into school curricula with the government expressing commitment to integrate DRR into school curricula as part of the process.[52]

Box XIV (Annex 1, p. 155) offers examples of the symbiosis of DRR with different cross-curricula quality education carriers. The examples show that different facets of quality education can be used to embed DRR in a dedicated subject (e.g., the Life Skills curriculum in Myanmar), infusing DRR in an interconnected way across a range of standard subjects (e.g., ESD in the Cook Islands; Environmental Education in Costa Rica) or as a whole-curriculum unifier (e.g., ESD in France).

Using Special Events to Catalyze DRR Curriculum Development

Co- or extra- curricular approaches to DRR feature frequently in reporting on DRR school developments, including assemblies, after-school clubs and activities, exhibits, special one-day events, competitions and safety drills.

Although the term 'co-curricular' implies something running alongside and reinforcing the curriculum, most co-curricular events seem to be disconnected from formal learning within the curriculum. In some cases, they seem to stand in as substitutes for curricular treatment of hazard and disaster. Experience from the fields of environmental education and ESD have shown that the co- or extra-curricular initiative can serve as diversion and distraction from negotiating the often complicated and work-intensive process of curriculum change.[53]

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52   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

53   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 20.

That said, it is entirely possible to build synergies between the co-curricular and the curricular. One-day DRR school special events involving the whole school and local community – frequently held on the International Day for Disaster Reduction during the second week in October each year – have great potential in this regard.

Figure 7 provides an example of how a special DRR day can feed from and into the curriculum. In advance of the special day, learners revisit local disaster-related topics and prepare activities and displays drawing upon their subject knowledge and skills. Following the special day, there is a curriculum follow-up and retrospect on the special day's activities and outcomes including reflection on, and both analysis and synthesis of, experiences and data collected.

Again, the special event approach can be harnessed in support of any of the four key approaches described in 4.2.

4.4 Vertical Integration of DRR through the Curriculum

Integration of DRR in the curriculum is both a horizontal (across each grade level) and vertical

FIGURE 7

Special Event Based Curriculum Development: An Example from an Earthquake Zone

Curriculum Preparation				
Science	Social Science	Mathematics	Language	Arts
Learning about (or re-visiting) the science of earthquakes	Preparing earthquake safety quizzes and surveys for DRR Day	Examining statistical data on earthquakes locally and nationally by making graphs and charts for display	Writing stories and poems on a topic of earthquake safety for presenting on DRR Day	Preparing earthquake safety posters for display on DRR Day

Special Event: DRR Day in an Earthquake Zone
(A whole school earthquake drill; awareness raising demonstrations, talks, quizzes, surveys and displays)

Curriculum Follow-up: Retrospect, Analysis and Synthesis				
Science	Social Science	Mathematics	Language	Arts
Conducting self-directed research on earthquakes using the Internet, newspapers and magazines	Considering school/community action plans based on experiences and discussions during DRR Day	Analyzing social science DRR Day earthquake survey results (e.g., frequencies and percentages of responses)	Writing up and presenting DRR Day interviews with community members (e.g., regarding their experiences of earthquakes)	Creating and performing short earthquake safety dramas to demonstrate best practices in drill safety and response skills

(through the grade levels) exercise. Giving children a comprehensive DRR education is not just a matter of determining curriculum location for DRR content, but also curriculum progression. Curriculum developers and planners must identify how each particular theme, topic or concept can be taught effectively, with learning reinforced and enriched at different stages of development. This insight underpins the notion of the *spiral curriculum*, the cumulative reinforcement, deepening and refinement of knowledge, conceptual understanding, skills and dispositions through the grade levels. As a curriculum develops basic ideas, content and skills, it should revisit them 'repeatedly, building upon them until the student has grasped the full formal apparatus that goes with them'.[54]

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54   Bruner, J. 1960. *The Process of Education*. Cambridge, Mass: Harvard University Press. 13.

Reaching a particular learning by the end of formal schooling involves determining the requirements to be included in the curriculum at different development stages so that learners achieve the desired outcome. Figure 8 shows that the spiral may be one of returning to the same ideas – in this case around the concept of vulnerability – at different spatial levels, from a local to a global focus. The example also shows that the spiral could involve adding layers of conceptual complexity to a topic and revisiting it with a view to refine earlier understandings.

The task of building a spiral curriculum can be considerably helped by first determining a vertical progression of learning outcomes. Learning outcomes through the grades should be carefully structured in such a way that, cumulatively, they enable the maturing learner to handle ever-increasing complexity and sophistication.

This builds on the discussion of learning outcomes and the list of generic learning outcomes in Chapter 3, pp. 49-55.

FIGURE 8

An Example of Vertical Integration of the Concept of Vulnerabilty

Ages 4-7
- Safe and dangerous spots at school and community
- Danger from storm winds, flood waters and ground shake
- Basic safety habits to avoid dangers

Ages 7-11
- School/community mapping on safe and dangerous spots
- Past natural disaster impacts in local communities
- Threats to local food sources

Ages 11-14
- Past natural disasters nationally/regionally
- Concept of vulnerability
- Enviornmental degradation and pollution as vulnerability driver

Ages 14-18
- Dynamics between economic, social, environmental and physical vulnerabilities
- Interrelationships between hazards, vulnerabilities and capacity
- Gender and disaster
- Poverty and disaster

Expressions of learning outcomes in earlier grades should be viewed as *steps of achievement* towards realizing a range of final learning goals that, taken together, equip the learner for lifelong learning. The notion of *curriculum foreshadowing* comes into play here (i.e., the idea that the learner should internalize a simpler idea or concept at one development stage so as to more easily internalize a more complex idea or concept at a subsequent stage of development). In the same way, the sphere to which learning is devoted and/or in which learning engagement occurs becomes broader and deeper through the grades, evident in increasingly complex learning outcomes. For example, hazard safety in the home in the early grades might translate into understanding global patterns of hazard preparedness in the senior grades. The same applies to skills learning progression so that skills are calibrated to match the physical, cognitive and emotional maturation of the individual.

Using a limited selection of generic knowledge, skills and attitudinal/dispositional learning outcomes, Table 3 presents examples of learning outcome progression across four age groups.

An important exercise for those planning DRR curriculum development would be to complete blank copies of Table 3 for their priority generic learning outcomes.

TABLE 3

Indicative Examples of Learning Outcomes Progression	
Knowledge	
Generic Learning Outcome: Knowledge of hazards and disasters Learners know of past local disasters	
Ages 4-7	Learners understand when and where natural hazards/ disasters took place previously in their community
Ages 7-11	Learners have a basic understanding of causes and effects of previous natural hazards/disasters in their community
Ages 11-14	Learners understand patterns/trends of past local disasters in terms of locations, durations, season and impacts
Ages 14-18	Learners understand impacts of past local disasters from socio-economic, gender, human/child rights perspectives
Generic Learning Outcome: Knowledge of disaster management mechanisms & practices Learners know of local, regional, national and international disaster response infrastructures and mechanisms	
Ages 4-7	Learners know who to contact to when hazard threatens and/or disaster strikes
Ages 7-11	Learners understand roles and functions of local response infrastructures and mechanisms and know how to use available facilities and services when hazard threatens and/or disaster strikes
Ages 11-14	Learners understand roles of regional and national disaster response infrastructures and mechanisms, and understand implications for their locality
Ages 14-18	Learners understand roles of international disaster response infrastructures and mechanisms, and understand the implications at national, regional and local levels

TABLE 3 CONTINUED

Skills	
Generic Learning Outcome: Skills of communication and interpersonal interaction Learners have the ability to communicate disaster risk reduction messages using appropriate and creative modes of communication (e.g. brochures, arts, music, song, theatre, puppetry, posters, poems, social media, radio, film)	
Ages 4-7	Learners are able to express basic DRR messages learned at school in drawings and posters for class/school displays
Ages 7-11	Learners are able to create DRR posters and brochures on specific natural hazards most relevant to their own community for display and distribution in the community
Ages 11-14	Learners are able to pass on DRR messages using performing arts (such as puppetry or theatre) to younger children
Ages 14-18	Learners are able to plan, prepare and implement DRR campaigns using multiple communication modes of their choice (including social media, radio, film) for a wider audience
Generic Learning Outcome: Skills of action Learners have the necessary skills to be able to assist victims and the vulnerable in case of disaster (e.g. first aid skills, rescue skills)	
Ages 4-7	Learners can undertake simple support tasks under the close guidance of adults
Ages 7-11	Learners are able to employ basic first aid skills in assisting with minor injuries
Ages 11-14	Learners are able to look after younger children in a crisis situation
Ages 14-18	Learners are able to support rescue efforts in a non-frontline role

Attitudes/Dispositions	
Generic Learning Outcome: Responsibility Learners embrace a sense of responsibility to help protect themselves, their peers, their family and community from hazard and disaster	
Ages 4-7	Learners are aware of the importance of being prepared for potential hazards/disasters Learners have positive self-worth and confidence to be responsible
Ages 7-11	Learners show empathy to others around them who are in need Learners become aware of their responsibility to care for each other in times of hazard
Ages 11-14	Learners show willingness to take action to keep themselves and others close to them safe from potential hazards
Ages 14-18	Learners demonstrate firm commitment to taking action to keep their community safe from potential hazards
Generic Learning Outcome: Confidence and Caution Learners appreciate the need to follow safety rules and procedures on any occasion	
Ages 4-7	Learners are mindful of the importance of following safety rules and procedures
Ages 7-11	Learners are confident in practicing safety procedures
Ages 11-14	Learners commit to promoting and modeling good safety practice
Ages 14-18	Learners are committed to helping younger children follow safety rules and procedures

Kazakhstan
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(see full captions pp. 224-9)

STRATEGIC POINTERS FOR CHAPTER 4

→ **Policy Makers/Curriculum Developers**: Take into account both horizontal and vertical integration of DRR in your planning and development work.

→ **Policy Makers/Curriculum Developers**: Aim to infuse DRR across all subjects in the curriculum.

→ **Curriculum Developers/ Principals**: Think about which of the four key approaches described in this chapter would be the best to use as an entry point in your context and which you might subsequently employ in developing DRR curriculum integration.

→ **Curriculum Developers (national, sub-national, local)**: Remember that vertical integration of DRR curriculum is just as important as horizontal integration.

→ **Principals/Teachers**: Establish synergies between co-curricular and curricular learning.

→ **Policy Makers/Curriculum Developers/Principals**: Create synergies between DRR curriculum development and curriculum initiatives aimed at quality education, including Education for Sustainable Development, Life Skills and the Child-friendly School.

4.5 Selected Tools and Resources

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.*
  http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

  Section 3, 'Disaster Risk Reduction in the Curriculum' and Section 4, 'Approaches to Integrating Disaster Risk Reduction in the Curriculum' are particularly relevant to this chapter.

- *UNESCO Bangkok. 2007. Natural Disaster Preparedness and Education for Sustainable Development. Bangkok: UNESCO Bangkok.*
  http://unesdoc.unesco.org/images/0015/001504/150454e.pdf

  Contains reports from four countries and two collaborating organizations involved in the regional Education Materials for Education for Natural Disaster Preparedness in Asia-Pacific in the Context of Education for Sustainable Development project. The project involved communication and dissemination of information to inform education and policy for natural disaster preparedness and the production of locally relevant materials on natural disaster prevention integrating the principles of ESD.

- *UNISDR. 2007. Towards a Culture of Prevention: Disaster Risk Reduction Begins at School: Good Practices and Lesson Learned. Geneva: UNISDR.*
  http://unesdoc.unesco.org/images/0018/001898/189857e.pdf

  This collection includes some 38 examples of good practice in DRR education globally and is divided in three sections: raising awareness within school communities; building a culture of prevention; making school buildings safer.

- *UNISDR. 2011. Compilation of National Progress Reports on the implementation of the Hyogo Framework for Action (2009-2011): HEA Priority 3, Core Indicator 3.2.*
  http://www.preventionweb.net/english/hyogo/progress/documents/hfa-report-priority3-2(2009-2011).pdf

  This report summarizes progress on HFA Priority 3. Core Indicator 3.2 (i.e., school curricula, education material and relevant training including disaster risk reduction and recovery concepts and practices) from the final national HFA progress reports (2009-2011) of 86 countries.

- *Wisner, B. 2006. Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction. Bangalore: Books for Change.*
  http://www.unisdr.org/2005/task-force/working%20groups/knowledge-education/docs/Let-our-Children-Teach-Us.pdf

  This paper includes good practices in DRR educational innovation, including teaching and learning in primary, secondary and tertiary education, protection of school infrastructure, training courses, informal education, and knowledge management. Gaps and opportunities in the field are identified.

Chapter 5
Developing Disaster Risk Reduction Learning Programmes, Activities and Materials

Chapter 5 demonstrates the development of learning programmes, activities and materials through the use of a practical ten step approach.

It then elaborates the different learning styles of students and makes the case for DRR learning to include a range of different learning methods and modalities. It provides a template for developing learning activities and links to several sample learning activities based upon that template.

Next, it discusses the role of textbooks and teachers' handbooks in DRR education. It takes a critical look at the findings of a study showing that textbook revision was the preferred, and in some cases only, mode of DRR curriculum development. This is followed by an analysis of the contribution of teachers' handbooks to DRR education, illustrated by examples from a number of countries.

Curriculum Developers: The ten steps in 5.1 all focus on programme topic and learning activities/materials development. As the sidebars below indicate, the steps connect into a broader process of DRR curriculum integration. They overlap stages 1 and 2 of curriculum development (see 3.1, pp. 40-1) while needing to dovetail with stages 3 and 4.

5.1 DRR Learning Programme Development: A Practical Ten Step Approach

This section defines ten steps to be followed in devising and developing a DRR learning programme and associated topics, activities and materials. It assumes that a group composed of curriculum developers is working together with NDMO and agency personnel to plan and write the programme at national, sub-national or local level. Some steps may be redundant in specific contexts, especially in situations where the developers have been given a precise and detailed mandate within which to work, or are called upon to develop curriculum within a pre-determined framework. The steps should be followed flexibly and selectively according to the circumstances.

Curriculum Developers: Prior to Step 1 conduct a baseline study, curriculum review and/or needs analysis (see Chapter 2.4, pp. 42-3); also, build team consensus and shared understanding around the curriculum development task and process (see Chapter 2.5, pp. 43-4)

STEP 1

Establish Contextual Clarity

Be clear about:

- The range of DRR themes, topics and concepts being covered elsewhere in the curriculum.

- Overall duration of intended DRR learning intervention: how many weeks, how many hours, how many lessons, the length of each lesson?

- The learning setting: are lessons to take place in the classroom or is there a possibility for lessons elsewhere on the school campus or out in the community?

- The grade level(s) at which the programme will be delivered.

- Materials and equipment availability in schools: audio-visual and electronic equipment, basic writing, drawing, painting materials, and/or writing and chart paper.

- The subject(s) or timetable space in which the programme will be taught.

- The quality of the teaching staff and the discipline(s) they represent

STEP 2

Determine Intended DRR Learning Outcomes and Key Concepts

Identify and note down:

- DRR learning outcomes being addressed elsewhere in the curriculum (i.e. in other subjects and at earlier or later grade levels) and determine how the outcomes of the new programme will reinforce those outcomes.

- Intended knowledge learning outcomes (using verbs such as: arrange, order, define, recognize, label, locate, identify, recognize, recall, list, repeat, memorize, name, state, relate, reproduce, record).

- Intended understanding learning outcomes (using verbs such as: classify, describe, observe, recognize, discuss, report, explain, restate, express, review, select, record).

- Intended skills learning outcomes (using verbs such as: analyze, plan, calculate, categorize, examine, compare, contrast, criticize, arrange, organize, create, write, synthesize, connect, develop, imagine, assess, appraise, resolve, problematize, communicate, question, debate, explain, justify, illustrate, summarize, present).

- Intended attitudinal/dispositional learning outcomes (using verbs such as: appreciate, care, feel, commit, embrace, empathize, sympathize, respect, value).

- Key DRR concepts and ideas to be reinforced through the programme.

STEP 3

Develop a Topic Web

Map out the potential and scope of the chosen programme by developing a web or flowchart using the following process:

- Brainstorm potential topic ideas, themes and issues for the programme noting them down on a whiteboard or large sheet of chart paper (at this stage accepting all ideas without comment).

- Link ideas that overlap or relate with two-way arrows; agree to reject ideas that, on reflection, are not applicable or not viable.

- Translate all accepted ideas, themes and issues into a topic web or flow chart in which ideas are organized and thoroughly interconnected, adding new ideas, as they come to mind.

- Add notes showing how different items on the web connect with chosen learning outcomes and concepts.

Note: *Rather than immediately moving to a linear sequencing of topics, the flowchart approach enables the use of imagination, lateral and divergent thinking as well as relational thinking in the process. The final version of the flowchart may become an important programme document that demonstrates systemic thinking and emphasizes curriculum linkages, but it will still, nevertheless, need translating into linear format.*

Curriculum Developers: Revisit Chapter 3.3 (pp. 49-55) for DRR generic learning outcomes. For the competency-based approach to developing learning outcomes, review Chapter 3.5 (pp. 55-6). Use exercises from Chapter 3.4 (p. 55) to help in the development of context- and purpose-specific learning outcomes.

STEP 4

Draw up the Programme Outline

Go through the following steps to develop and refine the programme outline:

- Organize elements from the topic in coherent linear progression (i.e. in the order to be taught).

- Sub-divide each element into lesson-by-lesson portions.

- Determine where priority whole school or cross-curricular dimensions over-lapping with DRR (such education for sustainable development, climate change education, life skills and child-friendly learning) will be embedded in the programme.

- Review the programme outline asking if it provides sufficient potential to realize chosen DRR learning outcomes and competencies; adjust the outline (or the outcomes and competencies) if necessary.

- Review the programme according to the five essential dimensions of DRR learning (understanding mechanisms; becoming safety wise; understanding risk drivers and how hazards can become disasters; building community risk reduction capacity; building an insti-tutional culture of safety and resilience); if they are missing, partly addressed or under-represented, adjust the outline.

- Write short descriptions of each proposed lesson; review them in the order in which the lessons are to be delivered to check the programme outline has clear structure and coherence (and to check that the curriculum development team still has a shared conception of the scope and sequence of the programme); adjust the outline, as necessary.

STEP 5

Step 5: Develop the Learning Materials

Gather and develop learning materials:

- Search out and review already available DRR learning and teaching materials to determine whether in whole or in part they could be used or adapted for lesson delivery (see *Box 14, p. 78*).

- Identify potential content, data and resource material and where they could be sourced from (the National Disaster Management Office or similar, meteorological office, newspapers from disaster periods, UN agencies, agricultural and disaster-related national agencies and non-governmental organizations can be excellent sources of DRR material); those in the curriculum development team drawn from outside the education sector, such as climate change experts and NDMO personnel can be particularly useful in this regard.

- Establish partnerships and communica-tion channels so that local communities can add their local-based knowledge and memories as well as indigenous wisdom and skills to programme content; involve them in the planning of learner in-commu-nity action learning (and community role assignment).

- Select from the data and material collected and convert into purpose-appropriate and age-appropriate learning materials.

- Ensure the materials treat any prevailing DRR misconceptions and misinformation; compare and contrast indigenous and scientific knowledge and perspectives where they are at odds.

- In the conversion process, think ahead to activity development and the type of learning activity that would elicit optimal learning from the material in question; if possible, draw up the content so it serves as stimulus material for any envisaged activity.

STEP 6

Design the Learning Activities

In developing learning activities, follow these steps:

- Plan activities according to three over-arching principles: (a) to obtain optimal learning benefit (in terms of knowledge/ understanding, skills and attitudes/ dispositions) from the learning materials; (b) to ensure learning style and learning modality diversity; (c) to ensure sufficient variety in the mood, rhythm, pace and flow of learning (e.g. sedentary learning experience followed by activity involving movement; exciting activity followed by calming activity; challenging activity followed by reassuring activity).

- Ensure that the activities involve a mix that takes the learners out of the classroom and into the school campus and local community.

- Ensure that activity descriptions are clear and include: purpose and intended learning outcomes; overall and step-by-step timings; optimal classroom arrangement; resources and equipment needed; facilitation guidance; follow-up advice.

- Design and use a common template for all activity descriptions that teachers can become accustomed to.

STEP 7

Apply Matrices to the Draft Programme

Do the following to check the programme fits together:

- Create a Lessons/Learning Outcomes Matrix with Lessons in order of delivery on the vertical axis and Learning Outcomes on the horizontal axis (see p. 188).

- Use a scale (0=not at all; 1=addressed minimally; 2=addressed some-what; 3=addressed reasonably well; 4=addressed very well) to complete the matrix.

- Study the completed matrix to assess the thoroughness with which each learning outcome is being addressed and reinforced across the programme. If a particular outcome is only partly addressed, ask why, and revise parts of the programme (or, reconsider the appropriateness of the learning outcome).

- Repeat the above three steps using the Lessons/DRR education Learning Dimensions Matrix (see p. 188).

- Repeat the three steps with a Lessons/ Pedagogies Matrix (see p. 189) to check that there is balanced and diverse use of different kinds of learning activity and that the ordering and juxtaposition of learning modalities will maintain learner interest and engagement.

STEP 8

Plan Learning Assessment

Do the following when planning learner assessment:

- Ensure that what is being assessed aligns with the programme learning outcomes.

- Ensure that diverse forms of formative assessment are built into the learning process.

- Ensure that diverse forms of summative assessment are built in at programme milestones and at the end of the programme.

- Plan how summative assessment will be reported in accordance with the values and ethos of the programme and schools' wider DRR mission.

- Avoid planning learner assessment as an afterthought but make it integral part of programme development.

STEP 9

Develop a Teacher Guidance Document

Plan a teacher handbook, manual or pack for the programme that:

- Offers hazard- and disaster-related background information and an explanation of disaster risk reduction education.

- Offers a rationale for disaster risk reduction curriculum.

- Gives an overview of the programme and its purposes.

- Explains the learning approaches to be used and how to conduct the learning activities.

- Introduces the learning materials.

- Introduces the learning activities.

- Explains the assessment approaches.

- Includes a list of resources.

BOX 14

DRR Teaching and Learning Materials Searchable via Online Databases

DRR Teaching and Learning materials searchable via online database

- INEE Resource Database
  http://www.ineesite.org/index.php/resourcedb/

- PreventionWeb Education Materials
  http://www.preventionweb.net/english/professional/trainings-events/edu-materials/

- UNCC: Learn (UN materials relevant to climate change learning)
  http://www.uncclearn.org

- UNESDOC (UNESCO documents and publications)
  http://www.unesco.org/new/en/unesco/resources/online-materials/publications/unesdoc-database/

STEP 10

Finalization

As final steps:

- Proof read all learning materials and the teacher handbook.

- Employ the help of an editor to check textual quality and consistency across the learning materials and teacher handbook.

- Employ the help of a graphical artist/designer for user-friendly learning materials and teacher handbook design.

- Make ready and circulate all documentation and learning media to schools.

- Launch the programme and the handbook.

5.2 Ensuring Learning Diversity in DRR Programmes

Students learn in a variety of different ways and each learner has their own particular set of learning style preferences.

Some learners are primarily hands-on learners who like doing practical things in a methodical and sequential manner. They like to record experiences and experiments, conduct surveys, experience and observe, make displays and do all manner of practical tasks.

Other learners prefer to work with thoughts, ideas and theories and tend to enjoy analyzing, comparing, contrasting and synthesizing them. They enjoy lectures, debates, book research and undertaking writing tasks that challenge them to organize their thinking.

Other learners are most stirred by emotional learning that focuses on sharing personal experiences, stories and perspectives. They like interpersonal work in small groups, role-plays, expressing themselves through the creative and performing arts and other tasks that exercise their imaginative and emotional intelligence.

Yet others are most at home when given latitude as learners to experiment, engage in problem solving and 'out of the box' thinking stimulated by real life or concocted situations. They like field trips, developing and implementing practical ideas, problem-solving exercises, simulations and role-plays.[55]

The above is a brief synopsis of what learning style theory has to say about the learning predispositions of the individual learner. The learning style of any learner will be a unique composite

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55 Pike, G. & Selby, D. 1995. *Reconnecting: From National to Global Curriculum.* Godalming: World Wide Fund for Nature UK. pp. 30-5.

of the four styles outlined above, but all learners will feel more comfortable with some kinds of learning while needing support and guidance in becoming adept at other kinds of learning.

Within any learning situation, it is a matter of equality of opportunity that the learning approaches employed are mixed and balanced so that each learner encounters an equitable mix of comfortable and challenging learning situations. Diversity of learning style is, ultimately, a manifestation of child-friendly learning. As the Convention on the Rights of the Child affirms, education should be directed towards the development of the child's fullest potential (Article 29) and the child has the right to receive and express ideas and information through multiple media (Article 13). Building learning style diversity into a DRR learning programme can be achieved through ensuring a balanced and lively mix of learning approaches. Fortunately, the goals of DRR education coincide with the need for such diversity.

The DRR education field seeks to build knowledge and understanding of the causes, nature and effects of hazards and is grounded in and reaffirmed by active engagement. It advances a range of competencies and skills to contribute proactively to hazard resilience building, adaptation and mitigation. Such competencies and skills are reinforced and fine-tuned by coming from and being tested in real-life situations. DRR education also enables learners to test their attitudes and clarify their values through real-life or surrogate experience. Such goals are difficult to realize within a learning monoculture or through a narrow range of learning approaches.

For these reasons, DRR learning programmes should feature a balanced mix of the following learning modalities:

- **Interactive Learning**: brainstorming (spontaneously offering ideas on a given topic, all ideas being accepted prior to their categorization, organization and evaluation); pair and small group discussion exercises; whole group discussion; interactive multimedia presentations (by students teacher, community members, DRR experts)

- **Inquiry Learning**: individual and team case study research and analysis; project work; undertaking surveys; interviewing; examining data sets; Internet searching

- **Affective Learning**: opportunities to share feelings, hopes and fears around hazards and disasters; opportunities to share emotional responses to learning experiences; empathetic exercises ('how might it feel to be in that situation?'); expressing feelings, insights and perceptions through multiple media

- **Surrogate Experiential Learning**: filmic experience (e.g., through fictional or documentary films); board games; role plays; drama (sketches, mimes, puppetry); simulation gaming; learning through artificially contrived classroom experiences

- **Field Experiential Learning**: field visits to disaster support services; hazard mapping and vulnerability assessment in home, school and community; community hazard transects; enacting emergency plans

- **Action Learning**: student/community initiatives to raise hazard awareness; working with community members on resilience-building, adaptation and mitigation initiatives; poster campaigns; street theatre; risk reduction campaigns (e.g. tree planting); student-led school assembly and community presentations on their DRR work

- **Imaginal Learning**: learning approaches using the imagination to envision positive

and negative future scenarios, to envision past occasions of hazard and disaster, to visualize what to do in crisis situations, to tell and listen to stories

- **Somatic and Expressive Learning**: learning approaches using the body, such as body sculptures, human tableaux, and employing various forms of artistic expression.[56]

For some examples of pedagogical approaches suggested in DRR teacher guides, see Box XV. (Annex 1, p. 157)

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56   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curriculum: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 29.

5.3 Templates for DRR Learning Activity Development

It can be very helpful in DRR lesson and activity development to use a template so as to ensure that all relevant aspects are considered in the development and writing-up process. Below, Box 15 shows an activity template developed by the non-governmental organization, Sustainability Frontiers.[57]

Another more complex tool (Tool 12, Annex 2, p. 190) is an outcome of the ESD initiative of the provincial government of Manitoba in Canada. It is designed to help teachers plan an 'ESD Learning Experience' falling within any curriculum

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57   http://www.sustainabilityfrontiers.org

BOX 15

Learning Activity Template (Sustainability Frontiers)

Activity Title

Explanation: An introduction to what the activity involves and its purpose

Time Needed: Guidance on how long the activity is likely to take overall and how long each activity stage will take

Learning Outcomes: A listing of knowledge, skills and attitudes that are likely to be developed in pupils as a result of the activity

Materials: A listing of resources needed for conducting the activity with a class

Procedure: A step-by-step description of successive stages of the activity guiding the teacher on what to do

Extension: An optional section that suggests ways in which the activity can be taken further than what is described under *Procedure*

Variation: An optional section that suggests alternative ways of doing the activity to those described under *Procedure*

Curriculum Links: Guidance on what subjects and units in the curriculum with which the activity fits.

area. As such, it can be used for planning an entire lesson, an activity within a lesson or an activity stretching over a number of lessons.

Three examples for DRR learning activities based on the above template in Box 15 are available in the Tool Box (Annex 2, pp. 191-5). The first (Tool 13) focuses on the concept of resilience, the second (Tool 14) on cyclone safety measures and the third (Tool 15) on climate change.

5.4 DRR Textbooks and Teachers' Handbooks

A recent global DRR curriculum mapping study[58] has discovered widespread use of textbook revision as the preferred, in some cases only, mode of DRR curriculum development. It expressed itself as 'very doubtful whether textbook-led curriculum development alone is able to deliver the skills, dispositional and behavioral learning outcomes called for by DRR education. (Textbooks) are unlikely to foster active disaster preparedness and mitigation skills development'. In some cases, the textbooks were accompanied by a teacher handbook, primarily, even exclusively devoted to providing the teacher with hazard and disaster knowledge but with scant or no reference to learning and teaching management and facilitation.[59]

Implementing the five essential dimensions of DRR learning while introducing and showing teachers how to teach for a proportionately wide range of learning outcomes requires a very different kind of teacher manual. Not only does the manual need to explain the local hazard and disaster situation to the teacher and introduce the basics of DRR, it also needs to elaborate the

curriculum, give guidance on learning materials and activities and their facilitation, and explain the steps to be followed in deploying what are likely very new approaches to assessment.

If policy calls for the development of DRR curriculum within an ESD framework, linked to CCE, and also connecting with life skills and child-friendly learning, then the manual also needs to offer a rationale as well as simple, clear practical guidance on the implications for the teacher's delivery of curriculum. Likewise, if policy calls for the professional development of the teacher as a DRR reflective practitioner working within schools reconfiguring themselves as DRR learning organizations where DRR curriculum is linked to the notion of safe school and community leadership, then this needs reflected in the style, content, and spirit of the manual.

Box XVI (Annex 1, pp. 157-9) profiles three noteworthy examples of teacher handbooks that adopt a more comprehensive and fit-for-purpose approach.

Box XVII (Annex 1, pp. 159-60) illustrates a handbook approach employed in New Zealand that is very different in two significant ways. First, it is web-based but with CD-ROM and hardcopy versions available. Second, the handbook approach is one of combining materials for both teachers and students. With access to the Internet increasing worldwide, this approach will likely be taken up globally by educational stakeholders and multipliers.

Box XVIII (Annex 1, p. 160) offers an interesting glimpse into a Namibian initiative that used a series of radio programmes to build DRR awareness, an initiative that could be widely replicated with programmes being subsequently drawn upon for DRR curriculum delivery in schools.

58   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curriculum: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

59   Ibid. p. 23.

Recognizing the limitations of the traditional textbook, a number of DRR curriculum initiatives are looking for more dynamic text-based tools of engaging learners by developing learner handbooks and activity books. Two examples can be found in Box XIX (Annex 1, p. 161), the first a practical activity book developed in Myanmar that uses well-known cultural figures to deliver its message, the second, a text designed to encourage learner participation that was developed by children themselves.

STRATEGIC POINTERS FOR CHAPTER 5

→ **Curriculum Developers**: As an early task in programme development look through Steps 1 to 10 (pp. 74-9), to determine which steps are relevant to your context and draw up a plan and schedule of action.

→ **Curriculum Developers**: Collaborate with DRR and climate change specialists in developing DRR learning programmes, especially when it comes to learning materials development.

→ **Curriculum Developers**: Ensure that learning programmes adequately address all chosen learning outcomes, offer diversity in learning approaches and meet the five essential dimensions of DRR education, using matrices to analyze what has been developed.

→ **Curriculum Developers**: Establish a standard template for learning activities that teachers will become accustomed to using.

→ **Curriculum Developers/Teacher Educators**: Ensure close liaison during pilot testing of draft curriculum, activities and materials and assessment approaches, as well as the training of the pilot teachers: use the pilot training experience to refine a teacher education programme.

→ **Teacher Educators**: Create pilot and full-scale teacher training opportunities where teachers themselves experience the diverse pedagogical approaches they are being asked to facilitate.

→ **Curriculum Developers**: Ensure thoroughgoing evaluation of pilot tests and that monitoring and evaluation mechanisms are in place for the launch of the curriculum to cater for ongoing evaluation at scale.

→ **Curriculum Developers**: Create mechanisms for gathering and sharing developed and field tested regional and national DRR lesson examples.

→ **Curriculum Developers**: Prepare comprehensive teacher manuals that introduce DRR, explain disaster risk reduction education and give guidance on curriculum, pedagogy and assessment.

→ **Curriculum Developers**: Experiment with lively, engaging alternatives to the student textbook, including forms of student handbook, activity book and child-written guidance and storybooks.

→ **Policy Makers/Curriculum Developers**: Explore the possibilities, and cost implications for radio, television, web-based and social media DRR learning.

5.5 Selected Tools and Resources

- *Department of Education. 2009. Tales of Disasters. Handbook: A Facilitator's Guide to Using the No Strings Tales of Disasters Films. The Philippines: Department of Education. http://www.adpc.net/v2007/programs/DMS/PROGRAMS/Mainstreaming%20DRR/ MDRD-EDU%20II/Philippines/Teaching%20Aid_Tales%20of%20Disasters%20Handbook_ Philippines.pdf*

  This guide contains a complete lesson plan breakdown with a range of fun and effective activities that can be used with two films (the Tales of Disasters and Peace Building Two Gardens) shown to a group. As one of the fun and imaginative ways of teaching and learning, using a puppet is suggested.

- *Instituto Nacional de Defensa Civil (INDECI). 2005. Aprender es divertido: Guía de prevención y atención de desastres para instituciones educativas [Learning is Fun: Prevention and Disaster Response Guide for Education Institutions]. Lima: INDECI. [In Spanish]*

  Educational resources to facilitate teachers' lectures on DRR. By using a set of thematic cards, teachers can develop in their student's abilities linked to text production, comprehensive reading, logical mathematical thinking, social thinking, a sense of belonging and active environmental conservation. All the proposed activities are geared towards building a culture of prevention out of formal education.

- *Jimenez, C., Obando A. & Guillermo,L. 2008. Guía de actividades sugeridas para mediación pedagógica en prevención de desastres en el segundo ciclo de primaria [Activity Guide for Pedagogic Mediation in Disaster Prevention for Grades 4-6]. San José: Instituto de Investigaciones en Educación. [In Spanish]*

  Develops main teaching concepts and methodologies for work with students, in institutions and communities. Contents include: 'Disasters are not natural', 'We should respect nature instead of fearing it,' 'He who learns to prevent becomes more intelligent and by preventing I increase my survival chances.' It also identifies teaching resources such as newspapers, scale models, video, song, poetry, puppet plays, theatre and conceptual maps.

- *Manitoba Education. 2011. Education for Sustainable Development: Kindergarten to Grade 12 Correlation Chart Template and Kindergarten Tool Kit. Winnipeg: Manitoba Education. http://www.edu.gov.mb.ca/k12/esd/correlations/full_doc.pdf*

  This practical toolkit assists teachers to develop their own ESD activities by incorporating ESD learning outcomes from the attached correlation chart or from curriculum documents.

- *Save the Children. 2007. Child-led Disaster Risk Reduction: A Practice Guide. http://www.preventionweb.net/go/3820*

  This activity guide helps strengthen children's capacities to understand disaster risks and to take practical actions in their communities. The guide is divided into five sections: context and

partnerships; capacity-building and awareness raising; programme implementation/activities; monitoring and evaluation/learning and documentation; advocacy. Frameworks for child-led assessment are included in the appendices.

- *UNISDR in cooperation in cooperation with UNESCO. Cairo. 2010. Education Kit on Disaster Risk Reduction. [In Arabic].*
  http://www.preventionweb.net/english/professional/publications/v.php?id=18904

  This DRR kit seeks to help raise awareness among stakeholders, decision makers, teachers, students and children on how to mitigate and prepare for natural disaster risks. The package includes three booklets:

  1. Natural phenomena: Towards a culture of disaster prevention in the Arab countries.
  2. Risks of natural disasters: Preparedness and prevention procedures.
  3. Kids' stories and some illustrative posters.

5.6 Selected Tools and Resources for the Integration of Conflict Risk Reduction Education and Peace and Conflict Education into the Curriculum

- *International Institute for Education Planning. 2010. Guidebook for planning education in emergencies and reconstruction. Paris: IIEP.*
  http://www.iiep.unesco.org/?id=1475

  Chapter 4.6 of the guidebook on 'education for life skills: peace, human rights and citizenship' discusses how those issues can be integrated into the curriculum. It provides an overview of strategies that can be used to integrate peace, human rights and citizenship into the curriculum and education programmes and also presents a list of learning outcomes, divided into concepts, skills, values and knowledge.

- *IIEP/UNESCO/UNICEF. 2011. Guidance Notes for Educational Planners. Integrating conflict and disaster risk reduction into education sector planning. Paris: IIEP. 35-36.*

  These guidance notes put forward strategies on how to mainstream conflict and disaster risk reduction measures in the education sector planning process.

- *INEE. 2013. Guidance Note on Conflict Sensitive Education. New York: INEE.*
  http://toolkit.ineesite.org/toolkit/Toolkit.php?PostID=1148

  This guidance note offers strategies for developing and implementing conflict sensitive education programs and policies. It offers guidance on conflict sensitive education design and delivery at all levels and in all types and phases of conflict.

- *Kester K. 2008. 'Developing Peace Education Programs – Beyond Ethnocentrism and Violence' Peace Prints: South Asian Journal of Peacebuilding, Vol. 1, No. 1: Spring 2008.*
  http://www.wiscomp.org/pp-v1/kevin_kester.pdf

This article introduces several conceptual models for peace education, before providing details on curriculum integration as well as discussing learning assessment for peace education curricula.

- *Nicolai, S. (Ed). 2009. Opportunities for change : Education innovation and reform during and after conflict. Paris : UNESCO-IIEP.*
  http://unesdoc.unesco.org/images/0018/001838/183808e.pdf

  This edited volume discusses how education systems can be transformed in conflict and recovery settings, based on 10 country case studies. Of particular interest might be its discussion on the introduction of peace studies in several countries.

- *Pingel F. 2010. UNESCO Guidebook on Textbook Research and Textbook Revision. Paris/ Braunschweig:UNESCO.*
  http://unesdoc.unesco.org/images/0011/001171/117188e.pdf

  This guidebook discusses the role of textbooks in fostering quality education and particularly looks at textbook revision as a means of peace and conflict education.

- *Fountain S. 1999 Peace Education in UNICEF. New York: UNICEF.*
  http://www.unicef.org/education/files/PeaceEducation.pdf

  This paper looks at aims and approaches of peace education programmes, followed by a discussion of participatory learning methodology in peace education. It also discusses the evaluation of peace studies programmes.

- *Salomon G. & Nevo B. (Eds.). 2002. Peace education: The concept, principles and practices around the world. Mahwah, NJ: LEA*

  This book presents views on the nature of peace education, its history, and relationships to neighboring fields. It also examines relevant psychological and pedagogical principles and introduces an array of international examples from countries that have introduced peace studies.

- *Smith A. 2010. The Influence of Education on Conflict and Peace Building, Background Paper Prepred for the Education for All Global Monitoring Report. UNESCO.*
  http://unesdoc.unesco.org/images/0019/001913/191341e.pdf

  This paper discusses how education influences conflict and peacebuilding. As part of its analysis it provides a range of country examples.

- *UNICEF. Undated. Teach UNICEF: Peace Education. Website.*
  http://teachunicef.org/explore/topic/peace-education

  This site provides useful teaching and learning resources including session and lesson plans on peace education.

Chapter 6
Capacity Development in Disaster Risk Reduction Education

Chapter 6 discusses how professional development for teachers, principals and district officers is an important part of DRR education and that DRR training should be holistic and systematized to achieve optimal outcomes. It discusses separate training course components for principals and district officers to support DRR mainstreaming.

Next, it highlights the importance of teacher training and professional development for the systematization of DRR professional development. It introduces the idea of a DRR 'reflective practitioner' – a teacher who is versed in DRR education and does not need any guidebook, as she/he has sufficiently internalized DRR knowledge. It also links to a number of good practices from countries that have engaged in DRR professional development.

6.1 Holistic, Systematized DRR Professional Development

A holistic, systematic conception of DRR professional development – especially if DRR mainstreaming is the ambition – needs to include training not only for teachers , but also for principals and district officers so that they can fulfill significant supporting, legitimizing and catalyzing roles.

6.2 Training Principals and District Officers

Principals and district officers have an important role in overseeing and supporting DRR curriculum integration. Therefor they should be included into training and professional development initiatives. While actively engaging them in teacher education events can be very helpful in this regard, there is a case, too, for specific principal and district officer training so they are properly prepared to support DRR curriculum and pedagogical development. Elements to include in principal and district office training are as follows:

- Understanding of hazards, risks, disasters and DRR;
- Understanding of the links between DRR education, ESD, CCE, CRRE, life skills and child-friendly learning;
- Awareness of hazards and potential disaster impacts in the community and region;
- National and regional DRR policies/strategies and their implications for the education sector;

- Broad overview of roles of school/education in DRR;
- Knowledge of DRR materials and pedagogies to be used in school;
- Strategies and techniques for providing aftercare support to teachers who have participated in DRR teacher training and who are experimenting with new learning and teaching approaches;
- How to plan, coordinate and monitor horizontal (including interdisciplinary) and vertical DRR curriculum integration, assigning roles to staff;
- Understanding DRR formative and summative assessment approaches;
- Principles, concepts, and implementation/supervisory mechanisms for monitoring and evaluating DRR learning at school;
- Strategies and processes for linking and monitoring curricular and co-curricular DRR learning and activities at school;
- Strategies and processes for combining non-structural aspects of DRR (e.g., DRR learning and school disaster management) and structural elements of DRR (e.g., safe school facilities) into a whole school approach to creating a DRR learning institution with a 'culture of safety and resilience';
- Strategies for forging school learning partnerships with parents, local communities, local authorities, other local DRR-related organizations on resilience;
- Strategies for communicating school-based DRR developments and initiatives;

- Skills for organizing and facilitating in-school professional development events.

Much of the same list applies to district officer DRR professional development but with the following additional elements:

- Information sharing and effecting liaison between schools (e.g. hosting DRR learning review meetings at a local level, holding special inter-school DRR events).

- Liaising with regional and national authorities to brief them on district DRR developments and acquire new information to pass to district schools

6.3 Teacher Professional Development for DRR

With some notable exceptions, teacher professional development for DRR has been limited in scope and ambition. In some cases, teachers have received a DRR guidance manual, but no training in its use. In other cases, the training

Curriculum Developers: Needs assessment for DRR professional development is best conducted as part of wider initial curriculum development planning (Stage 1, pp. 39-47) and as part of a baseline study or curriculum review (Section 2.4, pp. 42-3)

offered has been primarily, even exclusively, content focused (i.e., concerned with familiarizing teachers with the new disaster-related content they are being asked to deliver). In yet other cases, some introduction to the facilitation of DRR learning has been given alongside an introduction to new knowledge. However, the training offered generally 'remains of short duration, usually a one-off event, with no evident follow-up, aftercare or learning reinforcement. There is a need for more systematized, reinforced and sustained professional development'.[60]

The systematization of DRR professional development is a crucial element in DRR mainstreaming and is built upon bringing pedagogical institutions into the curriculum development and scaling-up process. This, in turn, involves capacity building of trainers through immersion in the DRR field and in DRR education theory and practice, coupled with awareness and capacity building amongst pedagogical institution management

60   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curriculum: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 9.

BOX 16

ASEAN/ISDR DRR Teacher Training: Goal and Checklist of Questions

Goal: Teachers and relevant educational personnel are properly trained in teaching DRR as part of the school curriculum

- Are curriculum changes linked to training and continued support of teachers to ensure that changes are supported at classroom level?

- Are there resources to coordinate and support necessary training, orientation, or re-orientation of trained teachers?

- Are there immediate programmes for skills development for specific areas such as pedagogy, educational modalities, and content done through workshops, online, study visits, and other alternative forums?

- Is there a long-term capacity development programme for teachers and relevant education personnel for the purpose of teaching DRR?

Source: Taken from ASEAN/ISDR. 2011. *Disaster Resilience Starts with the Young: Mainstreaming Disaster Risk Reduction in the School Curriculum*, p. 16.

and course programmers. Pedagogical institutions need to become DRR learning organizations offering core pre-service and in-service programmes that thoroughly prepare student and in-post teachers with the ability to integrate DRR (along with CCE and ESD) into their curriculum, teaching and learning. Institutional DRR research initiatives need to complement and inform course offerings.

Systematized professional development calls for all or most of the following elements: needs assessment, comprehensive planning, effective and appropriate programme delivery, reinforcement, and aftercare. These are described in more detail below.

Needs Assessment

Prior to the development of the teacher education programme, teachers are surveyed for their perceptions of their learning needs, as well as their perceptions of factors likely to inhibit effective delivery of DRR curriculum, and interventions that would help catalyze change. Principals and inspectors are also surveyed. The results of the needs assessment are then factored as much as possible into programme development.

Comprehensive Planning

The planning process for a teacher professional development programme for disaster risk reduction needs to give equal consideration to:

- the disaster related knowledge and concepts, including DRR education knowledge and concepts, that teachers need to acquire;
- the new learning facilitation capacities and skills they need for delivery of curriculum in a manner and style appropriate to the action-oriented goals of DRR education.

Desired learning outcomes from the training need to be identified and analysed to ensure that the outcomes can be achieved with the proposed programme. See Box XX (Annex 1, p. 162) on teacher training content and pedagogy in Georgia. The Sri Lankan case (Box XXV, Annex 1, pp. 167-70) gives an example of comprehensive and strategic DRR professional training programme development and delivery. It encompasses both pre- and in-service training, and takes scaling-up into consideration from the beginning.

Effective and Appropriate Programme Delivery

Delivery of a DRR professional development workshop should be appropriate to, and match with, teachers' eventual role(s) in the classroom. The trainers should be seen as role modeling the facilitative style and the ways of relating that teachers are to use in the classroom with students. Trainers should particularly focus on being good role models for effectively debriefing activities, so teachers can

Policy Makers/ Curriculum Developers/ Teacher Educators: Comprehensive planning and implementation of DRR professional development is a key element in the scaling up process. See Chapter 8, pp. 101-9

BOX 17

Teachers as Reflective Practitioners

The elements described in 6.1 through 6.3 all relate to the making of DRR reflective practitioners – teachers who are sufficiently knowledgeable in DRR education principles and practices to no longer rely on a guidebook but are easily able to apply DRR thinking within their learning processes and environment. The ability to reflect feeds from and into the quality of their learning facilitation. Their reflection on what has and what has not been successful in their lessons consciously and consistently informs their further teaching.

Timor
© UNICEF/Candido Alves
(see full captions pp. 224-9)

acquire that difficult to master skill. Teachers taking part should feel immersed in a learning process marked by participation, critical and creative thinking, active problem solving, and unrestricted expression of ideas, hopes, fears, reservations, and criticisms. They should find themselves experiencing a diverse range of learning modalities in groups of shifting size and membership. Ideally, as in the Vanuatu case in Box XXI (Annex 1, pp. 162-3), they will also gain practice in classroom facilitation under workshop 'learning laboratory' conditions.

Reinforcement

Exposure to disaster risk reduction education through a one-off event can be inspiring for teachers. However, back in the classroom they may well encounter unanticipated difficulties, including unsympathetic and unsupportive colleagues and school management, with no means through which to air and share them. It is thus important for the sustained professional development of teachers who have experienced DRR facilitation in school to have the opportunity to share and process their experiences with colleagues and trainers. Ideally, as in the Timor Leste case (Box XXIII, Annex 1, pp. 164-6), there should be several opportunities for learning reinforcement. The Timor Leste example also underlines the importance of a process of professional development that not only refreshes learning but also extends learning.

Aftercare

Building aftercare support for teachers into professional development programmes is vital. For example:

- Follow-up visits to schools by members of the training team to discuss with teachers their successes and difficulties, as in the Armenian case, Box XXIV (Annex 1, pp. 166-7)

- Networking teachers so they can act as a sharing and support group.

- Ensuring that at least a pair of teachers from any school are involved, equipping them with mutual support skills so they can observe and creatively critique each other's teaching.

- Equipping principals with the skills to counsel teachers.

- Periodic 'reunions'.

6.4 Patterns of DRR Professional Development: Three Examples of Noteworthy Practice and Process

The Annex describes three examples of professional development processes from Timor Leste (Box XXIII, Annex 1, pp. 164-6), Armenia (Box XXIV, Annex 1, pp. 166-7) and Sri Lanka (Box XXV, Annnex 1, pp. 167-70). Each one reflects elements comprising holistic and systematized DRR professional development as outlined in this chapter.

STRATEGIC POINTERS FOR CHAPTER 6

→ **Policy Makers/Curriculum Developers/Teacher Educators**: Link DRR professional development to the curriculum review/development/piloting process to maximize effect and save time/resources by creating synergies between them.

→ **Teacher Educators**: Avoid DRR teacher professional development being a one-off event by including and emphasizing training reinforcement and aftercare support elements within an overall programme for teachers; also provide linked principal and district inspector training.

→ **Teacher Educators**: In addition to DRR content-related information, ensure that DRR training for teachers and principals (1) offers immersion in different pedagogical approaches; (2) explores how to introduce DRR across the curriculum and how to connect what is learned in different subjects; (3) offers training in DRR learning assessment; (4) explains respective roles in the curriculum evaluation process.

→ **Policy Makers/Curriculum Developers/Teacher Educators**: Work on pedagogical institution DRR capacity building so that DRR professional development is integrated into existing pre- and in-service teacher training programmes and that programmes are enriched through DRR curriculum and pedagogical research.

→ **Teacher Educators**: Combine professional development in DRR with professional development in ESD, CCE, CRRE, life-skills facilitation and child-friendly learning in the appropriate context.

→ **Principals/District Officers**: Learn how to play a legitimizing and catalyst role in DRR curriculum and pedagogical development, and in how to take forward the process of your school becoming a DRR learning organization by taking part in training.

→ **Policy Makers**: Ensure early buy-in of senior ministerial and regional management personnel in the education sector through a DRR briefing, familiarization and/or training courses.

→ **Policy Makers**: Recognize systematic professional development as a critical element in mainstreaming DRR in the curriculum.

6.5 Selected Tools and Resources

• *Global Facility for Disaster Reduction and Recovery (GFDRR). GFDRR Disaster Risk Management On-line Programme*

Visit the following websites for more information:

• Arab Academy for Science, Technology and Maritime Transport: http://www.aast.edu/en/index.php

• Earthquake Megacities Initiative: http://www.emi-megacities.org/home/training/ndrmp.html

• National institute of Disaster Management: http://nidm.gov.in/default.asp

• Middle East Technical University: http://sem.metu.edu.tr/

Ten on-line courses capturing both theoretical and empirical aspects of disaster risk management: 1) Comprehensive Disaster Risk Management; 2) Safe Cities; 3) Damage and Reconstruction Needs Assessment; 4) Earthquake Risk Reduction; 5) Risk Sensitive Land Use Planning; 6) Financial Strategies for Managing the Economic Impacts of Natural Disasters; 7) Community Based Disaster Risk Management; 8) Climate and Disaster Risk Management; 9) Gender Aspects of Disaster Risk Reduction; 10) Risk Analysis.

- *INEE. 2009. Applying the INEE Minimum Standards to Ensure Disaster Risk Reduction through Education.*
  http://www.preventionweb.net/english/professional/trainings-events/edu-materials/v.php?id=15283

  This is a 3.5-day training package targeted at education and disaster management stakeholders. The package includes a training guide with detailed session training notes, simulation sessions and presentations

- *NWFP Directorate of Curriculum and Teacher Education Abbottabad. 2006. Training Guide for Training Teachers in Earthquake Affected Areas.*
  http://www.teachereducation.net.pk/Manuals/Manual15.pdf (English Version)
  http://www.teachereducation.net.pk/Manuals/Manual16.pdf (Urdu Version)

  This practical guide, accompanied by a workbook and resource book, helps teachers use classroom approaches and exercises in contexts affected by earthquakes.

- *UNESCO. 2012. Climate Change in the Classroom: UNESCO Course for Secondary Teachers on Climate Change Education for Sustainable Development. Paris: UNESCO.*

  This 6-day training programme package is designed to enable secondary school teachers to integrate climate change content into their lessons using participatory pedagogies. Climate change is approached within a multidisciplinary frame addressing causes, impacts, ethics, mitigation, adaptation, gender, health, migration, lifestyle and DRR. The package includes: a conceptual framework with guidelines on facilitating participatory learning; 6 full day modules and facilitation support materials (handouts/PowerPoint slides); a regional climate change information pack for each of Africa, Asia, Small Island States, and Europe/North America; some 34 activities that teachers can use back in their own classroom.

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries. Paris/Geneva: UNESCO/UNICEF.*
  http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

  Section 7, 'Teacher Professional Development in Disaster Risk Reduction Education' is particularly relevant to this chapter.

Chapter 7
Facilitating Disaster Risk Reduction Learning in the Classroom, School and Community

Chapter 7 discusses the shift from learning transmission to learning facilitation, making the case for learning facilitation as the main method of instruction for DRR education. It presents a list of the main elements of facilitation, introduces the cycle of facilitative learning and provides hands-on tips on how to effectively debrief DRR learning activities.

It then looks at how teachers can facilitate emotional learning. It makes the point that emotional learning is rarely integrated into DRR curricula, noting that with more and more DRR learning taking place in post-disaster situations, DRR learning needs to integrate psychosocial elements to respond to the emotional needs of students.

Next, it provides suggestions for managing and facilitating DRR learning outside the classroom – on the school campus and out in the community – before giving suggestions to teachers working with the textbook as their sole resource as to how textbook learning might be enlivened. It also provides some ideas for participatory DRR teaching and learning in contexts where there is no textbook available.

7.1 Facilitating Learning Activities

The activities described in Chapter 5 signal a shift in the teacher's role from one of learning transmission to one of learning facilitation. Learning is no longer about teachers delivering and students passively receiving selected, pre-packaged knowledge in which a limited range of skills (i.e., primarily listening, reading and memorization) is practiced. It becomes a much more fluid and dynamic process in which participation and learner empowerment are at the core. The classroom becomes a place for collaborative knowledge building, exchanging opinions and perspectives, critical and creative thinking, active problem solving, unrestricted expression and discussion of hopes and fears, and the catalyst for practical and action-oriented learning. Within such a setting the teacher takes a facilitating role, stimulating the dynamic unfolding of a child-centered and much more open-ended learning process.

The following elements are essential to the facilitative approach and the effective facilitation of activities such as those described in section 5.2 (pp. 79-81):

- Creating a secure, affirmative, inclusive and non-threatening classroom climate.
- Valuing the contributions and experiences of all class members and giving encouragement to the free expression of ideas and feelings.

- Modeling, as teacher, the values upheld in the facilitative approach (the rights of the child, human rights, openness, humaneness, respect, care, compassion, participation) and coming across as a 'real person' and not only as a teacher.

- Resisting the temptation to bring in an excess of information before students have had the opportunity to share and discuss what they already know.

- Avoid giving the perception that there is only one expected outcome or one right answer as a task is introduced.

- Being flexible if there are unanticipated turns in the learning process, or if an unexpected focus of attention takes the lesson in unplanned directions.

- Ensuring constant diversity in the learning approach used, both within an activity and between activities, mixing the pace and rhythm of the learning process according to the mood and needs of the class.

- Ensuring that there are regular shifts in size of group (pairs, small groups, larger groups, whole group) and that students are regularly mixed together in different groups.

- Being seen to also be a learner by acknowledging new ideas and insights received

Teachers: An important section to guide your management of learning

Teacher Educators: It is important to model the facilitative learning style in your professional development programmes

Curriculum Developers: This chapter carries important messages for learning activity development

Teachers/Teacher Educators: Read especially 7.2 (pp. 95-6) on the importance of free expression of emotion

and, from time to time – and especially when a visitor is leading the class – joining and participating in a group activity.

- Debriefing activities effectively to maximize learning and using the debriefing as a catalyst for further learning engagement and action outside the classroom (see Checklist 1).

- Changing, and being seen to change, aspects of the learning process in the light of periodic formative assessment.

Following a cycle of learning as in Figure 9 (next page) is essential to the facilitation of activity-based DRR learning.

The cycle can be applied within a particular activity or across a cluster of activities. In the *security* phase, individual and group self-esteem and confidence are reaffirmed and the inclusive and participatory nature of the classroom is reinforced. This can happen through a special activity or opening phase of a larger activity (such as the 'Feeling Powerful' stage of the *Despair and Empowerment* activity (Annex 2, Tool 15 pp. 194-5). It can also be achieved by beginning a lesson with pair or small group work, where individual learners can gain a sense of security before working in larger groups. In the *challenge and response* phase, students are asked to address an issue using problem solving, creative and lateral thinking

CHECKLIST 1

Debriefing an Activity

- ☐ Begin by asking a few broad, general questions to the whole class not to individual pupils. For instance: 'What new things did you learn from the activity?'; 'What surprised you about what you have done?; 'How did you find the activity?'; 'What special things have you learned about disaster vulnerability and resilience in your village?

- ☐ Also ask feelings questions right at the start if the activity has had an emotional dimension or has triggered an emotional response in pupils (What do you feel about…?, What did you feel when…?) and, only when feelings have been thoroughly aired and shared, move on to ask thinking questions ('What do you think about…?')

- ☐ Note down key points raised by the opening exchanges on the board and use as a checklist to open different areas of discussion as the debriefing progresses.

- ☐ Whenever students contribute an idea, insight or point of view, sum up what has been said and then put it back to the class for further input, e.g., 'Josephine and Edward think the old ways of preparing for a cyclone were the best. What do others think?'

- ☐ Encourage individuals and groups to ask each other questions.

- ☐ Input relevant new information at the end of the debriefing, as much as possible building upon what the students themselves have said and give recognition to their various contributions.

- ☐ Also at this time, introduce corrective information to challenge and provoke discussion surrounding misapprehensions that the debriefing has so far failed to reveal.

- ☐ Display charts and work produced by groups after the session, inviting everyone to take a close look at each other's work.

and decision-making skills, as well as emotional intelligence. Elements of experimentation and risk taking can be involved. In the *debriefing and reflection* phase, students are asked to reflect on, analyze and draw conclusions from the challenges presented by the activity, the goal being to confirm new knowledge and insights, a refinement in skills, or shifts in attitude, values, or perspective. In the *action* phase, students apply their newly acquired knowledge, insights, skills and confidence within real-life contexts such as a school safety initiative, and subsequently review and reflect on the experience. What is important is to recognize the need of more vulnerable students to return, at least briefly, to the affirmation provided by the *security* phase

FIGURE 9

The Phases of Activity-based Learning

Security

↓

Challenge & Response

↓

Debriefing & Reflection

↓

Action

Source: Pike, G. & Selby, D. 1999. *Global Education: Making Basic Learning a Child-Friendly Experience*. Amman: UNICEF MENARO. p. 20.

before going on to engage in the next learning challenge.[61]

The most difficult facilitation skill of all is to conduct a carefully structured debriefing of the activity so as to maximize student learning. The checklist below offers some guidance.

7.2 Facilitating Emotional Learning

Of the learning tools described in Chapter 5 (pp. 74-86), amongst the least visible in current DRR practice worldwide is affective learning (i.e., learning that addresses feelings and emotions).[62] This is a significant omission given that consideration of actual and potential hazard and disaster can elicit strong emotions in the learner. To learn that a disaster once ravaged one's community and that there might be a recurrence unless pre-emptive steps are taken can be frightening for pupils.

The absence of affective learning in DRR education is compounded by the fact that, given the increasing incidence of disaster globally, disaster risk reduction learning will more often take place in post-disaster surroundings or situations of slow-onset disaster. Students learning about reducing vulnerability and building resilience in the face of hazard may have their own traumatic personal experience or be vividly aware of familial or close-to-home experience of disaster. DRR learning messages will be delivered less frequently before disaster strikes.

The teachers' perspective is no different. Facilitating DRR learning is, in itself, very

Teachers/ Teacher Educators: An important section to guide your work

Policy Makers: Enhancing and maintaining the psychosocial wellbeing of students and teachers has a crucial part to play in improving the quality of education

Turn back to 1.1 (pp. 17-9) for discussion of the increasing incidence and severity of disasters globally

Policy Makers/ Teacher Educators: Develop context appropriate support mechanisms to help maintain teacher wellbeing.

61   Pike, G. & Selby, D. 1999. *Global Education: Making Basic Learning a Child-Friendly Experience*. Amman: UNICEF MENARO. p. 20.

62   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UINICEF.

demanding. Facilitating DRR learning of children affected by natural disasters adds a layer of complexity and stress. Facilitating DRR learning when facilitators themselves have been impacted, even traumatized, by life-threatening incidents adds further layers to the demands facing teachers. In such cases, it follows that teachers 'should be encouraged to recognize and address their own stresses before working on supporting the children in needs'.[63]

It is important to remember that a teacher's role is not to conduct therapy, which requires specialist training and skills. What teachers can do is to 'provide psychosocial support to learners by adapting the way they interact with learners, creating a safe and supportive environment in which learners may express their emotions and experiences, and by including specific structured psychosocial activities in the teaching/learning process.'[64]

There is considerable convergence between the facilitation of affective learning, including esteem building, for non-traumatized learners and the facilitation of psychosocial learning for traumatized groups. Checklist 5 (Annex 3, p. 207) presents a facilitation checklist for teachers directed at the latter but with applicability to general facilitation of affective dimensions of learning. For more on children's learning in disrupted contexts, see Box XXVI. (Annex 1, p. 171)

7.3 Facilitating Learning outside the Classroom

Helping learners develop their capacity and skills for positive and proactive engagement in

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BOX 18

What is Psychosocial Wellbeing?

The term 'psychosocial' underscores the close connection between psychological aspects of our experience (e.g., our thoughts, emotions, and behaviour) and our wider social experience (e.g., our relationships, traditions and culture). Wellbeing is a condition of holistic health in all its dimensions: physical; emotional; social; cognitive and spiritual. Also a process, wellbeing consists of the full range of what is good for a person: including participating in a meaningful social role, feeling happy and hopeful, living according to good values (as locally defined), having positive social relations and a supportive environment, coping with challenges through the use of positive life skills and having security, protection, and access to quality services. Education can protect children by helping them recover from the psychological and social effects of distress and by supporting their natural resilience to do so. Teachers may also need help with recovery as well as guidance on how education can be adapted to support the healing process.

Source: Taken from INEE. 2010. *Guidance Notes on Teaching and Learning*. New York: INEE. p. 54.

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disaster risk reduction is one of the key aims of DRR education. Although there have been child-centered and child-led community initiatives to deliver DRR around the world, links to formal curriculum still tend to be weak.

Essentially, there are two approaches to DRR learning engagement in and with the community. One focuses on community research through data collection and analysis, using tools such as

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63   UNICEF. 2006.*Education in Emergencies: A Resource Tool Kit*. Kathmandu: UNICEF ROSA. p. 74.

64   IASC (Inter-Agency Standing Committee). 2007. *IASC Guidelines on Mental Health and Psychological Support in Emergency Settings*. pp. 152-3.

surveys, interviews, questionnaires and observation. The other concerns community-based action projects. The former can be seen as leading into the latter in that community situation analysis can help learners decide on the nature, direction, and focus of community projects and action in which they would like to engage.

The school campus offers a safe practice ground for DRR community projects. Vulnerability assessments, safe school awareness campaigns, 'reduce, re-use, recycle' projects and 'cool the school' climate change initiatives are examples of projects that can take place within the walls of the school. There are multiple opportunities for presenting findings, experiences and outcomes such as assemblies, drama presentations, displays, exhibitions, peer learning and student tutoring of younger children. School-based projects can also give students a first opportunity to work in conjunction with community members invited to the school to assist.

Teacher facilitation of community vulnerability and resilience projects should broadly adhere to the following cycle:

- planning and preparing the situational research;
- conducting the research; debriefing and reflecting on the research;
- engaging with the community about outcomes and building action consensus;
- taking action.

Facilitation of school-focused research and action projects can generally follow the same steps in a reduced process. Tool 16 (Annex 2, pp. 196-7) describes the steps for a community vulnerability and capacity assessment.

For some examples on student-led community DRR activities see Box XXVII. (Annex 1, pp. 171-2)

7.4 Enlivening the Textbook

Much DRR teaching around the world still relies upon the presence of disaster-related topics in textbooks. Consequently, DRR learning remains heavily textbook-dependent. This can present a significant obstacle to the achievement of the skills, attitudinal and action learning outcomes, and use of interactive and participatory learning called for by DRR education. Adding to the problem is that the textbook, usually centrally developed, is a 'one size fits

BOX 19

Questions that Facilitate the Design and Preparation of a DRR Action Project

- What do we want to do? [Name of the Project]
- Why do we want to do this project? [Rationale]
- What will have happened when we implement this Project? [Goals, Objectives]
- What could go wrong? [Risk]
- Where will we do it? [Physical space]
- How will we do it? [List of activities]
- Who is going to do it? [Roles and Responsibilities]
- When are we going to do it ? [Timeframe]
- What do we need in order to do it? [Resources]
- What do we have already? [Existing resources]
- How much will it cost? [Budget]

Source: Plan. 2010. *Child-Centred DRR ToolKit.* pp. 105-106.

all' document that is unresponsive to the need for DRR learning that addresses varied and particular local hazard conditions.

While movement away from textbook-driven DRR remains a project in the works, there are steps that a facilitative teacher can take to enliven textbook-based learning without the availability of additional resources. Figure 9 illustrates some examples.

Several of the examples can also be adapted for use in school and other learning contexts where no textbooks are available. The absence of a textbook can be perceived as an opportunity, allowing students to learn through engaging

with local leaders, elders, parents, disaster risk reduction and climate change agency workers, and other community members. Students can express their learning through brainstorming, stories, interviewing, role plays, tutoring younger students, writing reports, and making posters.

In emergency affected contexts, the basic level of learning supplies available in a UNICEF School-in-a Box kit[65] - exercise books, pencils, erasers, scissors, slates and blackboard paint (to create an ad hoc blackboard) - provides a sufficient resource to initiate participatory, community-engaged learning.

65   http://www.unicef.org/supply/index_cpe_education.html

FIGURE 9

Enlivening the Textbook Experience

Vanuatu
© UNICEF/Giacomo Pirozzi
(see full captions pp. 224-9)

STRATEGIC POINTERS FOR CHAPTER 7

→ **Teachers/ Teacher Educators**: Remember that effective DRR learning involves a shift to being a *facilitator of learning*; the shift requires time and application.

→ **Teachers/Teacher Educators**: Remember, too, that in facilitating activity-based DRR learning, it is important to work to an appropriate cycle of learning that maintains a dynamic balance between security and challenge and action and reflection.

→ **Teachers/Teacher Educators**: The emotive nature of DRR calls for affective (emotional) learning in classroom and school.

→ **Policy Makers/Principals**: Remember that the psychosocial well-being of both teachers and students is critical for quality DRR learning.

→ **Curriculum Developers/Principals/Teachers**: Connect community-based DRR learning/action and formal curriculum-based learning.

→ **Principals**: Create an enabling school environment where teachers are encouraged to facilitate student DRR learning outside the classroom.

→ **Teachers/Teacher Educators**: Developing teacher pedagogical capacity (for facilitation of learning activities, emotional learning, community-based learning, enlivening textbooks) is critical to quality DRR learning.

→ **Policy Makers/Principals/Teachers**: Finding ways of enlivening the existing textbook can be a cost effective way of achieving quality DRR learning.

→ **Policy Makers/Principals/Teachers**: Take advantage of having no textbook by engaging students in community-based learning and having them process and express their learning that requires few resources.

7.5 Selected Tools and Resources

- *International Federation of Red Cross and Red Crescent Societies (IFRC). 2007. VCA Toolbox with Reference Sheets.*
  http://www.ifrc.org/Global/Publications/disasters/vca/vca-toolbox-en.pdf

  This toolkit offers user-friendly tips and advice for conducting vulnerability and capacity assessment (VCA) using various participatory investigation tools.

- *Plan. 2010. Child-Centred DRR Toolkit. London: Plan.*
  http://plan-international.org/files/global/publications/emergencies/DRR-toolkit-English.pdf

  This toolkit provides practical tips and advice for those who work with children for community-based DRR. The toolkit includes four modules: training children on DRR through the hazard, vulnerability and capacity assessment; planning, monitoring and evaluating child centred DRR programmes; action planning with children on DRR; advocacy with children on DRR.

- *Save the Children. 2007. Child-led Disaster Risk Reduction: A Practice Guide.*
  http://www.preventionweb.net/go/3820

  This activity guide helps strengthen children's capacities to understand disaster risks and to take practical actions in their communities. The guide is divided into five sections: context and partnerships; capacity building and awareness raising; programme implementation/activities; monitoring and evaluation/learning and documentation; advocacy. Frameworks for child-led assessment are included in the appendices.

- *UNICEF. 2009. The Psychosocial Care and Protection of Children in Emergencies: Teacher Training Manual.*
  http://toolkit.ineesite.org/toolkit/INEEcms/uploads/1064/Psychosocial_Care_and_Protection.PDF

  This 5-day teacher education manual provides a clear, concrete and accessible guideline to facilitators. The training aims at supporting teachers in improving the psychosocial wellbeing of children affected by crisis and post-crisis situations. The course is structured upon the principles of adult learning and the training stresses active engagement throughout.

Chapter 8
Scaling-up and Mainstreaming Disaster Risk Reduction Curriculum

Chapter 8 focuses on scaling-up and mainstreaming DRR curriculum. It examines three different approaches to scaling-up: the explosion approach, the roll-out approach and the association approach. This is followed by a discussion of the differences between going to scale and mainstreaming, noting that going to scale is a project- or initiative-related notion, while mainstreaming is a more holistic or systemic notion.

Furthermore it includes a discussion of the enabling and disabling factors for scaling-up and mainstreaming DRR curriculum. In addition, it explores the use of the web for scaling-up curriculum development and international collaboration as beneficial for mainstreaming.

8.1 Going to Scale

'Going to scale' or 'scaling-up' refers to processes whereby a development or initiative spreads spatially and engages an increasing number of actors. Going to scale may happen within a community, across communities or may involve the implementation of the development or initiative at national, in some cases supranational, level.

There are a number of approaches to going to scale. One is commonly referred to as the *explosion approach* or *big bang approach*. This involves an initiative being suddenly and ubiquitously applied through national directive. Large, temporarily focused efforts, as often preferred by international donors, are engaged for the development. Maximum coverage is sought in the shortest possible time period. The programme is centrally conceived and 'although community participation and popular education may be considered central elements of the programme philosophy,'[66] the outcomes and implementation are given to communities with little or no tailoring to local contexts. A centrally determined, relatively standardized blueprint design is adopted. The success of the approach rests on the availability of sufficient funding.

While the explosion approach can work well in cases where it replicates proven practice and where there are few components and variables, it has a number of potential drawbacks. Quality may be sacrificed for quick coverage; explosion

does not generally embody a sufficiently extensive learning process to ensure thoroughgoing capacity adjustment; faults in the original conception can prove costly if not tested before implementation in the diverse contexts where the development will be applied.[67]

A second approach is usually described as the *scale by expansion* or *roll out approach*. Here a new programme is first developed and applied on a relatively small scale, adjusted in the light of experience and evaluation, and then replicated in a manageable number of new locations before spreading out in waves until the whole country is covered. A three-stage learning process parallels the roll out in which programme developers and implementers:

- *Learn to be effective* (i.e., fix the problems in their programme);

- *Learn to be efficient* (i.e., adopt means to bring the programme to more stakeholders, including through capacity training of personnel);

- *Learn to expand* (i.e., develop the organizational capacity and capabilities for at-scale implementation).[68]

The roll out approach allows for flexibility to learn from and through experience, it enables the discovery of what works best, and it supports sensitivity to different contexts. 'This heuristic approach to scaling up may appear

Policy Makers/ Curriculum Developers: This Chapter offers vital guidance on DRR curriculum policy and strategy development

Policy Makers/ Curriculum Developers: The Georgia case study (Annex 1, Box VIII, p. 149 and XII, pp. 154-5) and Sri Lankan case study (Annex 1, Box XXV, pp. 167-70) are examples of successful DRR curriculum development primarily using the *explosion* approach to scale

Policy Makers/ Curriculum Developers: The Timor Leste case study (Box XXIII, Annex 1, pp. 164-6) offers a successful example of going to scale by *expansion*

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66   Myers, R.G. 1984. *Going to Scale. A paper prepared for UNICEF for the Second Inter-Agency Meeting on Community-based Child Development*, New York, October 29-31 1984. pp. 8-9.

67   Ibid. p. 9; UNICEF. 2009. *Child Friendly Schools Manual*. New York: UNICEF. 9.1.1

68   Myers, R.G. 1984. *Going to Scale. A paper prepared for UNICEF for the Second Inter-Agency Meeting on Community-based Child Development*, New York, October 29-31 1984. pp. 7-8.

to be slower and less efficient, but it allows for applying lessons learned and making changes to improve the model as it is rolled out to more schools. It also avoids costly errors, which is especially important when available resources are limited.'[69] The approach can suffer from a lack of sufficient high-level commitment, and therefore require intensive financial and labor commitment in order to finally realize scaling-up. There has been a recurrent tendency in the DRR in education field of 'not thinking through what you will do, if you succeed'. Adopting an effective approach to expansion means thinking through the scaling-up process at the point of initial design.[70]

A proponent of the expansion approach, FutureGenerations, uses the acronym SCALE to denote Successful Change As Learning

Experiences. The organization offers a 'biological' approach to scale that is sensitive to local ecology, culture and economics and in which change is first successfully developed within community contexts. Once capacity has been developed the original communities become regional training centers for neighboring communities. The network of training centers creates 'regional niches' of practice that, at a third stage, coalesce towards national coverage, sometimes 'like wildfire'.[71]

A third approach is to achieve *scale by association*. Here scale is achieved by joining together previously independent projects or initiatives sharing similar and/or overlapping characteristics. Scale by association can happen by chance. Or, it can be supported with government funds in the knowledge that it is likely to cost less to implement than the big bang or roll out approaches.[72]

The principal approaches to movement to scale outlined here are by no means mutually exclusive and it is quite usual to use a hybrid mix of approaches for scaling-up DRR curriculum development, as evidenced by the examples and cases presented in the Annexes. Examples of the *symbiosis approach* (see Chapter 4.3) whereby DRR curriculum development is embedded within Life Skills, ESD and Environmental Education initiatives involve scale by association but also amalgamate elements of scale by expansion. The 'Georgia Head of Class Hour' programme development (Annex 1, Box VIII, pp. 148-9 and Box XII pp. 154-5) was quickly

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69   UNICEF. 2009. *Child Friendly Schools Manual*. New York: UNICEF. 9.1.1

70   UNISDR. 2012. *Assessing School Safety fro Disasters – A Baseline Report.* Geneva: UNISDR. Thematic Platform for Knowledge and Education.

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71   http://www.future.org/applied-research/process-change/going-scale

72   Myers, R.G. 1984. *Going to Scale. A paper prepared for UNICEF for the Second Inter-Agency Meeting on Community-based Child Development*, New York, October 29-31 1984. pp. 10-11.

Policy Makers/ Curriculum Developers: The *symbiosis approach* to curriculum development described, with examples, in Chapter 4.3 (pp. 67-8) is a strong example of development primarily using *scale by association* for DRR curriculum mainstreaming

FIGURE 10

Approaches to Scale

Scale by Explosion

Scale by Expansion

Scale by Association

implemented at scale and was primarily achieved through scale by explosion complemented by elements of scale by expansion. The Sri Lankan 'Disaster Risk Management and Psychosocial Care in Schools' project (Annex 1, Box XXV, pp. 167-70) employs features of expansion to scale within a frame of explosion to scale through the provision of teacher education.

8.2 Mainstreaming

The terms 'going to scale' and 'mainstreaming' are often used synonymously. But these terms, while closely related and considerably overlapping, are not the same. Going to scale is a project- or initiative-related notion in which particular products of the development in question achieve widespread take-up. Mainstreaming, on the other hand, is a more holistic or systemic notion. Key impulses, ideas, concepts and models are infused across all aspects of, for example, an education system including 'the processes and parameters that shape the system' during mainstreaming. Educational policy, planning, curriculum implementation, staffing, training, management and leadership, supervision, monitoring, evaluation and reporting 'intrinsically embrace' the approach. 'The advantage offered by mainstreaming is that it promotes sustainability. The model becomes an integral part of the education system rather than a project that needs to be fully integrated into the system later as it takes hold in schools and districts'.[73] Essentially, mainstreaming is about creating the most widely and deeply conducive context for movement to scale.

73   UNICEF. 2009. *Child Friendly Schools Manual*. New York: UNICEF. 9.1.1

BOX 20

Six Areas Crucial to the Process of DRR Mainstreaming

Policy – where there is, optimally, full policy development understood and accepted across the organization

Strategy – where there is a comprehensive mainstreaming strategy based on an agreed conceptual framework and policy

Geographical Planning – where there is ongoing analysis of contextual variations in vulnerabilities and associated needs and priorities

Project Cycle Management – where DRR is routinely part of the stages of planning, implementation and evaluation

External Relations – where the 'public face' reflects DRR policy and strategy and there is collaboration with other key players and regional and global actors

Institutional Capacity – where there is capacity to take forward all the above-described areas

Source: La Trobe, S. & Davis, I. 2005. *Mainstreaming disaster risk reduction: a tool for development organizations*. Teddington (Middlesex): Tearfund. 4,10-15. http://www.tearfund.org/webdocs/Website/Campaigning/Policy%20and%20research/Mainstreaming%20disaster%20risk%20reduction.pdf

8.3 Considerations in the DRR Education Scaling-Up/ Mainstreaming Process

An ASEAN Knowledge Sharing Workshop on *Mainstreaming Disaster Risk Reduction in Education*, held in Malaysia in February 2011, identified ten main 'areas of performance' in any DRR curriculum mainstreaming process. They are listed and elaborated below.

Curriculum Developers: It is important to having a 'scope and sequence' roadmap to guide the integration and scaling up process

1. Political commitment and support, with coordination mechanisms in place involving relevant bodies
   - Multi-sectorial national disaster management committee usually with prime minister as chair
   - Technical working group with focus on DRR mainstreaming
   - Clearly demonstrated government commitment

2. Establishing a legal mandate and regulations for DRR in the school curriculum
   - National legislation in place to expedite DRR mainstreaming
   - Associated compliance and accountability mechanisms in place

3. National DRR policies and plans
   - DRR education policies issued separately by the Ministry of Education or incorporated in comprehensive national DRR plans
   - Corresponding allocation of resources
   - Clear cross-departmental understanding and commitment to policy

4. Multi-sectorial committee (or equivalent) in place to spearhead mainstreaming of DRR in the curriculum
   - Committee a collaboration between the ministry of education and the national disaster management organization, with others
   - Committee has authority, resources and the ability to implement
   - Implementation on the ground through a technical working group

5. Using the national curriculum process to mainstream DRR
   - Institutionalization of DRR by harmonizing development with established curriculum review and development cycle
   - Development of curriculum including identification of learning outcomes

6. Development of curriculum materials on DRR and pilot testing
   - Instructional materials of sufficient quality developed and approved
   - Materials pilot tested and validated following training of pilot teachers

7. DRR in co-curricular and extra-curricular activities
   - Inclusion in the school calendar of co- and extra-curricular programmes
   - Allocation of time and resources for the programmes

8. Non-formal education activities in DRR
   - Inclusion of DRR in community-based activities and alterative learning programmes

9. Teacher training and professional development
   - Teachers properly trained to deliver DRR as part of the school curriculum
   - Resources in place to support the training (handbooks, manuals)

- Long-term capacity development programme for teachers in place

10. Assessing student knowledge on DRR/ evaluation of effectiveness of instruction

- Mechanisms in place to comprehensively assess students' knowledge and skills development as the result of DRR-enhanced curriculum

- Assessment and evaluation of outcomes shared with those responsible for drafting and revising the curriculum.[74]

An OECD *Policy Handbook on Natural Hazard Awareness and Disaster Risk Reduction Education* focuses not so much on the mechanics of movement to scale and main-streaming but on the communication qualities and styles called for in creating a climate condu-cive to consensus-based scaling up of DRR.

- **Messages should be clear, consistent and persistent**: 'a consensus message from a broad array of trusted sources, can be crucial to effective risk reduction'

- **Non-technical language**: using everyday terms and concepts in the public domain

- **Messages should put disaster risk into perspective**: so reducing the emotional impact of hazard

- **Promotion of both awareness and action**: what is said should be immediately action-able rather than disempowering with a problem-solving rather than rules-based approach generally employed

- **Engaging format**: engaging, attractive and interactive public education materials employing a range of innovative strategies for engagement

- **Positive, empowering and accurate examples**: positive, empowering and faithfully-described examples of disaster risk reduction are preferable to images of destruction

- **Targeting of multiple audiences**: public awareness and education activities that give positive images of women, children and minority groups and that reach vulnerable sub-populations are vital

- **Multiple dissemination strategies**: multiple communication modalities can help shift people from contemplation to action to development

- **Long-term strategic planning**: collaborative multi-messaging from various governmental bodies, corporate leaders, civil society orga-nizations and educational institutions.[75]

In their endeavors to scale up and mainstream their work, DRR curriculum developers are certain to encounter *enabling* factors that will smooth and advance progress as well as *disabling* factors that will inhibit, impede and disrupt progress. Some key enabling and disabling factors are highlighted in Table 4 (next page). The factors are drawn together under three categories: *Resources and Information; Political Will, Leadership and Structures; Process*. The list is by no means exhaustive. Use Tools 17 and 18 (Annex 2, p. 198) for a SWOT analysis of scaling-up/mainstreaming DRR curriculum and on tackling disabling factors in the scaling-up/ mainstreaming process.

Policy Makers/ Curriculum Developers: Be aware of enabling and disabling factors from the outset of DRR curriculum development

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74   ASEAN/UNISDR. 2011. *Disaster Resilience Starts with the Young: Mainstreaming Disaster Risk Reduction in the School Curriculum*. Jakarta: ASEAN.

75   OECD. 2010. *Policy Handbook on Natural Hazard Awareness and Disaster Risk Reduction Education*. Organization for Economic Co-operation and Development. pp. 23-4. http://www.oecd.org/dataoecd/24/51/42221773.pdf

TABLE 4

Enabling and Disabling Factors in Scaling-up/Mainstreaming DRR Curriculum		
	Enabling Factors	Disabling Factors
Resources and information	Sustained funding flow	Funding for scale not available or cut off
	Essential resources and information made available to all stakeholders in appropriate form at all key points in movement to scale	Essential resources and information not delivered to stakeholders in appropriate form at key moments in movement to scale
Political Will, Leadership and Structures	Proactive political commitment and partnership ethic on the part of all key stakeholders	Territoriality, passive or reluctant commitment on the part of one or more key stakeholders
	Legal and regulatory systems in place to enable mainstreaming of DRR curriculum	Legal and regulatory systems do not exist to enable mainstreaming of DRR curricula
	Quality, commitment and vision of pre-scale leadership demonstrated by leadership at all stages of movement to scale	Failure to translate quality, commitment and vision of pre-scale leadership to support and guide scaling-up process
	A clear national policy and strategy to mainstream DRR curriculum supported by known and understood national coordination mechanisms	A lack of clear national policies and strategies to mainstream DRR curriculum and imprecise, ill-understood national coordination mechanisms
Process	Broadly conceived professional development aimed at active, sustained and reflective capacity building	Narrowly conceived (e.g., technical tips) one-off event capacity building or no capacity building
	Pre-scale sense of participation and ownership retained by those involved during scaling-up process	Pre-scale sense of participation and ownership not replicated during scaling-up process
	Challenging nature of DRR innovation embraced at successive levels during scaling-up process	Challenging nature of DRR innovation becomes threatening, leading to 'watering-down' at the higher political levels
	At-scale initiative signals that local and regional contextual adaptation should be accommodated and welcomed	A 'one size fits all' approach to curriculum development not allowing for local and regional adaptation
	Anticipation and active pre-emption of barriers to movement to scale	Failure to anticipate and pre-empt barriers to movement to scale
	Informed movement to scale (i.e. guided by lessons learned through pre-scale monitoring and evaluation and research) built into advocacy and practice	Failure to monitor, gather data, evaluate and research DRR curriculum innovation leading to uninformed advocacy and practice
	Coordination and dissemination mechanisms for good practice are in place	Initiatives remain in isolation and there is a lack of interplay and synergy between them
	Working in step with the national cycle of curriculum review and development	Working out of step with the national cycle of curriculum review and development

Source: Adapted from UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula. Case Studies from Thirty Countries..* p. 57.

8.4 Web-based approaches to scaling up DRR curriculum

Web-based DRR curriculum development can keep pace with, even surpass, the explosion approach to going to scale given the speed with which it reaches teachers and students as well as the numbers reached with relatively low resource allocation.

In Turkey, an online *Basic Disaster Awareness in Turkish Schools* project successfully used the internet as a starting point to train almost 300,000 teachers in the basics of DRR. For more details see Box XXX (Annex 1, p. 174).

New Zealand has also created a web platform for DRR roll-out in schools across the country through the Ministry of Civil Defence and Emergency Management's *What's the Plan Stan?* teaching and learning resource, aimed at both teachers and students (see Box XVII, Annex 1, pp. 159-60).[76]

'E-learning self-study and online curricular resources are 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 broad group of teachers (and students) with consistent foundational content, which can then be applied and enriched with local context.'[77]

8.5 International/Regional Collaboration Support to Mainstreaming

The increasing number of regional and sub-regional partnerships for DRR shows that such partnerships can make a significant contribution to mainstreaming.

An early example was the 2004-9 three-country initiative of the Regional Consultative Committee (RCC) on Disaster Management directed at integrating DRR in the lower secondary school curriculum. Comprising the heads of 26 Asian disaster management offices, RCC launched a Mainstreaming DRR into Development programme with education as one of five priority sectors. Lao PDR, Cambodia and the Philippines expressed interest in taking up a priority implementation partnership (PIP) to mainstream DRR in education by incorporating DRR in the school curriculum and promoting hazard resilient construction of school buildings. The PIP led to significant curriculum development in each country. Mainstreaming DRR curriculum efforts have been guided by the regional road map laid down by the 2007 *Ahmedabad Action Plan for School Safety* and the 2007 *Bangkok Action Agenda*.[78]

A more recent example has been the establishment of a Regional Thematic Platform for DRR safe school and curriculum development in Latin America and the Caribbean. Education

Policy Makers/ Curriculum Developers: Make full use of global networks and partnerships for DRR curriculum development (Box VI, Annex 1, p. 147)

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76   http://www.whatstheplanstan.govt.nz/eaethquake.html

77   UNISDR. 2012. *Assessing School Safety fro Disasters – A Baseline Report*. Geneva: UNISDR Thematic Platform for Knowledge and Education.

78   Rego, L., Bhatia, S., Magyi, K.M., Anisur, R. & Roy, A.S. 2007. *Mainstreaming Disaster Risk Reduction (DRR) into Education Sector*, in Asian Disaster Management News,13,3, 1-3.; MOE/NDMO/UNDP/ADPC/ECHO. 2010.; *Mainstreaming Disaster Risk Reduction in the Education Sector in Lao PDR*; MoEYS/NCDM/ UNDP/ADPC/ECHO.2010. *Mainstreaming Disaster Risk Reduction in the Education Sector in Cambodia*; DepEd/NDCC-OCD/UNDP/ADPC/ECHO.; Undated. *Mainstreaming Disaster Risk Reduction in the Education Sector in the Philippines*.

ministers and senior officials attending the Latin American Conference on Disaster Risk Reduction in the Education Sector in Panama City, October 2011, expressed strong commitment to advancing a safer schools agenda and integration of DRR into the school curriculum. In a joint declaration, the ministers of education and other governmental delegates pledged themselves to regional collaboration for DRR education by constituting 'a Regional Thematic Platform for disaster risk management in the education sector' and by strengthening 'coordination and cooperation links between the ministries and secretariats of education in Latin America and the Caribbean in regard to disaster risk management'.[79]

79   http://www.unisdr.org/campaign/resilientcities/news/ view/23468

Such forms of collaboration can be beneficial in a number of ways. First, they can create a deeper sense of ownership of the mainstreaming process on the part of ministries of education and national disaster management organizations, not least through having to report on progress to ministerial peers of partner nations. Second, an international commitment to mainstreaming can bring additional energy to the realization of domestic commitments, not least because of the 'competition within collaboration' that tends to be a feature of goal-oriented international agreements. Third, collaboration offers opportunities for a sharing of good mainstreaming practice. Fourth, regional curriculum development can benefit the participating countries through the sharing of resources and costs.

STRATEGIC POINTERS FOR CHAPTER 8

→ **Policy Makers/Curriculum Developers:** Consider scaling-up/mainstreaming strategies/ implications from the very outset of DRR curriculum development and design.

→ **Policy Makers/Curriculum Developers:** Decide the best mix of scale by explosion, expansion and association for your context.

→ **Policy Makers/Curriculum Developers:** Systematically consider and plan for the 'ten main areas of performance' in DRR curriculum development.

→ **Policy Makers:** Pay attention to effective communication qualities/styles to apply to the DRR curriculum scaling-up/mainstreaming process.

→ **Policy Makers/Curriculum Developers:** Address the enabling and disabling factors in scaling up/mainstreaming DRR curriculum in your context and creatively and resourcefully consider how to capitalize on the former and avoid the latter.

→ **Curriculum Developers:** Consider web-based DRR curriculum development and professional development as an option for scaling-up by explosion involving relatively low resource allocation.

→ **Policy Makers/Curriculum Developers:** Take full advantage of international and regional collaborative mechanisms to support mainstreaming.

Kazakhstan
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(see full captions pp. 224-9)

8.6 Selected Tools and Resources

- *Asian Disaster Preparedness Centre (ADPC). 2007. Mainstreaming Disaster Risk Reduction into Education Sector. Asian Disaster Management News, 13: 3.*
http://www.adpc.net/v2007/ikm/ONLINE%20DOCUMENTS/downloads/2008/Mar/ADPCnewsletterSepDec2007Vol13No3.pdf

  This issue showcases practices to help the mainstreaming of disaster risk reduction in education in the Asia and Pacific region by highlighting initiatives in Cambodia, Fiji, India, Indonesia, Iran, Lao PDR, New Zealand, Philippines, Sri Lanka, Turkey, Uzbekistan, and Vietnam.

- *Asian Disaster Preparedness Centre (ADPC). 2007. Regional Consultative Committee on Disaster Management (RCC) Programme on Mainstreaming Disaster Risk Reduction into Development (MDRD). Integrating Disaster Risk Reduction into School Curriculum: Consultation Version 3.1. Pathumthani, Thailand: Asian Disaster Preparedness Center.*
http://www.preventionweb.net/files/4006_ADPCEducGuidelineConsultationVersion3.1.pdf

  After a brief exploration of reasons for teaching disaster risk reduction in school and discussion of DRR integration in the school curriculum, four key approaches to mainstreaming DRR in curriculum are reviewed as well as six implementation steps (see 3.6, pp. 61-3) with supporting case study examples.

- *ASEAN/UNISDR. 2011. Disaster Resilience Starts with the Young: Mainstreaming Disaster Risk Reduction in the School Curriculum. Jakarta: ASEAN Secretariat.*
http://202.46.9.39:8889/Portals/0/dis-res-young-asean-lowres-final.pdf

  This document lists key questions to be asked about mainstreaming DRR curriculum and provides indicators for assessing progress towards mainstreaming according to the ten performance areas (see 9. 3, pp. 176-7, and 10. 2, Box 51, pp. 188-90).

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries. Paris/Geneva: UNESCO/UNICEF.*
http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

  Section 9, 'Integrating Disaster Risk Reduction in the Curriculum; Other Aspects of Policy, Planning and Implementation' is particularly relevant to this chapter.

Chapter 9
Monitoring and Evaluating Change: Towards Continually Informed and Revitalized Practice

Chapter 9 provides insight and guidance on the need for monitoring and evaluation of curriculum change, as well as exploring the nature and use of indicators. It notes that monitoring and evaluation are important parts of the curriculum development process and should be considered from the outset. It explores the differences between monitoring and evaluation, noting that monitoring is an on-going process following the curriculum development process. Evaluation takes place at certain distinctive points during the process and involves more in-depth study of a curriculum development initiative by collecting detailed evidence.

Next, it explores a number of monitoring and evaluation indicators. It discusses the use of qualitative and quantitative indicators and shares several real-world examples of indicators that might be helpful for evaluating the DRR curriculum integration process. This is followed by specifically discussing monitoring and evaluation tools for DRR education. It then highlights the importance of stakeholder involvement in various aspects and stages of DRR curriculum monitoring and evaluation processes.

9.1 Why Monitor and Evaluate Curriculum Change?

Monitoring and *evaluation* are important aspects of curriculum development. They need to be considered from the outset and included in the different stages of curriculum change. They need to be planned and conducted strategically and thoroughly to keep track of the progress of interventions, and inform future curriculum directions, including decisions relating to scaling-up. They provide the 'means of driving forward the dynamic process of change'.[80]

Monitoring and evaluation of curriculum change are linked exercises but with some differences. *Monitoring* is the routine tracking of the process of curriculum intervention through on-going data collection. It is guided by the intended plan, goals and objectives. It is conducted over an extended period of time and records whether planned activities are being carried out or deviated from and in what way(s). Monitoring gives opportunities for those who are involved to learn from experiences and improve on-going activities in a timely manner. It provides information and evidence for accountability and advocacy.[81]

Curriculum evaluation involves more in-depth study of a curriculum development initiative by

collecting evidence. *Process evaluation*, done along with monitoring, collects data to measure how well intended curriculum activities are being delivered. It assesses the on-going quality and scope of curriculum intervention implementation. *Outcomes* and *impact evaluation* determine whether and to what extent intended outcomes

BOX 21

Widely-Used Programme Evaluation Criteria

- **Relevance**: What is the value of the intervention in relation to other priority needs, issues and efforts?

- **Effectiveness**: Is the activity achieving satisfactory progress set against stated objectives?

- **Efficiency**: Does the programme use the least costly resources to achieve its results in the given context?

- **Impact**: What are the results of the intervention, including the social, economic and environmental effects on individuals, communities and institutions both in the short and long term?

- **Sustainability**: Will the activity and its impact likely continue when external support is withdrawn, and will it be replicated or adapted?

Source: Taken from UNICEF. 2006. *Education in Emergencies: A Resource Tool Kit*. Kathmandu: UNICEF ROSA, p. 144.

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80   UNICEF. 2009. *Child Friendly Schools Manual*. New York: UNICEF. Chapter 8.5.

81   UNICEF. 2006. *Education in Emergencies: A Resource Tool Kit*. Kathmandu: UNICEF ROSA; UNICEF. 2009. Child Friendly Schools Manual. New York: UNICEF. Chapter 8.

have been achieved; whether changes resulted from the curriculum intervention and what these were; whether curricular interventions have influenced the knowledge, attitudes, skills and behaviours of the targeted audience.[82]

Evaluation takes place at agreed points during the curriculum intervention cycle.

- **Formative evaluation** is conducted during the implementation so as to provide inputs into the planning and designing of subsequent implementation phases. Needs assessment and baseline research are forms of formative evaluation and they provide baseline data for a summative evaluation.

- **Summative evaluation** takes place at the end of curriculum implementation cycle. It can also take place some time after the implementation to analyze long-term impacts.[83] Both formative and summative evaluation exercises draw upon monitoring data that has already been collected.

9.2 DRR Monitoring and Evaluation Using Indicators

In determining what to monitor and evaluate from a DRR curriculum development initiative, taking the following into account can be helpful:

- **Rationales and goals**: What are overall goals and targets of the DRR curriculum? What are overarching goals of the monitoring and evaluation? Who will use the results of the monitoring and evaluation (e.g., donors, government, school communities) and how it will be used?

- **Focus**: Based on the determined goals, what are areas of focus of the DRR intervention (e.g., DRR in-service teacher training;

DRR student resource development)?

- **The spatial level of analysis**: Is monitoring and evaluation focused on one level or multiple levels (e.g., classroom, school, locality/district, regional, national, international)?

- **Key questions**: Based on the overall goals and the areas of focus, what are the main questions (or indicators) which monitoring and evaluation should answer or address.[84]

Indicators are management/enquiry tools for identifying progress and achievements set against the aims, objectives and targets of the project or initiative.[85] An indicator is 'a measure that is used to demonstrate change in a situation, or the progress in, or results of, an activity, project or programme.'[86] Indicators can be established from the outset of the intervention, although it is important to leave some flexibility to include new indicators as the initiative advances and new considerations emerge.

There are a number of different types of indicators, each with a different function and focus. Table 5 (next page) shows key types of indicators as described in relevant literature.

Indicators are expressed in quantitative and qualitative form. Quantitative indicators are expressed in terms of counts, percentages, ratios, proportions or averages. Qualitative indicators are expressed in words. Analysed

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82   Ibid.

83   Ibid.

84   Adapted from Sinclair, M. with Davis, L., Obura, A.& Tibbitts, F. 2008. *Learning to Live Together: Design, Monitoring and Evaluation of Education for Life Skills, Citizenship, Peace and Human Rights*. Eschborn, Germany: GIZ: Geneva.

85   There are other forms of evaluation such as illuminative and naturalistic evaluation that shy away from using indicators. See Denzin, N.K. & Lincoln, Y.S. 2003. *Strategies of Qualitative Inquiry*. Thousand Oaks, CA: Sage.

86   UNICEF. 2006. *Education in Emergencies: A Resource Tool Kit.* Kathmandu: UNICEF ROSA; UNICEF. p. 145.

together in an assessment, they can indicate the presence or absence of an achievement or criteria (e.g., the existence of a government policy to integrate DRR into curriculum), or they can be expressed as descriptions related to how, what, when, where, who, which, and why.

A graduated 5-point or 3-point (Likert) scale from 'no progress' through to 'full achievement' provides one possibility to quantify qualitative characteristics. For example, progress according to the Hyogo Framework for Action (HFA) (which

includes priority 3 core indicator 3.2 on 'School curricula, education material and relevant trainings include DRR and recovery concepts and practices') has been self-assessed by governments according to five levels of progress achieved as outlined in Table 6.

The 3-point scale system for ten DRR curriculum performance areas (Box 22) based on the DRR curriculum mainstreaming experiences of ASEAN member states offers a valuable example of how to systematically and comprehensively assess a mainstreaming progress.

TABLE 5

Types of Indicators and Indicator Functions	
Types of Indicators	Indicator Function
Context Indicators	• To identify the existence of supportive mechanisms, systems, public opinion towards the curriculum intervention
Process Indicators	• To identify coverage (reach), stakeholder satisfaction, levels of participation in decision-making, implementation process of the curriculum innovation
Input Indicators	• To measure human, financial, material, technological, informational resources being fed into the curriculum intervention
Output Indicators	• To measure immediate, usually tangible, results (e.g. tools, products, resources and services) of the curriculum intervention
Outcomes Indicators	• To measure immediate, tangible and less-tangible results generated by the curriculum intervention
Impact Indicators	• To measure long term, tangible and less tangible results of the curriculum intervention

Source: Amalgamated and adapted from Sinclair, M. with Davis, L., Obura, A. & Tibbitts, F. 2008. *Learning to Live Together: Design, Monitoring and Evaluation of Education for Life Skills, Citizenship, Peace and Human Rights.* Eschborn, Germany: GIZ; Geneva; Tilbury. D., Janausek, S., Denby, L. Elias, D., & Bacha, J. 2007. *Asia-Pacific Guideline for the Development of National ESD Indicators.* Bangkok: UNESCO Bangkok; UNICEF. 2006. *Education in Emergencies: A Resource Tool Kit.* Kathmandu: UNICEF ROSA; UNICEF. *Life Skills: Monitoring, Evaluation and Assessment.* http://www.unicef.org/lifeskills/index_10489.html

TABLE 6

HFA Indicator 3.2: Five Levels of Progress Achieved				
1	2	3	4	5
Minor progress with few signs of forward action in plans or policy	Some progress, but without systematic policy and/or institutional commitment	Institutional commitment attained, but achievements are neither comprehensive nor substantial	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/or operational capacities	Comprehensive achievement with sustained commitment and capacities at all levels

BOX 22

ASEAN/ISDR DRR Curriculum National Progress Indicators

1. Area of Performance: Political Commitment

1	2	3
Neither coordination mechanisms nor political 'champions' exist in support of DRR mainstreaming in the education sector.	Political 'champions' from the Ministry of Education, NDMO or other sectors, both governmental and non-governmental, exist and are actively promoting DRR mainstreaming in education (e.g. press releases, speeches), albeit in an uncoordinated manner.	Formal mechanisms of coordination and collaboration (e.g. memorandum of understanding) between and among the Ministry of Education, national disaster management office, other relevant government agencies are established and functioning, exemplifying a whole-government approach to mainstreaming DRR in education.

2. Area of Performance: Legal and Regulatory Systems

1	2	3
No legislation exists related to mainstreaming DRR in education.	National legislation passed with provisions recommending the mainstreaming of DRR in the education sector.	National legislation passed with provisions requiring the mainstreaming of DRR in the education sector.

3. Area of Performance: National DRR Policies and Plans

1	2	3
The Ministry of Education has no policy related to mainstreaming DRR in school curriculum; national plan for DRR does not identify mainstreaming DRR in education in general as a key component or strategy.	Policy on mainstreaming DRR in school curriculum still being developed, but there exists a national plan for DRR that includes mainstreaming DRR in education as a priority.	Official policy on mainstreaming DRR in the school curriculum adopted and being implemented by the Ministry of Education, with corresponding budget support.

4. Area of Performance: Institutional Structures and Mechanisms

1	2	3
A multi-sectorial committee (or equivalent) does not exist and there are no plans to create one at the present time.	A multi-sectorial committee (or equivalent) exists but without clear mandates, authority, mechanisms or resources to implement DRR-related changes in the school curriculum.	A multi-sectorial committee (or equivalent) exists and functions with clear mandates, authority, mechanisms and resources to implement DRR-related changes in the school curriculum.

Note: In the original document, less achievement is indicated by 3 and high achievement by 1. The numbering system here has been reversed so that it is consistent with the HFA 5 point scale system mentioned above, i.e., 1 for no or little progress and the higher number for higher achievement.

Policy Makers/ Curriculum Developers: Refer to 9.3 (pp. 116-8) for discussion of areas of performance.

BOX 22 continued

5. Area of Performance: Using the National Curriculum Development Process to Mainstream DRR

1	2	3
DRR is not yet integrated in the school curriculum, although there are plans to do so in the near future.	DRR integration is incomplete or incipient, and not yet part of the regular curriculum review and development cycle.	Relevant knowledge, attitudes, skills, and learning outcomes related to DRR are fully integrated in the school curriculum as part of the regular curriculum review and development cycle.

6. Area of Performance: Developing Instructional Materials on DRR and Pilot Testing

1	2	3
Instructional materials are developed without conscious consideration for DRR.	Instructional materials integrating DRR are partially developed and not available for the entire country.	Instructional materials integrating DRR are developed and validated by experts, duly approved by relevant authorities, and distributed for nationwide usage.

7. Area of Performance: DRR in Co-Curricular and Extra- Curricular Activities

1	2	3
Co-curricular and extra-curricular activities related to DRR are conducted rarely, if at all.	Co-curricular and extra-curricular activities related to DRR are being conducted irregularly or on an ad hoc basis.	Co-curricular and extra-curricular activities related to DRR are being planned and conducted regularly as part of the academic calendar.

8. Area of Performance: Non-formal education activities in DRR

1	2	3
DRR is not integrated in non-formal education and there are no plans to do so in the present time.	DRR is not formally incorporated in non-formal education activities, but certain initiatives and plans are currently underway.	DRR is taught as part of an established non- formal education programme, such as through community-based activities, with corresponding textbooks and other instructional materials fully developed.

BOX 22 continued

9. Area of Performance: Training of Teachers in Disaster Education

1	2	3
There are presently no opportunities for teachers and other relevant education personnel to enhance their knowledge and skills in teaching DRR.	There are no long-term programmes for training teachers on DRR, and short-term interventions are still inadequate to capacity build all teachers and other relevant education personnel.	Short- and long-term training and professional development programmes related to teaching DRR are provided to teachers and other personnel, which may be done in collaboration with INGOs, NGOs and other concerned stakeholders.

10. Area of Performance: Assessing Student Knowledge on DRR

1	2	3
There is no established mechanism to effectively assess learning outcomes related to DRR.	Evaluation of students' DRR-related knowledge and skills is weak and limited mostly to tests and examinations in relevant subjects.	Assessment of learning outcomes is comprehensive and progressive and effectively linked to the curriculum review and development cycle.

Indicators emerge from asking what needs to be determined to satisfactorily answer each evaluation question. For example a question appropriate to output evaluation such as 'Have students received cumulative exposure to DRR through the primary and secondary grade levels?' translates, *inter alia*, into the following output indicators:

- Number of curriculum units in textbooks which address DRR in each grade;
- Number of student handbooks/resource books for both primary and secondary grade levels;
- Percentage of school teachers who are trained in DRR education and equipped for DRR classroom facilitation;
- The availability of a national policy to mandate DRR education throughout primary and secondary grade levels.

For questions concerning process evaluation such as 'Are DRR curricula being developed through a proactive and fully committed partnership between the ministry responsible for education and the ministry responsible for disaster and emergency management?', possible indicators could include:

- The existence of coordination mechanisms and resources enabling collaborative development of DRR curricula;
- The quality, style and frequency of use of coordination mechanisms;
- The perceptions of quality of interaction between partners.

The balance between quantitative and qualitative indicators will vary according to the nature of the evaluation question, whereby output questions

will lean towards quantitative indicators and process questions towards qualitative indicators.

A *benchmark* is 'a reference point or standard against which progress or achievements may be measured, or a target that is desired to be achieved. Benchmarks can be set for any indicator.'[87] For example, in Box 22 above, statements for the third level of progress scale can be seen as a benchmark. But 'in some cases an indicator itself can be chosen to be a benchmark.'[88]

It is preferable to have multiple indicators in order to capture multiple dimensions of the curriculum intervention experience. However, it is also important to carefully select a manageable and limited number of indicators relating to the most essential aspects of the curriculum intervention at hand. A situation with too many indicators can be a source of confusion, may create some overlapping, and can make the gathering and interpretation of data more technically challenging and time consuming. Practical ease in data collection and cost implications are, therefore, important points to consider in selecting indicators.

A sustainable way to develop and implement DRR indicators is to embed them within the existing national and sub-national education plans and mechanisms. For example, national education sector plans, annual work plans, emergency preparedness and response plans as well as sub-national contingency plans and education development plans provide such opportunities. Another important opportunity is an Education Management and Information System (EMIS), which is designed for education authorities to 'collect and analyze data on

the educational system to improve planning, resource allocation, monitoring, policy formation and decision-making'.[89] DRR specific questions can be added to the annual school survey for EMIS with relatively little additional cost.[90] School based community vulnerability assessment data can also be part of EMIS data.

There are a number of criteria that can be applied to improving the quality of indicators. Two approaches to characterize indicators are set out in Box 23. SMART indicators, the more frequently used variant, veer towards the mechanistic, based on notions of objectivity. SPICED indicators veer towards the systemic and value the dynamic interplay of subjectivities. These characteristics are not necessarily mutually exclusive and policy makers and curriculum developers should feel free to combine them so as to come up with criteria most appropriate to context.

9.3 Monitoring and Evaluating DRR Education

A wide variety of data collection tools commonly in use can be applied to DRR curriculum monitoring and evaluation. The choice of which to use will depend upon the evaluation purpose, parameters, human resources and technical facilities available, time scale, spatial level, cultural context, the quality of training of the evaluators and the nature and availability of participants. Frequently used quantitative and qualitative data collection tools are set out in Box 24.

Ensuring and checking the validity of the data and of findings drawn from the data requires the use

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87   UNISDR. 2008. *Indicators of Progress: Guidance on Measuring and Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action*. Geneva: UNISDR. p. 8.

88   Ibid.

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89   UNESCO IIEP. 2010. *Guidebook for Planning Education in Emergencies and Reconciliation*. Paris: UNSCO IIEP. pp. 153-4.

90   Ibid.

BOX 23

Characteristics of Good Indicators – SMART or SPICED?

SMART Indicators

- **Specific**: What things does the project intend to change?
- **Measurable**: Can the indicator be measured objectively and independently?
- **Attainable**: Is it possible for the project to achieve the indicator?
- **Relevant**: Is the indicator relevant to the project, and practical/cost-effective to use?
- **Time-bound**: When should the indicator be achieved by?

SPICED Indicators

- **Subjective**: Informants may have unique insights which give reliable information which is anecdotal but valuable
- **Participatory**: Indicators should be developed together with those best placed to assess them – this may be teachers, parents or children
- **Interpreted and communicable**: Indicators defined by local groups may need to be explained to external audiences
- **Cross-checked**: Check information by comparing different indicators of progress and using different informants and methods
- **Empowering**: The process of setting and using indicators should be empowering by helping groups and individuals reflect on their changing situation
- **Diverse**: Using indicators set by different groups, e.g. men and women – information gathered should reflect these different perspectives

Questions suggested for consideration:

- Which indicators do you have experience in using?
- Which do you think would give the most useful information about whether education quality has improved?
- Could you combine them?
- In your own context, which indicators would be the most challenging to use?

Source: Taken from Cain, E. 2003. *Quality Counts: Developing Indicators in Children's Education*. London: Save the Children UK. p. 20.

BOX 24

Data Collection Tools

Quantitative Tools	Qualitative Tools
• One-on-one or focus group interviews (highly structured) • Questionnaires and surveys (closed questions) • Statistical surveys • Reviews of past statistics • Tests and forms of multiple choice questions	• One-on-one or focus group interviews (semi-structured; structured; unstructured) • Questionnaires (open-ended questions) • Observations • Video recordings and photographs • Interpretation of artefacts (e.g., children's work) • Reviewing documents and analyzing texts

of a range of tools. Triangulation is an approach to data collection and analysis that examines a phenomenon from multiple methodological perspectives, ensuring that there is a healthy and diverse mix of participants bringing different

CHECKLIST 2

Conducting an Evaluation

- ☐ Involve stakeholders in evaluation design, implementation and follow-up, and ensure findings are shared with them.
- ☐ Obtain high-level authorization for the evaluation and establish an advisory group to maximize cooperation and buy-in to the results.
- ☐ Train evaluation team as well as participants who will have evaluation roles.
- ☐ Involve multiple categories of stakeholders and participants in the data collection process.
- ☐ For large programmes, choose in-depth, high quality evaluation in randomly or purposively selected institutions rather than thin data from all.
- ☐ Pilot test all data collection instruments to ensure their usefulness.
- ☐ Design evaluation instruments that will result in ideas to feed back into practice and on-going development.
- ☐ For quantitative data, ensure proper statistical analysis.
- ☐ For qualitative data, read through the data several times and allow key themes to emerge.

Source: Adapted from Sinclair, M. with Davis, L., Obura, A. & Tibbitts, F. 2008. *Learning to Live Together: Design, Monitoring and Evaluation of Education for Life Skills, Citizenship, Peace and Human Rights.* Eschborn, Germany: GIZ.

perspectives. If contradictory pieces of evidence are found through triangulation, it indicates a need to explore more deeply and broadly.

9.4 Nurturing A Culture of Improvement within a Culture of Safety and Resilience: Stakeholder Engagement in DRR Curriculum Monitoring and Evaluation

Stakeholder involvement in various aspects and stages of DRR curriculum monitoring and evaluation processes is important for a number

BOX 25

A 7-Step DRR Education National Indicator Development Process

Step 1. Form a working group on national DRR education indicators.

Step 2. Develop a common understanding among working group members.

Step 3. Gather relevant data from related indicator initiatives.

Step 4. Engage in working group capacity building.

Step 5. Develop DRR education indicators in line with Decade of Education for Sustainable Development goals and priorities.

Step 6. Share DRR education indicators with a wider audience.

Step 7. Report on progress and share lessons learned nationally and regionally. Apply, revise and adapt indicators periodically.

Source: Adapted from Tilbury. D., Janausek,S., Denby, L. Elias, D., Bacha, J. 2007. *Asia-Pacific Guideline for the Development of National ESD Indicators.* Bangkok: UNESCO Bangkok, pp. 42-45.

of reasons. First, it can create a sense of owner-ship that underpins the long-term sustainability of the curriculum integration project. Second, involvement in evaluation can be an important element in capacity building. Third, it is crucial at the point of translating lessons learned from the evaluation into informed practice. Evaluation is not something to be conducted in a vacuum but is a key element in a process of ensuring and improving quality system wide.

Indicator Development

At a national level, the involvement of key stakeholders in designing and implementing the monitoring and evaluation process and reflecting on findings can be vital for upskilling and building linkages across the DRR education community. The example below, adapted from ESD literature, outlines a process whereby key stakeholders determine national DRR education indicators.

The Consortium for Disaster Education, an Indonesian DRR education network (see Box V, Annex 1, p. 146), has uniquely built and achieved consensus on values, principles, parameters, indicators and verifications to guide DRR education initiatives nationally. Indicators are organized into four areas:

- Attitude and Action;
- School Policy;
- Preparedness Planning;
- Resource Mobilization.[91]

In Malawi, school level stakeholders are invited to be involved in the critical examination of indicators by way of selecting and adapting them for their own context. Such a creative and critical use of indicators by each school is

emphasized in the *Handbook for Child Friendly Schools (CFS) in Malawi*.[92]

Stakeholder evaluation of whole-school sustain-ability performance is proposed in the *Education for Sustainable Development Lens: A Policy and Practice Review Tool*.[93] It suggests the estab-lishment of a School Sustainability Working Group of teachers, parents, learners and school managers to undertake a whole-institution sustainability review and collectively report back to the broad school community.

An auditing tool for DRR education within ESD is outlined in Tool 19 (Annex 2, pp. 199-201). It reflects the case made in Chapter 1 that DRR education should be integrated within an ESD framework to better ensure that the five essential dimensions of DRR learning are comprehen-sively addressed. It borrows from and elabo-rates on the Lens' Sustainable Schools Audit, with the additional suggestion that the strong community orientation of DRR education also calls for the inclusion of community members in the stakeholder group.

Teacher Involvement in Monitoring and Evaluation

If teachers are to become reflective practitioners, an active role in monitoring and evaluation is of central importance. For example, in Vanuatu, teachers engaged in piloting DRR materials were trained in pedagogy as well as on the evaluation of the new DRR curriculum's effectiveness. To do so, the teachers maintained a diary of reflec-tions on their experiences in pilot implementa-tion including reactions, impressions, thoughts,

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91   Consortium for Disaster Education Indonesia. 2011. *A Framework of School-Based Disaster Preparedness*. pp. 10-11.

92   Ministry of Education, Science and Technology/ UNICEF. 2008. *Handbook for Child Friendly Schools (CFS) in Malawi.*

93   UNESCO. 2010. *Education for Sustainable Development Lens: A Policy and Practice Review Tool.* Paris: UNESCO. pp. 82-6.

comments and pupil's responses, levels of pupil engagement and the quality of their facilitation. They then shared their diary with the evaluation team. Teachers were also asked to complete activity implementation summary sheets as well as give feedback on activities whenever possible. Teachers took part in workshop sessions where they were familiarized with all the elements in the evaluation process.[94]

Another excellent teacher contribution to the evaluation process can be through paired observation where two teachers act as 'critical friends' visiting each other's lessons and evaluating each other's conduct of DRR teaching

and learning. Put another way, teachers in a DRR learning organization need to be active researchers committed to heuristic engagement and concerned with gaining insight as a basis for refreshing and enriching the quality of their practice both in the classroom and in their contribution to whole-school and school-in-community risk reduction and resilience building developments.

Engaging Children and Students

The child participation principles enshrined in the Convention on the Rights of the Child support the involvement of children in monitoring and evaluation efforts in an age appropriate, meaningful, safe and voluntary manner. There is increasing evidence that when appropriate guidance and chances are afforded, children and

94   Save the Children. 2012. *Disaster Risk Reduction & Climate Change Education in Vanuatu: Pilot Curriculum Materials, Teachers' Guide and Evaluation Instruments*. Port Vila.

BOX 26

6 Steps for Creating Child-Led Indicators

Step 1. Problem identification and prioritization. Children brainstormed and listed problems related to 'quality of education'. They prioritized them and chose two major problems they wanted to address most urgently.

Step 2. Causes and effects analysis. Children discussed and identified the causes and effects of the two chosen problems.

Step 3. Objective mapping. Children envisioned the situation they would like to see in three years with regard to the chosen problems.

Step 4. Activity mapping. Children identified activities that they could do to ensure that their vision articulated in the objective mapping would be realized. They came up with sets of activity ideas.

Step 5. Setting up indicators. Children considered how they could know if the activities were carried out; how far they had got; if the activities were carried out properly; what would be the criteria for success.

Step 6. Identification of tools to measure indicators. Children considered ideas of how they could assess progress using the indicators they developed for themselves.

Source: Adapted from Save the Children. 2007. *Child-led Disaster Risk Reduction: A Practical Guide*. Save the Children. pp. 102-104.

Philippines
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(see full captions pp. 224-9)

young people can make positive contributions to monitoring and evaluation efforts. They can contribute: as *advisers* to the evaluation team on various aspects of planning and implementation; as *peer evaluators* who help to collect and analyze child-related data; as *documenters* who record their own and other children's views and reflections relating to the initiative under evaluation; as *active respondents* who use participatory methods and tools; as *reviewers* of the draft evaluation report; as *active change agents* who disseminate conclusions and recommendations of the evaluation and who contribute to putting recommendations into practice.[95]

Box 26 highlights an actual process used to develop impact indicators by children working with facilitators in Save the Children projects in Nepal and India.

Members of a school community, such as principals, teachers and students are commonly identified as key stakeholders who should be involved in monitoring and evaluation processes. The DRR ethos, with its emphasis on in-school and in-community engagement suggests that monitoring and evaluation can be a learning opportunity for those who are involved and can contribute to building a 'culture of continuous

improvement' when it is conducted by and with key stakeholders (involved as *subjects*).[96] This can be extended to include student formative assessment modalities such as self/peer assessment, drama, displays and presentations into the monitoring and evaluation process.

9.5 A Basis for Continually Informed, Improved and Revitalized Practice

At this point, the key connections between DRR curriculum monitoring and evaluation and the notion of school as a DRR learning organization or community have been laid out. A DRR learning organization calls on everyone to be a learner, to continually reflect on risk-related experience, and to diligently build personal, collective and institutional resilience capacity. The goal of best curriculum evaluation practice is improvement in quality through a process whereby lessons learned and insights gained are reflected and deliberated upon so as to inform future directions of curriculum development ('continuous improvement'). A dynamic culture of safety and resilience building, thus, complements and fuses with a dynamic culture of informed and revitalized practice.

95   Save the Children International. 2012. *Evaluation Handbook*. London: Save the Children International. p. 28.

96   UNICEF. 2009. *Child Friendly Schools Manual*. New York: UNICEF. Chapter 8.

STRATEGIC POINTERS FOR CHAPTER 9

→ **Policy Makers/Curriculum Developers:** Decide what you want to evaluate – the process, the outcomes, the impact, or a mix of each – and the balance you want to achieve between formative and summative evaluation

→ **Policy Makers/Curriculum Developers:** Choose an appropriate mix of indicators, and indicator types to achieve the best possible evaluation results

→ **Policy Makers/Curriculum Developers:** Also ensure a manageable number of indicators relating to the most essential aspects of the DRR curriculum intervention

→ **Policy Makers/Curriculum Developers:** Include DRR curriculum indicators in existing national and sub-national education plans and in EMIS as a cost effective and sustainable way to help mainstream DRR curriculum

→ **Policy Makers/Curriculum Developers/Evaluators:** In choosing data collection tools for DRR curriculum monitoring and evaluation, consider evaluation purpose, parameters, human resources and available technical facilities, time scale, spatial level, cultural context, the quality of training of the evaluation team and the nature and availability of participants

→ **Policy Makers/Curriculum Developers/Evaluators:** Ensure diverse stakeholder involvement in various aspects and stages of DRR curriculum monitoring and evaluation, ensuring that children and other stakeholders are not used as evaluation objects but are actively engaged as evaluation subjects

→ **Policy Makers/Curriculum Developers/Evaluators:** Support principal, teacher and student involvement in DRR curriculum monitoring and evaluation at school level as a means of both affirming and consolidating the school's ethos and practice as a DRR learning organization/community

9.6 Selected Tools and Resources

• *Adamchak, S., Bond, K., MacLaren, L., Magnani, R., Nelson, K. & Seltzer, J. 2000. A Guide to Monitoring and Evaluating Adolescent Reproductive Health Programs.*
http://www.fhi360.org/en/Youth/YouthNet/Research/monitoringevaluation.htm

A very detailed and rigorous monitoring and evaluation guide with application to different stages within a programme cycle. Steps and examples presented are easily adaptable to a DRR curriculum development context.

• *Cain, E. 2003. Quality Counts: Developing Indicators in Children's Education. London: Save the Children.*
http://toolkit.ineesite.org/toolkit/INEEcms/uploads/1089/Quality_counts_developing_ indicators.pdf

A concise and very informative guide describing the nature of monitoring and evaluation in relation to quality education and the use of indicators.

- *Save the Children International. 2012. Evaluation Handbook. London: Save the Children International.*
  http://resourcecentre.savethechildren.se/content/library/documents/evaluation-handbook

  This handbook gives a step-by-step guide for the systematic design and implementation of programme evaluation processes. It is written for Save the Children managers and technical specialists, but it is also helpful for those who want to develop evaluation processes and methods predicated on child-centered principles. Sections 4.2, 5.2 and Annex 7 in particular deal with issues related to the involvement of children and young people in evaluation processes.

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries. Paris/Geneva: UNESCO/ UNICEF.*
  http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

  Section 11, 'Checklist of Optimal DRR Curriculum Practice', is particularly relevant to this chapter.

- *Sinclair, M. with Davis, L., Obura, A. & Tibbitts, F. 2008. Learning to Live Together: Design, Monitoring and Evaluation of Education for Life Skills, Citizenship, Peace and Human Rights. Eschborn, Germany: GIZ; Geneva: UNESCO IBE.*

  A guide offering a number of practical steps and examples of data collection tools for monitoring and evaluation. Steps and examples are easily adaptable to a DRR curriculum development context.

- *Tilbury. D., Janausek,S., Denby, L. Elias, D. & Bacha, J. 2007. Asia-Pacific Guideline for the Development of National ESD Indicators. Bangkok: UNESCO Bangkok.*
  http://unesdoc.unesco.org/images/0015/001552/155283e.pdf

  A resource developed to assist UNESCO Members States in the Asia-Pacific region to develop national DRR indicator frameworks in order to assess progress during the UN Decade of Education for Sustainable Development.

- *UNISDR. 2008. Indicators of Progress: Guidance on Measuring and Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action. Geneva: UNISDR.*
  http://www.preventionweb.net/files/2259_IndicatorsofProgressHFA.pdf

  A very useful document that gives clear and practical guidelines on developing indicator-based approaches to the design and implementation of overall DRR activities under HFA.

SECTION 3
LINKING THE DISASTER RISK REDUCTION CURRICULUM AND SAFE SCHOOLS

Chapter 10
The Whole-School Picture: Linking Disaster Risk Reduction Curriculum and Safe School Management and Practice

Chapter 10 discusses two frameworks that integrate curriculum development into a holistic school safety picture and a community-wide DRR culture. The *Comprehensive School Safety* framework is built on three pillars, safe learning facilities, school disaster management and risk reduction and resilience education. The *Holistic 4C Model*, which derives from climate change education, uses a whole school approach to DRR that embeds campus, community and (institutional) culture in the curriculum.

It then highlights the contribution different stakeholders can make towards fostering the DRR learning organization/community. This is followed by the description of the curriculum integration of two DRR school safety initiatives, one on school retrofitting and the second on safe school policy, highlighting that these kinds of school safety activities are rarely integrated into the DRR curriculum.

A list of additional helpful resources for DRR curriculum integration is provided following this chapter.

10.1 Learning Communities/ Organizations for Safety and Resilience

Comprehensive School Safety

Comprehensive school safety encompasses more than DRR education. Therefore, major global stakeholders in DRR[97] have developed a three-pillar framework for comprehensive school safety. Figure 11 (next page) shows the three pillars, which are seen as overlapping while being predominately distinctive.

Each pillar 'involves a significantly different set of decision-makers, developers, stakeholders and implementers as well as indicators, activities and actors responsible for implementation'.[98]

Broadly speaking, the Safe Learning Facilities pillar is the primary concern of engineers, builders, technicians and school community members. The School Disaster Management pillar involves education authorities, school management, school community (teachers, students and parents) working together with their disaster management counterparts. The "Risk Reduction and Resilience Education pillar is the space where

curriculum development processes are located. On the school level it is mainly about DRR learning, with teachers and students as the core constituents, but given DRR education's reach, it also involves parents and communities. The three pillars form the foundation for building an institutional culture of safety and resilience and therefore have implications for educational policy and planning at national and sub-national levels. Box 27 (next page) describes a representative range of elements and activities falling within each pillar.

As the framework shows, there is significant overlap between the Risk Reduction and Resilience Education pillar, on the one hand, and the Safe Learning Facilities and School Disaster Management pillars, on the other. Often, these overlaps are only used for the occasional co-curricular student learning experience and lack representation in the curriculum. Curriculum opportunities are but rarely exploited. As the UNISDR baseline report notes: '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…and the experience is not used as a learning opportunity'.[99] 'School drills vary widely in efficacy' with schools 'failing to use the drill as a learning opportunity'.[100]

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97 In 2010, the UNISDR Thematic Platform for Knowledge and Education (TPKE) reaffirmed its commitment to this approach.

98 UNISDR. 2012. *Assessing School Safety from Disasters – A Baseline Report*. UNISDR Thematic Platform for Knowledge and Education. Geneva: UNISDR. p. 6. http://www.unisdr.org/we/inform/publications/35274

99 Ibid. p. 33.

100 Ibid. p. 39.

FIGURE 11

Illustrating the Three Pillars of a Comprehensive School Safety Framework

Education Sector Policies and Plans

Aligned to national, subnational and local disaster management plans

Pillar 1. Safe Learning Facilities

- Safe site selection
- Building codes
- Performance standards
- Disaster resilient design
- Builder training
- Construction supervision
- Quality control
- Remodelling
- Retrofit

Pillar 2. School Disaster Management

- Assessment & Planning
- Physical & Environmental Protection
- Response Skills & Provision
- Representative/participatory SDM committee
- Educational continuity plan
- Standard operating procedures
- Contingency planning

Pillar 3. Risk Reduction & Resilience Education

- Formal curriculum integrations & infusion
- Teacher training & staff development
- Extracurricular & community-based informal education

- Building maintenance
- Non-structural mitigation
- Fire safety

- Structural safety education
- Construction as educational opportunity

- Household disaster plan
- Family reunification plan
- School drills

- multi-hazard risk assessment
- education sector analysis
- child-centred assessment & planning

Source: Global Alliance on Risk Reduction and Resilience in the Education Sector. 2013.

BOX 27

Comprehensive School Safety

Safe School Facilities

- Building codes and standards
- Safe site selection
- Hazards and vulnerability assessment
- Standard disaster-resilient designs
- Construction trades training and supervision for code compliance
- Verification, inspection, certification
- Retrofitting of education infrastructure

School Disaster Management

- System-wide policies, guidelines and standard operating procedures
- School-based safety committee
- School-based risk reduction and safety plans
- School disaster drills
- School continuity planning
- Staff capacity development

Disaster Prevention Education

- Holistic infusion of disaster prevention and risk reduction education into formal school curricula
- Expansion of regular extra-curricular disaster risk reduction activities to increase school and local community resilience
- Capacity development of teaching staff

Risk Reduction and Resilience Education

- Holistic infusion of disaster prevention and risk reduction education into formal school curricula;
- Development of quality teaching and learning materials for DRR education;
- Expansion of regular extra-curricular DRR activities to increase school and local community resilience;
- Development of scope and sequence for teaching about critical thinking for expected and unexpected, man-made and natural hazards, climate change impacts, conflict-prevention and problem-solving for risk reduction;
- Professional development of principals and teaching staff;
- Capacity development of parents and community members.

Source: Taken from UNISDR. 2012. *Assessing School Safety from Disasters – A Baseline Report.* Geneva: UNISDR Thematic Platform for Knowledge and Education. Geneva: UNISDR.

There is a sense that the overlap between the educational pillar and the safety and management pillars is one of latent potential rather than something commonly seen in practice. See Box XXXI (Annex 1, p. 175) for an example from India on how to using safety at school as an entry point for DRR education.

The Holistic 4C Model

A second model, which is used within climate change education for sustainable development, can also inform a whole school approach to DRR. The holistic 4C model (Figure 12) comprises three overlapping spheres – in this case curriculum, campus (the physical environment of the school and its grounds) and community - encircled by a fourth sphere, that of (institutional) culture.

The curriculum sphere refers to infusion and integration of climate change and DRR across the curriculum but is broadened to introduce new curricular elements arising from student

FIGURE 12

The Holistic 4C Model

Source: UNESCO. 2012. *Climate Change in the Classroom: UNESCO Course for Secondary Teachers on Climate Change Education for Sustainable Development.* Paris: UNESCO.

engagement under the campus, community and culture headings.

Under campus, curriculum elements might include:

- Involvement in processes to make the school carbon neutral;
- Developing and tending a food security garden of climate change resistant indigenous plants and food crops, interpreted and open to the community for awareness raising purposes;
- Installing and promoting use of water conservation and rainwater harvesting measures;
- Transforming unsustainable school practices (in building use, energy and resource use, procurement practices);
- Conducting and exhibiting school safety photographic surveys with community presentations;
- Researching the school's commitment to 'reduce, re-use, recycle' and mounting awareness-raising initiatives;
- Tree planting in the school grounds and monitoring the effects.

Under community, curriculum elements might include:

- Collecting oral histories of community members' hazard-related experiences;
- Hosting regular 'anticipatory democracy' forums at school where people raise their present and future hazard-related concerns, hopes and action ideas, with plans for action emerging;
- Holding periodic 'Student Hearings' at schools where students put their questions to local leaders and experts on safety and vulnerability issues, with the community and media in attendance.

Under culture, curriculum elements might include:

- Student participation in and animation of a wide consultative process leading to a safe-school mission statement, management and/or action plan, participating in their periodic amendment and in mechanisms or arenas established to consider the quality of their implementation;

- Students taking responsibility for compiling and distributing a two-monthly newsletter giving news of latest DRR developments and issues;

- Students acting as researchers for the school disaster management committee or council, reporting their findings.

Culture is the encircling sphere relating to the nature of the school as an institution, its ethos, its management and decision-making style, the quality of teacher/student and student/student relationship, the degree of openness, the level of consultation, transparency and flexibility, the degree of receptivity to expressions of horizontal leadership (e.g., in which leadership on a particular issue can be raised from anywhere in the school). All of these elements will help determine the depth, richness and success of the culture of safety and resilience fostered by the school. For a significant degree of overlap to emerge between culture and curriculum, in which examples of student participation such as those outlined above find a natural curricular home, some key shifts in understanding may need to take place:

- *A shift from seeing the school as a teaching organization to a learning organization (or learning community).* Such a shift requires that all members of the school community see themselves as potential learners open to learning from every facet of school culture and life, including its engagement on

multiple fronts with DRR. In a DRR teaching organization, some are teachers while most are learners. In a DRR learning organization, everyone involved is a learner.

- *A shift from inaccessible expertise to responsive expertise.* The frequent inability to link aspects of safe school and disaster management to curriculum stems, in part, from the perception that those engaged in technical aspects of safety and disaster management are not teachers and are neither able nor ready to pass on their knowledge and skill to children and others. These professionals must come to see that sharing what they know with others is integral to what they do and that they should also be open to ideas about their roles and activities as put to them by (inexpert) children and others. Similarly, principals can experience the 'magic' of management as they engage with children and others on school policy development, review the implementation of action plans, and so on.

- *A shift in the notion of who is the teacher.* While recognizing the pivotal and sustained function of the designated teacher it becomes important to recognize that others – technicians, agency workers, non-teaching staff, community members, elders, parents, students – can take on the role of teacher within a learning community committed to developing a culture of safety and resilience.

- *A shift in perceptions of localized DRR curriculum.* Generally, the availability of localized elements of DRR curriculum is seen as giving permission to tailor nationally laid out disaster-related curriculum topics to the local or regional context. This implies that the curriculum focus emerges, in part, from within dynamic processes of engagement with issues of safety, vulnerability, resilience,

Policy Makers/ Principals/ Teachers: The shifts described here are vital for fully realizing the fifth essential dimension of DRR learning (see Chapter 1.3, pp. 24-9)

Policy Makers/ Principals/ Teachers: The shifts also align with ESD (1.2, pp. 19-24) and Child-friendly learning (1.6, pp. 31-3)

Principals: Play an enabling leadership role in school-based DRR safety developments by involving students as much as possible

Malawi
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(see full captions pp. 224-9)

adaptation and mitigation triggered within a DRR learning community comprising the school as well as the community.

As these shifts are internalized, culture becomes curriculum just as campus and community become curriculum. The degree of overlap between the respective spheres of the two models presented in this section accordingly increases. These shifts will also nurture and help catalyze the idea of the child-friendly school in that they provide fertile ground for significantly higher levels of student participation and leadership as they pursue curriculum increasingly grounded in, and relating to their immediate, lived experience.

BOX 28

Children's Contributions to DRR

- As analyzers of risk and risk reduction activities
- As designers and implementers of DRR interventions at community level
- As communicators of risks and risk management options (especially to parents, adults or those outside the community)
- As mobilizers of resources and action for community-based resilience
- As constructors of social networks and capital

These five broad types of contribution find their place across the subjects of the curriculum, enabling students to play both a critical and creative role in building safety and resilience in the school and its catchment area, as detailed in Table 7 (next page).

Source: Back, E., Cameron, C. & Tanner, T. 2009. *Children and Disaster Reduction: Taking stock and moving forward.* Brighton: UNICEF/Institute of Development Studies. p. 36.

10.2 Contributions to the DRR Learning Community

Assuming widespread commitment to transforming the school into a learning community infused by a culture of safety and resilience and that, within that culture, the school together with its community is seen as providing an ever-emergent DRR curriculum, what contribution could key actors make?

Children's potential contributions and how these can be realized through the curriculum are described in Box 28 and Table 7.

TABLE 7

Children's Contribution through Curricular Areas	
Modes of Contribution	Examples
Analyzers	• *Social Studies*: conducting school and community hazard surveys, mapping, assessments, transects • *Mathematics*: analyzing hazard and disaster statistics • *History*: drawing DRR lessons from past hazard events
Designers and implementers	• *Agriculture*: designing, planting, tending a preventative health garden • *Science*: collaborating with experts on campus resilience measures • *Geography*: mapping out, measuring and signposting evacuation routes
Communicators	• *Expressive Arts*: posters, displays, photography, videography, models to draw attention to risks and potential resilience growth points • *Language Arts*: newsletters, prose and poetry, oral presentations on DRR issues • *Performing Arts*: in-school and in-community formal and ad hoc drama, sketches, puppetry
Mobilizers	• *Citizenship*: actively contributing to DRR committees, councils and at public sessions • *Language Arts*: reporting on DRR events and sessions through postings and presentations • *Social Studies*: public awareness campaigns on DRR fault lines
Constructors	• *All Subjects*: creating DRR dedicated social networks to exchange DRR ideas and initiatives • *Geography*: building/maintaining open lines of communication with NDMO and other relevant bodies • *All Subjects*: peer tutoring of younger students on DRR issues

A useful exercise for curriculum developers and planners would be to ask whether planned subject curricula do, in fact, give students sufficient scope to utilize each type of contribution.

There are key contributions to be made by all stakeholders to building a DRR learning community in which campus, community and institutional issues become embedded in curriculum. Table 8, inspired by the Handbook for Child Friendly Schools (CFS) in Malawi, lays out these potential contributions.

Principals/ District Officials/ Teacher Trainers: Table 8 can be used as a tool to guide discussion amongst key school stakeholders directed at identifying and determining respective roles and responsibilities in transforming the school into a DRR learning organization

TABLE 8

Contributions to Fostering the DRR Learning Organization	
Key Stakeholders at School	**Roles and Responsibilities**
School Principal	• Provides overall leadership in embedding school safety initiatives in the formal curriculum, campus, community and institutional spheres and for maximizing the level of connectedness between all spheres • Encourages the participation of all students and all school staff members in curriculum-linked DRR campus-based and community-based learning opportunities • Knows and applies all relevant policies on school safety and DRR to overall school management and operation • Oversees special days on DRR to educate the whole school (and wider) community and makes sure the special day experiences are linked with formal learning • Leads the school community in creating and communicating a collective vision for whole school DRR learning • Creates spaces for open dialogue on DRR, ensuring sufficient opportunities for student participation in the school and local community • Mobilizes resources and promotes collaboration between the school and local community in order to achieve the school's intended DRR goals • Monitors whole school DRR learning (of students, teachers and non-teaching staff) • Sensitizes the PTA and School Management Committee/School Council/Board of Trustees on the importance of linking DRR formal learning with safe school facilities, safe school management, and an overall school culture of safety and resilience • Engages actively and builds constructive partnerships with community organizations, local municipalities and traditional leaders to support student DRR learning
School Management Committee/School Council/Board of Trustees	• Ensure training of teachers and student leaders on DRR and DRR applications in the school and community • Monitor and ensures evaluation of overall school performance on DRR with respect to school facilities, management and curriculum and, particularly, the quality and depth of inter-linkage between spheres • Develop special DRR programmes to actively support and motivate the whole school community towards achieving identified goals • Ensures effective and efficient management of resources within the school • Oversee the establishment of a School Safety Committee tasked with developing and updating a school safety plan, making sure that the plan covers each of the spheres of curriculum, campus, community and culture • Have student representation and ensure that students are well represented in all DRR arenas and developments and that in-curriculum learning opportunities generated are capitalized upon

10.3 Translating School Safety and Disaster Prevention Measures into Curriculum

As touched upon earlier, learning opportunities presented by safe school developments and school disaster management are rarely taken advantage of and where opportunities are exploited it tends to happen in co-curricular and/or extra- curricular fashion rather than in their own curricular spaces.

TABLE 8 CONTINUED

Teachers	• Integrate DRR in their lessons and how to embed campus, community and whole school DRR issues and initiatives in the curriculum • Facilitate DRR learning both inside and outside of the classroom • Bring DRR learning alive both inside and outside of the classroom by using a mixture of pedagogical modalities • Create a supportive learning environment where learners feel comfortable and motivated to participate and share knowledge and experience • Hold regular meetings with parents to exchange views on student achievement relating to DRR learning inside and outside of the classroom • Continuously improve their own teaching through their own reflection and learning, behaviour and projection of themselves as learning members of a learning organization
Students	• Are involved actively in active DRR learning inside and outside of the classroom • Pass on DRR messages to peers, home and local community • Observe school safety measures • Participate actively in school and school-in-community DRR forums and initiatives and see what they do as part of the curriculum • Fulfill a clear curriculum-linked change agency and change advocacy role • Teach each other about safe and protective rules and behaviors
Parent Teacher Association	• Ensures that the school has a school safety policy that is implemented, monitored and periodically reviewed, and is linked to formal learning • Works closely with communities and students to ensure that out-of-school children and youth are brought to school to participate in DRR learning • Provides support for DRR learning activities in school and in the community
District and Division Officials	• Provide schools with resource materials and latest information to enable them to understand and facilitate DRR learning • Provide schools with technical assistance to monitor and evaluate their whole school DRR learning • Assist school principals and School Management Committee/School Council/ Board of Trustees by providing technical support through consultation, training and capacity building on promoting whole school DRR learning • Ensure that school management know and understand departmental policies and practice relating to safe school and DRR • Coordinate the supervision and inspection of all aspects of DRR learning at school, including the dovetailing of curriculum and campus, community and whole-school DRR initiatives • Harmonize and share DRR learning initiatives taking place in the district • Develop inter-school/inter-community DRR links and dialogue

Source: Ministry of Education, Science and Technology/UNICEF. 2008. *Handbook for Child Friendly Schools (CFS) in Malawi.*

Figure 13 illustrates a safe school and DRR process – a school retrofitting curriculum – to demonstrate how complementarities with curriculum can be forged.

A second example illustrates seven steps for developing a school disaster safety plan (Tool 20, Annex 2, p. 202) developed by the Ministry of Education of Sri Lanka. The curriculum links suggested are inspired by, but not derived from the guidelines document where they appear.[101] They serve to illustrate how a school safety process not normally linked to curriculum can, in fact, feed into and from subjects across the curriculum.

101   Ministry of Education of Sri Lanka. 2008. *Toward a Disaster Safe School: National Guidelines for School Disaster Safety*. Colombo: Ministry of Education of Sri Lanka. *The School Core ('Nuclear') Team is presented as a small group comprising the principal or vice principal, sectional head, teacher and member of School Development Committee. It has an overall leadership role in managing and coordinating the whole school disaster safety programme.

FIGURE 13

A School Retrofitting Curriculum (exploiting the learning potential of engineers improving the hazard resilience of existing school buildings)

Mathematics/Technology
Engineer conducts the class on an initial risk assessment tour of school buildings involving them in measurement and drawing. Class prepares to-scale plans with priority retrofit areas indicated.

Visual Arts
Class follows-up by photographing and/or making a video of key building risk points and, with advice from the engineer, prepares a community display on retrofitting needs.

Science
Engineer and teachers lead a session on basic principles of disaster resilient construction, how they have been applied to the school retrofit and how, with minimal cost, they could be applied to homes.

A SCHOOL RETROFITTING CURRICULUM

History
Students create an oral history resource drawing on memories of teachers and community members about past experiences in the school buildings.

Performing Arts
The class draws on the archive to develop a play on the retrofitting exerience and performs before the community with all key stakeholders attending.

Language
During the retrofitting process, students periodically interview engineers, builders, procurers and the principal on progress and problems encountered, thus creating a retrofitting archive (adding photographs as appropriate).

STRATEGIC POINTERS FOR CHAPTER 10

→ **Curriculum Developers/Principals/Teachers:** Take advantage of opportunities to link safe school and school disaster management initiatives to formal curriculum.

→ **Curriculum Developers/Principals/Teachers:** Within the formal DRR curriculum, create opportunities for students to contribute to risk reduction and resilience building initiatives as analyzers; designers and implementers; communicators; mobilizers; constructors.

→ **Principals/Teachers/District Officials:** Consciously work towards recreating the school as a DRR learning organization/community.

→ **Principals/Teachers/District Officials:** Enable all parties – children, parents, community members, school managers/trustees – to understand their role and play a part in the school becoming a DRR learning organization/community.

10.4 Selected Tools and Resources

• *Ahmedabad Action Agenda for School Safety. 2007.*
http://www.preventionweb.net/english/professional/trainings-events/edu-materials/v.
php?id=5146

This Agenda adopted at the 2007 international Conference on School Safety in Ahmedabad, India, provides guiding principles and recommendations for further advancing the school safety agenda. The importance of DRR learning and practice in all aspects of children's lives - in formal, co-curricula, and community contexts - is emphasized.

• *INEE/GFDRR World Bank/UNISDR. 2009. Guidance Notes on Safe School Construction.*
http://toolkit.ineesite.org/toolkit/Toolkit.php?PostID=1005

These guidance notes provide a framework of both principles and general steps to develop context-specific disaster resilient construction and retrofitting of school buildings. The document is available in English, Bahasa Indonesia, Chinese, French, Hindi and Spanish.

• *International Finance Corporation. Undated. Disaster and Emergency Preparedness*
Guidance for Schools. Washington DC: International Finance Corporation.
http://www.preventionweb.net/files/13989_ifcdisasteremergencyhandbook63010.pdf

This handbook helps school administrators and teachers understand structural and non-structural school safety issues and procedures.

• *Ministry of Education of Education of Sri Lanka. 2008. Toward a Disaster Safe School:*
National Guidelines for School Disaster Safety. Colombo: Ministry of Education.
http://www.preventionweb.net/files/25231_25100nationalguidelinesbookenglish1.pdf

This document offers seven practical steps for developing a safety plan for schools in Sri Lanka (see section 8.3) and is applicable in other countries. It includes 'do's and don'ts' before and

during hazards such as fire, lightning and thunderstorms, cyclones and floods, tsunami, earth-quakes and bomb threats. An example of a school disaster safety plan is included.

- *Ministry of Education, Science and Technology/UNICEF. 2008. Handbook for Child Friendly Schools (CFS) in Malawi. Malawi: UNICEF.*

  Detailed indicators as well as distinctive roles that different stakeholders should play are articulated in each of the five characteristics of a child-friendly school model (1. rights-based and inclusive; 2. academically effective; 3. safe, protective and health promoting; 4. gender responsive, quality and equity promoting; 5. building linkages and partnerships with the community). This manual is also of help in developing whole school indicators for DRRE (see Chapter 10, pp. 184-99).

- *UNICEF. 2009. Child Friendly Schools Manual. New York: UNICEF.*
  http://www.unicef.org/publications/index_49574.html

  This comprehensive manual on child friendly schools is based on the principles of the Convention on the Rights of the Child. It helps those seeking to integrate DRR within the whole-school learning environment, guiding them on how to realize the notion of 'school as a learning community' in a context sensitive manner. Available in English, French and Spanish.

- *UNICEF/UNISDR/EC. 2008. Safe Schools in Safe Territories: Reflections on the Role of the Educational Community in Risk Management.*
  http://www.unisdr.org/we/inform/publications/8962

  This document was produced within the framework of the DIPECHO project, Strengthening Local Risk Management in the Educational Sector in Central America. It focuses on the notion of 'safe territory', 'territory' defined as 'the outcome of the ongoing interaction between human communities and the ecosystems of which they form a part'. The idea of the school as a promoter of territorial safety is advanced.

- *UNISDR. 2010. Guidance Notes: School Emergency and Disaster Preparedness. UNISDR Asia and the Pacific.*
  http://www.unisdr.org/files/15655_1msshguidenotesprefinal0313101.pdf

  A checklist guide for school administrators and teachers covering: school emergency and disaster preparedness committees; school emergency and disaster preparedness plans; the emergency responsibilities of stakeholders; emergency drills and exercises; first aid kits.

- *UNISDR. 2012. Assessing School Safety from Disasters – A Baseline Report: UNISDR Thematic Platform for Knowledge and Education. Geneva: UNISDR.*

  This desk review of existing reports concerning all aspects of school safety (i.e. safe school facilities, school disaster management, and disaster prevention and risk reduction education) offers critical analysis and recommendations for achieving the goal of comprehensive school safety.

Recommended Resources

This list is, for the most part, additional to the Selected Tools and Resources listed in the final section of each chapter.

Curriculum Policy and Curriculum Guidance Documents

- *Inter-Agency Network for Education in Emergencies (INEE). 2010. Minimum Standards for Education: Preparedness, Response, Recovery. New York: Inter-Agency Network on Education in Emergency (INEE).*
  http://www.ineesite.org//index.php/post/know_updated_inee_minimum_standards_handbook/

  This handbook offers international standards to safeguard children's rights to quality education and a safe learning environment at all times. It includes Standards and Guidance Notes in the following five domains:

  1) Foundational Standards;
  2) Access and Learning Environment;
  3) Teaching and Learning;
  4) Teachers and Other Educational Personnel;
  5) Education Policy. It is available in English, French, Spanish, Russian, Chinese and Arabic.

- *International Finance Corporation (IFC). 2010. Disaster and Emergency Preparedness: Guidance for Schools. http://www1.ifc.org/wps/wcm/connect/8b796b004970c0199a7ada3 36b93d75f/DisERHandbook.pdf?MOD=AJPERES&CACHEID=8b796b004970c0199a7ada3 36b93d75f*

  This document offers detailed guidance on: assessment and planning; physical and environ-mental protection; response capacity building; practice, monitoring and improvement.

- *UNESCO IIEP. 2010. Guidebook for Planning Education in Emergencies and Reconciliation. Paris: UNSCO IIEP.*
  http://www.iiep.unesco.org/fileadmin/user_upload/Cap_Dev_Technical_Assistance/pdf/ Guidebook/Guideboook.pdf (online interactive version)

  This guidebook aims at supporting ministries of education in countries affected by conflict or natural disasters as well as UN organizations, donor agencies and NGOs working with those ministries. It is organized in five sections: general overview; access and inclusion; teachers and learners; curriculum and learning; management capacity. Section 1.2 focuses on 'Prevention of Conflict and Preparedness for Disaster'.

- *UNESCO. 2010. Education for Sustainable Development Lens: A Policy and Practice Review Tool. Paris: UNESCO.*
  http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

  This ESD Toolkit aims at assisting both policy makers and practitioners to start reorienting formal learning at a school level towards ESD. It includes a total of 13 tools (2 planning and contextualizing review tools; 3 policy review tools; 2 quality learning outcome review tools; 6 practice review tools).

- *UNESCO. 2012. Education for Sustainable Development Source Book. Paris: UNESCO.*
  http://unesdoc.unesco.org/images/0021/002163/216383e.pdf

  This source book is developed for primary and secondary school teachers, mid-level decision makers responsible for primary and secondary education, and teacher educators. It aims at assisting them to integrate ESD into primary and secondary formal learning.

- *UNICEF ROSA in Conjunction with New York Headquarters. 2006. Education in Emergencies: A Resource Toolkit. UNICEF ROSA, Kathmandu.*
  http://www.unicef.org/rosa/Rosa-Education_in_Emergencies_ToolKit.pdf

  This toolkit is developed for UNICEF officers. It includes practical information and tools to prepare for and respond to emergencies so as to comply with UNICEF's Core Commitment for Emergencies in the education sector. This is a useful toolkit for those who work in DRR curriculum development especially in contexts affected by emergencies.

- *UNISDR. 2008. Disaster Prevention for Schools: Guidance for Education Sector Decision-Makers. Consultation Version, November 2008. Geneva: International Strategy for Disaster Reduction Thematic Platform for Knowledge and Education.*
  http://www.unisdr.org/we/inform/publications/7556

  This guidance document is for school administrators at all levels and for school safety advocates. Following on discussion of safe learning environments, the document offers sections on teaching and learning about disaster prevention and preparedness, educational materials and teacher training, and developing a culture of safety.

Case Study/Good Practice: Descriptive, Analytical and Evaluative Documents

- *Back, E., Cameron, C., and Tanner, T. 2009. Children and Disaster Risk Reduction: Taking Stock and Moving Forward. Brighton: IDS/Children in a Changing Climate.*
  http://www.preventionweb.net/english/professional/publications/v.php?id=12085

  This research report reviews child-focused and child-led DRR approaches and techniques. Brief case studies look at projects in Algeria, Bangladesh, Bolivia, El Salvador, Kyrgyzstan, Mozambique, Nepal, the Philippines, the Solomon Islands, UK, USA and Zimbabwe.

- *GFDRR/UNISDR/UNICEF. 2011. Children and Disaster: Building Resilience through Education.*
  http://www.unisdr.org/we/inform/publications/24583

  Following a brief overview of major hazards and disaster risks in Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS), the study profiles 25 countries in the region giving an overview of national hazards and disasters, DRR management structures and legislation, DRR education activities, key national and international partnerships in DRR.

- *UNESCO/UNICEF. 2012. Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries. Paris/Geneva: UNESCO/UNICEF.*
  http://unesdoc.unesco.org/images/0021/002170/217036e.pdf

  This publication, to which this document is the companion volume, captures key national experiences in the integration of DRR in the curriculum, identifying good practice, noting issues addressed or still lacking, and reviewing learning outcomes. This study is based on research into DRR related curriculum development and integration, pedagogy, student assessment, teacher professional development and guidance, learning outcomes and policy planning and implementation aspects covering thirty countries.

- *UNESCO. 2009. UNESCO Associated Schools Second Collection of Good Practice: Education for Sustainable Development. Paris: UNESCO.*
  http://unesdoc.unesco.org/images/0018/001812/181270e.pdf

  This collection includes 22 case studies of ESD programmes under the UNESCO Associated Schools initiative from all five UNESCO regions.

- *UNISDR/UNICEF. 2009. Good Practices and Tools on Disaster Risk Reduction in Education in Central Asia. Dushanbe: UNISDR; Geneva, UNICEF RO CEE/CIS.*
  http://www.preventionweb.net/files/12164_CompendiumEng.pdf

  This compendium of 22 stories of good practice, not all school focused, were acquired through a competitive process.

- *UNFCCC. 2010. Report on Essential Needs for, Potential Gaps in, Barriers to, and Progress in the Implementation of the Amended new Delhi Work Programme. Note by the Secretariat.*
  http://unfccc.int/documentation/documents/advanced_search/items/6911.php?priref=600006023

  This report synthesizes educational training programmes on climate change as well as the activities undertaken to engage the public at large to address climate change issues. It highlights good practices, identifies emerging gaps and offers recommendations.

ANNEX 1: Additional Materials
ANNEX 2: Tool Box
ANNEX 3: Checklists

List of Boxes, Tools and Checklists in Annex 1, 2 & 3

Annex 1: Additional Materials

Annex 2: Tool Box

Chapter / Tool #	Title	page
Ch.1/ Tool 1	The Five DRR Dimensions in the Curriculum	176
Ch.2/ Tool 2	Hyogo Framework for Action, Indicator 3.2: 'Include DRR in the education system and the research community' – How to do it? UNISDR Recommended Steps.	177
Ch.2/ Tool 3	A Consensus-building Tool: The We-agree Workshop	178
Ch.2/ Tool 4	A Consensus Building and Planning Tool: Force Field Analysis	179
Ch.2/ Tool 5	DRR Curriculum Planning Tools: Problem Tree Analysis and Objective Tree Analysis	180
Ch.2/ Tool 6	Six-Step Approach to Curriculum Development	182
Ch.3/ Tool 7	Developing Subject-based DRR Curriculum Learning Outcomes	183
Ch.3/ Tool 8	Paving the Way for Blended Cross-curricular DRR Provision	184
Ch.3/ Tool 9	Localizing DRR Learning Outcomes	186
Ch.3/ Tool 10	Developing Competency-based Curriculum	187
Ch.5/ Tool 11	Matrices	188
Ch.5/ Tool 12	ESD Learning Experience Planning Template (Manitoba)	190
Ch.5/ Tool 13	Activity: Bouncing Back (grades 4-10)	191
Ch.5/ Tool 14	Activity: Cyclone Message Match (grades 4-7)	192
Ch.5/ Tool 15	Activity: Climate Change Despair and Empowerment Sequence (grades 9-12)	194
Ch.7/ Tool 16	Community Vulnerability and Capacity Assessment	196
Ch.8/ Tool 17	DRR Curriculum Scaling-up/ Mainstreaming SWOT Analysis	198
Ch.8/ Tool 18	Tackling Disabling Factors in Scaling-Up/Mainstreaming	198
Ch.9/ Tool 19	Sustainable and Resilient School Audit	199
Ch.10/ Tool 20	A School Safety Plan Curriculum [exploiting the learning potential presented by the development and implementation of a school safety plan)	202

Annex 3: Checklists

Checklist #	Title	page
Checklist 1	Debriefing an Activity	204
Checklist 2	Conducting an Evaluation	205
Checklist 3	DRR Learning Outcomes	205
Checklist 4	DRR Student Assessment	206
Checklist 5	Facilitating Emotional Learning	207

Annex 1
Additional Materials

Chapter 1

BOX I

	Conflict risk reduction	Disaster risk reduction
Examples of Policy Options for Conflict and Disaster Risk Reduction		
Access	• Fee-free school policies for ethnic minorities, or populations in insecure areas • Social inclusion policies • Inclusive language policies • Policy for the provision of education for refugees and IDPs • Curriculum reform to remove biases or discriminatory content	• Fee-free school policies for displaced populations, or groups vulnerable to natural disaster • Curriculum reform to include information on hazards, risks, and response mechanisms in the case of a natural disaster • Policy for the provision of education for learners displaced by natural disasters
Quality	• Teacher training policy to ensure teachers use child-friendly methods and have sufficient skills in conflict and disaster risk reduction • Equitable teacher deployment policy • Policy for development of contingency plans and practice of security drills	• Teacher training policy to ensure teachers have sufficient skills in disaster risk reduction and response techniques • School safety policy in compliance with international safety norms • Policy for development of contingency plans and practice of safety drills
Management	Capacity-development policy to train authorities (including inspectors and district education officers) on conflict and disaster risk reduction techniques	

Source: IEEP/UNESCO/UNICEF 2011,
http://www.iiep.unesco.org/news/single-view/hash/705f7a4175.html?tx_ttnews[pS]=1327481476&tx_ttnews[tt_news]=973&tx_ttnews[backPid]=81

BOX II

Characteristics of ESD

- Based on the principles and values that underlie sustainable development;

- Deals with the well-being of all four dimensions of sustainability – environment, society, culture and economy

- Uses a variety of pedagogical techniques that promote participatory learning and higher order thinking skills

- Promotes lifelong learning

- Is locally relevant and culturally appropriate

- Is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences

- Engages formal, non-formal and informal education

- Accommodates the evolving nature of the concept of sustainability

- Addresses content, taking into account context, global issues and local priorities

- Builds civil capacity for community-based decision making, social tolerance, environmental stewardship, and adaptable workforce, and a good quality of life

- Is interdisciplinary in that no single discipline can claim ESD for itself and all disciplines can contribute ESD.

Source: Taken from *UNESCO Education for Sustainable Development*
http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/education-for-sustainable-development/characteristics-of-esd/

BOX III

UN Millennium Development Goals (MDGs)

Goal 1: Eradicate extreme poverty and hunger

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women

Goal 4: Reduce child mortality

Goal 5: Improve maternal health

Goal 6: Combat HIV/AIDS, malaria and other diseases

Goal 7: Ensure environmental sustainability

Goal 8: Develop a global partnership for development

For further details, visit http://www.un.org/millenniumgoals/

Chapter 2

BOX IV

The Philippines:
A Technical Working Group (TWG) for Mainstreaming DRR in the Education Sector

The Philippines, like most of the Association of Southeast Asian Nations (ASEAN), has had a multi-sectorial group working for DRR curriculum development. Taking up a priority implementation project (PIP) of the Mainstreaming DRR in the Education Sector project, a project TWG was formed by the Department of Education (DepEd) and National Disaster Coordinating Council-Office of Civil Defense (NDCC-OCD). At the beginning of phase two of the project, the composition of the TWG was reviewed and expanded. The list below indicates the lists of TWG members for the two phases.

TWG members (Phase One: January 2007 to April 2008)	• DepEd • Bureau of Secondary Education, DepEd • Department of Finance • National Economic Development Authority • NDCC-OCD • Public Safety and Emergency Management Office • UNDP Philippines • Asian Disaster Preparedness Centre (ADPC) →

BOX IV CONTINUED

TWG members (Phase Two: September 2008 to December 2009)	• DepEd Office of the Undersecretary for Teachers' Welfare • Bureau of Secondary and Elementary Education, DepEd • Bureau of Alternative Learning System, DepEd • Physical Facilities and Schools Engineering Division, DepEd • Basic Education Support and Reform Agenda Secretariat, DepEd • Department of Finance, DepEd • National Economy Development Authority • NDCC-OCD • Philippine Institute of Volcanology and Seismology, Department of Science and Technology (DOST) • Philippine Atmospheric, Geophysical and Astronomical Services, DOST • National Mapping and Resources Information Authority, Department of Environment and Natural Resources (DENR) • Mines and Geoscience Bureau, DENR • Office of the Presidential Advisor on Climate Change • Department of Public Works and Highways • Philippine Information Agency • ADPC

Specific roles/actions and responsibilities of the TWG and its members are summarized as follows.

Roles/ Actions	Responsibilities
Forming TWG	DepEd and NDCC-OCD
Chairing a TWG	DepEd
Analyzing national curriculum for all grades and identifying opportunities for DRR topics	TWG
Developing new DRR modules and curriculum materials	TWG
Reviewing and selecting existing information, education and communication materials developed by governmental agencies and NGOs as supplementary teaching aids	TWG
Training of teachers and trainers	TWG
Monitoring DRR module implementation in the classroom and revising the modules	DepEd (Curriculum specialists), NDCC-OCD focal point and other TWG members
Approving new DRR documents for national use	Instructional Materials Council-Secretariat (IMCS), DepEd
Organizing and facilitating national advocacy workshops	TWG
Discussion with the Education Working Group in the Philippines (the main governmental coordination mechanism for country's development agenda)	TWG

Sources: ASEAN-ISDR. 2011. *Disaster Resilience Starts with the Young*. Jakarta: ASEAN Secretariat. 9; DepEd/NDCC-OCD/UNDP/ADPC/ European Commission Humanitarian Aid Development. Undated. *Mainstreaming Disaster Risk Reduction in the Education Sector in the Philippines*; ADPC.2007. *Integrating Disaster Risk Reduction into School Curriculum*. RCC Guideline 6.1.

BOX V

Indonesia: Consortium for Disaster Education

Established in 2006, the mission of the Indonesian Consortium for Disaster Education (CDE) is 'to support the development of sustainable policy and DRR education practices at national and local levels through formal, non formal as well as informal approaches by improving the capacity, coordination, and synergy among parties and making the commitment for DRR education'. As a networking organization, the Consortium provides:

- An information and document exchange that enables partners to share latest developments and documentation, avoiding duplication of effort
- A platform for holding joint capacity building sessions both for members and identified groups
- Mutual support in the development and piloting of learning materials
- A 'one voice' channel of advocacy to central and local government

The consortium includes 62 member organizations that are active in school-based disaster risk reduction, with representation of UN agencies, the Red Cross and other disaster- and emergency-related non-governmental organizations, universities and government.

By combining their differently focused efforts, CDE members have been able to delineate and advise schools on a framework and process for school-based disaster preparedness.

Source: Adapted from Consortium for Disaster Education Indonesia. 2011. *A Framework of School-Based Disaster Preparedness*. Jakarta: Consortium for Disaster Education. n.p

BOX VI

Global Networks and Partnerships

In addition to the IASC Education Cluster discussed above, there are a number of global networks and partnerships for DRR education initiatives.

- *Children in a Changing Climate*

  http://www.childreninachangingclimate.org/home.htm

  A coalition of leading child-focused research, development and humanitarian organizations that shares knowledge, coordinates activities and works with children as agents of change on the challenges of climate change.

- *Coalition for Global School Safety and Disaster Prevention Education (COGSS & DPE*

  http://cogssdpe.ning.com/

  A coalition aiming at supporting knowledge sharing for school safety as well as quality and audience-targeted disaster prevention education to build a culture of safety.

- *Global Facility for Disaster Reduction and Recovery (GFDRR)*

  http://www.gfdrr.org/gfdrr/

  A partnership of 41 countries and 8 international organizations aiming at mainstreaming DRR and climate change adaptation in country development strategies by supporting a country-led and managed implementation of the Hyogo Framework for Action.

- *Inter-Agency Network for Education in Emergencies (INEE)*

  http://www.ineesite.org/

  An open global network of representatives from NGOs, UN agencies, donor agencies, governments, academic institutions, schools and affected populations working together to ensure for all the right to quality and safe education in emergencies and post-crisis recovery.

- *One Million Safe Schools and Hospitals Campaign*

  http://safe-schools-hospitals.net/en/Home.aspx

  A campaign encouraging individuals, families, communities, governments, businesses or any other organization to make a pledge to make educational institutions or health facilities safer from disasters.

- *Partnership for Environment and Disaster Risk Reduction*

  http://www.pedrr.net

  A partnership of 14 UN and non-UN organizations to promote ecosystem-based disaster risk reduction around the globe.

- *Thematic Platform for Knowledge and Education (TPKE)*

  http://www.unisdr.org/2005/task-force/working%20groups/knowledge-education/knowledge-education.htm

  TPKE is one of the thematic platforms created by UNISDR to support the implementation of HFA. TPKE aims to strengthen networks, create new partnerships, identify focus areas and collectively advance HFA through knowledge and education.

BOX VII

'State of the Art' Studies and Reviews of DRR Curriculum Potential: Some Examples

Ghana: Baseline Study to Assess Disaster Risk Reduction in School Curriculum in Ghana

Purpose: The main purpose of the study was to 'assess DRR in school curricula in Ghana towards mainstreaming DRR… at the primary, junior high and senior high school levels'.

Methodology: The study was conducted from April to July 2011 in three phases:

Phase 1. Secondary document analysis (including a review of international experience of DRR mainstreaming; information on school curricula and syllabuses, information on built environment and related programmes).

Phase 2. Data gathering at workshops held in five different regions using (1) moderated completion of questionnaires and (2) discussion of key issues for each target group. Selected representative participants from the following groups attended workshops: Regional, Municipal and District Directors of Education; Circuit Supervisors of Education; Members of School Management Committees and Parent-Teacher Associations; teachers and pupils/students in primary, junior high and senior high schools.

Phase 3. Data analysis and presentation of results, conclusions, recommendations and action plans in the report at a Stakeholder Review Workshop in August 2011 for validation. There were 33 participants including personnel from Ministry of Education, National Disaster Management Organization (NDMO) and universities.

Next Steps Proposed: In order to mainstream DRR in school curricula, the report ends with an action plan covering the following aspects of education in Ghana: policy, capacity building, school built environment, co-curricular activities, non-formal education, the role of key stakeholders, funding, human resources, integration of schools into national disaster coordination mechanism and advocacy.

Source: Buatsi, P. 2011. *Assessing Disaster Risk Reduction in School Curricula in Ghana. Submitted to National Disaster Management Organization* (Ghana) and UNDP.

Vanuatu: Baseline Study of Disaster Risk Reduction Curriculum

Purpose: This study reviews strengths, needs and gaps in current curriculum provision and delivery of disaster risk reduction (DRR) and Climate Change Education (CCE) in Vanuatu primary schools, and provides recommendations to guide development of a DRR curriculum pilot (approach and entry point) for Save the Children Australia.

Methodology: The baseline study process was conducted in March and April 2012 in three stages:

Stage 1. Desk-based secondary documentary analysis (including review of country specific policies, strategies, school curriculum materials).

Stage 2. Data collection through: (1) semi-structured focus group interviews with key stakeholders (student and teacher focus groups at ten designated pilot schools; Ministry of Education Curriculum Development Unit (CDU) curriculum writers; Education in Emergency Cluster members, National Disaster Management Office personnel) and semi-structured individual interviews with CDU Principal Education Officer and the Principal of Vanuatu Institute for Teacher Education; (2) Questionnaire surveys of teachers and students at the ten pilot schools. ➜

BOX VII CONTINUED

Stage 3. Following the writing of the study and recommendations, a key stakeholder meeting was held at the Ministry of Education in April 2012 involving some 30 participants from the Ministry, NDMO, NGOs and project pilot schools.

Next Steps Proposed: Grade and subject entry points for a DRR/CCE pilot project with recommendations for themes and content, pedagogies, teacher professional development, a national structure for collaboration, and project evaluation mechanisms and instruments.

Source: Kagawa, F. & Selby, D. 2012. *Disaster Risk Reduction Education in Vanuatu: A Baseline Study for Save the Children Australia.* Submitted to Save the Children Australia.

Nepal: Curriculum Review toward Incorporating Disaster Mitigation Materials in the School Curriculum

Purpose: To review school curriculum from a DRR perspective and make suggestions for school curriculum, textbook and teacher guidebook development, and, having identified gaps, to recommend incorporation and implementation of new DRR education materials.

Methodology: There were four parts to the review process:

Part 1: Mapping of national school curriculum and analysis of textbooks and teacher guides.

Part 2: Mapping of coverage of DRR in curriculum of Asian and other countries.

Part 3: Questionnaire on curriculum and curriculum materials to officers of the Curriculum Development Centre (CDC) of the Ministry of Education.

Part 4: Two stakeholder workshops to identify potential areas for curriculum development.

Next Steps Proposed: Having identified the limited inclusion of DRR in school curriculum in Nepal, it was proposed that there should be at least a 10% weighting for DRR education in the curriculum with integration into relevant subjects, backed by supplementary reading materials and a teacher training course.

Source: Centre for Policy Research and Consultancy. 2007. *Disaster Sensitivity of School Curriculum, Textbooks and Teacher Training Packages: A Final Report for Incorporating Disaster Mitigation Materials in the School Curriculum.* Kathmandu: CPReC.

BOX VIII

Georgia: The Head of Class Hour Curriculum Development Process

The integration of disaster-risk reduction themes and topics into the Head of Class Hour programme for grades 5 to 9 in Georgia, described in Box XII of this Annex (p. 154), is an example of remarkably rapid and effective DRR curriculum development. Within a period of one year from initial conceptualization, a curriculum review was undertaken, the module developed, two rounds of pilot testing of the programme and methodological guide conducted, and the programme and materials adjusted in the light of the pilot experience. The programme was launched in schools nationwide at the start of the 2011/12 school year.

Source: Taken and adapted from European Commission/UNICEF. 2011. *Conducting Revision of Education Curriculum for Disaster Risk Reduction in Georgia.* Presentation of Experiences and Good Practices for the Istanbul Knowledge Management Workshop, 15 March 2011. 11,12,16,18.

Chapter 3

BOX IX

DRR Learning Outcomes in School Curriculum: Some Noteworthy Examples

Russia

There has been some systematic development of broadly framed DRR learning outcomes in Russia. For example, a key carrier subject for DRR education, Basics of Life Security, has knowledge, skills and attitudinal learning outcomes for secondary level:

Knowledge:

- Holistic comprehension of the world, based on advanced knowledge of risks
- Understanding of the need to protect the environment in order to protect the health of the community and personal integrity of individuals
- Knowledge of specific issues: different types of disasters; consequences of disasters on the security of the individual, the community, and the country; governmental systems in place to protect the population against disasters; methods of organizing the population in reacting to disasters; first aid in critical situations; rights and duties of citizens in hazardous situations

Skills:

- Independent determination of own goals in DRR and ability to identify ways to achieve them in real life
- Increased capacity to protect oneself, the community, and the country from life-threatening events
- Development of physical and mental qualities relevant to protecting the lives of oneself, the community or the country in situations of disasters

Attitudes:

- Cognizance and responsiveness in making relevant choices in disaster situations
- Openness to reducing human activities that can negatively impact on the security of oneself, the community, or the country
- Engagement in the promotion of a culture of safety
- Openness to promote all necessary norms for the reinforcement of safety in the event of disasters

Cambodia

Each of the nineteen lessons in the Teacher's Manual on Mainstreaming Disaster Risk Reduction Concept for Geography and Earth Science, Grade 8, includes a list of learning objectives for ten-minute teaching interventions linked to grade 8 Geography and Earth Science subjects. The learning objectives enumerated from which learning outcomes can be derived primarily concern acquiring disaster-related geographical and scientific knowledge. For example:

- 'The students will be able to describe about the causes of flood and drought.'
- 'The student will be able to identify the types of flood hazards in Cambodia.'
- 'The students will be able to describe about earthquake and volcanic eruption phenomenon.' →

BOX IX CONTINUED

There are some dispositional learning objectives. For example:

- 'The student will be cautious and ready for flood preparedness.'
- 'The students will be interested in preventing and be aware of taking care of themselves during flood.'
- 'The student will be interested in contributing to natural disaster preparedness.'

Across the lessons, DRR-related skills learning outcomes are lacking.

Madagascar

Some broad DRR-specific competencies have been identified for different grade levels. For example:

- Participating in the protection of the environment of the school (grades 1 & 2)
- Knowing of measures to take to reduce the impact of a cyclone (grade 3)
- Acting as agents of change to convey key messages and actions to the community and parents (grades 4 & 5)
- Exchanging ideas with the local community, identifying patterns leading to local environmental degradation (grade 6)
- Discussing and co-planning with the community to raise environmental awareness using the local language (grade not known)

France

In the Ministry of National Education's teachers' guide for 2012, learning outcomes are specified under the three headings of 'anticipate, act and learn' ('anticiper, agir, apprendre') for all grade levels with sections on risks in daily life, risks on the road, health risks and major risks. The 'major risk' section includes the following learning outcomes:

- Understanding and evaluating major natural and technological hazards and knowing of mechanisms for managing crisis and hazard
- Knowing how to conduct oneself in the light of each major hazard, knowing how to adapt to situations, as well as how to contribute to safety and security
- Reflecting on management and behaviors in situations of crisis and being able to transfer learning to different hazards

Outcomes are spread across grade levels. For example, the overarching learning outcome of 'knowing and evaluating risks' (under the 'anticipate' heading) translates into:

- 'Discover the existence of major risks' and 'discover the means of protection' (2 to 7 year olds)
- 'Know the principal natural and technological risks' (8 to 12 year olds)
- 'Analyze different natural and technological risks,' 'be informed of risks in the near environment,' and 'know the different help services' (13 to 15 year olds)
- 'Classify risks according their manifestation and effects,' 'know of accessible and available risk documents and inventories,' and 'know of mechanisms for crisis management and help' (16 years old and over)

Source: Adapted from UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.* p. 74, 88, 122, 134.

BOX X

Child-centered Learning Assessment Modalities

Kazakhstan: The Teacher's Manual on the Issue of Disaster Risk Reduction suggests both summative and formative modes of assessment of DRR learning. The Manual indicates a number of innovative uses of self- and peer-assessment methods. Peer assessment modalities include peer interviewing, peer appraisal of essays, group observation of each other's role play, peer assessment of project outcomes, peer teaching.

Malawi: Malawi's new primary curriculum is outcome-based with a strong emphasis on learner-centered pedagogies. Introducing elements of formative assessment is one of the critical changes made in the curriculum. Primary syllabuses systematically suggest diverse assessments modes using a scope and sequence chart. Examples of continuous assessment include: drawings, miming, teacher observations, oral questions, self-assessment, singing, storytelling, written reports and texts. Although Malawi is only on the threshold of employing DRR as a guiding concept for curriculum development, formative assessment mechanisms together with other curriculum windows of opportunity present fertile ground for effective DRR curriculum development.

Source: Adapted from UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

Chapter 4

BOX XI

Integrating and Infusing DRR into Existing Curriculum Subjects: Some Examples of Infusion

Cambodia, Lao PDR and The Philippines: Under the Regional Consultative Committee (RCC) on Mainstreaming Disaster Risk Reduction, these three countries implemented a Priority Implementation Partnership to mainstream DRR in the education sector. During phases one and two of the project, DRR curriculum integration took place in grade 8 Geography and Earth Studies in Cambodia, in grade 6 Natural Science and Social Science in Lao PDR, and in grade 7 Natural Science and Social Studies in the Philippines.

Fiji: DRR has been incorporated in the school curriculum at both primary and secondary grade levels across a number of subjects. For example, Health Science, primary classes 3-8, addresses the topics of sanitation, safety and first aid in emergencies, and infectious disease prevention. Social Science, primary class 8, addresses decision-making skills and topics including risk management strategies, place and environment. Geography, secondary class 6, includes topics on detecting and monitoring hazards, hazard mitigation and prevention. Biology, secondary class 6 highlights human influences on ecosystems.

Madagascar: DRR themes and topics have been introduced in grade 7 French, Science and Technology, and Mathematics in the new national curriculum launched in 2009. Environmental awareness is one of the topics in French (e.g., brush fires, recycling of waste, new sources of energy, climate change, deforestation and the threat to indigenous species). One of the themes in Science and Technology concerns the degradation of the quality of the regional environment (e.g., degradation of soil quality, rice field flooding, disappearance of local forests, mineral exploitation). In Mathematics, lessons on measurement and scale include working upon the area of forest devastation on the east coast of Madagascar and on the area of drought-induced devastation caused by climate change in the Androy region of the country. The unit also includes consulting maps on the impact of climate change on agriculture and asks learners to examine levels of carbon consumption. DRR has also been introduced in a two-month unit on the management of water in the grade 6 Science and Technology curriculum launched in 2008.

Peru: DRR has been infused into a range of primary and secondary subjects. For primary education, Geography at grades 1-6 addresses natural and anthropic phenomena, emergency preparedness and prevention among others. For secondary education, DRR appears in Geography (grades 7 and 8) and Science, Technology and Environmental Education (grades 7-11). For the latter, the development of environmental consciousness in risk management is specified as an objective.

Source: Adapted from UNESCO/UNICEF F. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.* p. 88, 94, 104, 110, 122, 166.

BOX XII

Georgia: The Head of Class Hour Programme and DRR Across the Curriculum

The incorporation of disaster risk reduction in the national curriculum of Georgia is a recent development that has been implemented within the framework of the April 2010 to June 2011 *Supporting Disaster Risk Reduction amongst Vulnerable Communities and Institutions in the Southern Caucasus Project* funded by the Disaster Preparedness Programme of the European Commission for Humanitarian Aid and Civil Protection (DIPECHO).

The flagship curriculum development initiative has been the mandatory Head of Class Hour programme covering grades 1-9. Under the programme, the Head of Class, the coordinator of all teachers teaching at a particular grade level, has responsibility for conducting a one-hour lesson per week throughout the school year on cross-curricular topics that the Ministry of Education considers could not be easily accommodated in existing core subjects. The Head of Class also has responsibility for organizing programme-linked activities outside school.

Disaster risk reduction figures considerably in the Head of Class Hour programme from grades 5-9. The themes and topics covered include:
• Natural hazards and global disaster trends (causes, effects, climate change and disasters, the links between development and disaster)
• The role of DRR in building a culture of safety and resilience
• Natural hazards and their prevalence in Georgia
• Role of education in DRR
• Basic DRR concepts and tools (hazard, disaster, disaster risk reduction, risk management, vulnerability, prevention, mitigation, hazard and vulnerability mapping, school emergency preparedness and response, family emergency planning)
• Natural hazards in Georgia (earthquakes, flooding/flash flooding, landslides, avalanches, wildfires, droughts, wind storms, hail, thunderstorms)
• Natural hazards at the global level (cyclones, typhoons, hurricanes), volcanic eruptions, tsunamis)
• Dealing with disaster-induced distress and trauma
• Developing the concept of volunteerism
• Parental/community involvement and awareness

The programme is organized around sixteen thematic modules, each devoted to a particular natural hazard, with most modules including activities for a range of grade levels for which the topic is held to be appropriate. For example, the Earthquake module has activities for grades 5, 6 and 7, the Climate Change module covers grades 8 and 9, and the Volcanic Eruption module is for grade 9. Multiple opportunities for parental and community involvement and fieldwork are offered. To guide Head of Class teachers in their teaching, a manual, *Teaching Disaster Risk Reduction with Interactive Methods*, is available.

The programme encompasses interactive learning in the classroom and a range of practical in-community activities such as excursions and environmental campaigns. Children participate in school hazard, risk and vulnerability mapping and developing school disaster preparedness plans, giving them opportunities to learn by doing and put newly-acquired knowledge into practice alongside parents and community members. →

BOX XII CONTINUED

The Head of Class Hour programme belongs to no discipline but draws on all. Learning in the programme is reinforced through the integration of DRR learning into a number of school subjects. There are DRR-related themes and topics in: Natural Science, grades 1-6 (emergency, safety and health-related life skills); Social Science, grades 1-6 (human/ nature relationships, environmental protection, sustainable development); Geography, grades 7-9 (natural and human-induced hazards, disaster events in Georgia, global geo-ecological problems); Civic Education, grades 7-9 (sustainable development for survival); Biology, Physics and Chemistry, grades 7-9 (geo-physical processes, stability of ecosystems, ecology and health, human-caused environmental change and its health impacts). Additionally, in January 2011 the Georgia Ministry of Education introduced a stand-alone Civil Protection and Safety programme for grades 4 and 8 dealing with everyday safety, security and life skills, and including disaster risk reduction and safety in emergencies.

Sources: UNICEF. 2011. *Educating Children to Reduce Disaster Risks: An Innovative Practice on Disaster Risk Reduction and Education in Georgia*; UNICEF/National Curriculum Centre (NCC). 2011. *Teaching Disaster Risk Reduction with Interactive Methods: Book for Head of Class Teachers (Grades V-IX)*. Tbilisi: UNICEF/NCC.

BOX XIII

Some Interdisciplinary Approaches to DRR Curriculum

Russian Federation: DRR topics and themes have been systematically brought together in a stand-alone subject called Basics of Life Security (normally taught from grades 7 to 9, but from grades 5 to 9 in some regions). Basics of Life Security addresses not only topics and themes concerning natural hazards but also technological hazards, road safety, conflicts and terrorism. Basics of Life Security also appears as a cross cutting dimension in other subjects such as Fine Arts, Technology, Physical Education, Geography and Physics.

Turkey: Eight interdisciplinary focuses in a reformed national primary curriculum were introduced in school year 2005-2006, to be addressed vertically and horizontally in the curriculum. One of these is 'disaster training and safe life'. With this, DRR now appears in a range of subjects across the primary grades.

Source: Adapted from UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. p. 74, 82.

BOX XIV

Symbiosis Approaches to DRR Curriculum: Examples

Life Skills Education in Myanmar: Life Skills is the principal DRR carrier across the primary and lower secondary grade levels. After the 2008 Cyclone Nargis, integration of DRR components in the Life Skills curriculum started. The process included a needs assessment involving head teachers, teachers, students and communities followed by lesson development, field-testing and modifications of the lessons by head teachers, teachers and students. DRR is integrated within a strand called 'Environment and Sanitation' within Life Skills. For example, grade 5 includes a unit on Caution in Emergencies (primarily covering floods, tsunami, earthquakes and forest fires); grade 6 has a unit

BOX XIV CONTINUED

→ titled *Emergency! It's Flooding!*; grade 7 addresses Disaster Preparedness (including disaster family plan, emergency kit, evacuation map); grade 8 has a topic covering earthquakes, landslides and safety in the event of fire.

Sources: ASEAN/ISDR. 2011. *Disaster Resilience Starts with the Young: Mainstreaming Disaster Risk Reduction in the School Curriculum*. Jakarta: ASEAN Secretariat; Khun Dee, ADPC (personal communication, 27 June 2012).

Education for Sustainable Development in the Cook Islands: The Cook Islands is one of 35 countries participating in the Sandwatch project (www.sandwatch.org), one of the UNESCO good practice projects. The project aims at addressing problems and conflicts around beach environments by enabling children, youth and community members to work together to better manage coastal environments. It also aims at building ecosystem resilience so as to contribute to climate change adaptation. The Sandwatch project was first introduced to the country (Rarotonga Island) through a teacher workshop in 2003, and it has gradually expanded to a number of schools on other islands. The Curriculum Unit of the Ministry of Education has been coordinating the project. In 2006, curriculum integration efforts were made (this was not a part of the normal MoE curriculum review process). The Curriculum Unit identified curriculum opportunities where the project best fit:

- Science: Living World (Aim 4, research and investigate local ecosystems and understand the relationship between the living and non living features of the ecosystem)
- Social Science: People, Place and Environment (Aim 2, people and the environment interact and influence each other).

The Curriculum Unit provided special teacher training on each island. Teachers are encouraged to integrate Sandwatch project components into their teaching plan very flexibly, going beyond science and social science. Grades 7 to 10 were mainly targeted but some schools involved grade 6 while others schools had year 4 and 5 students join the senior classes. Students have been involved in various activities such as the planting of new palm trees to reduce sand erosion and monthly measurement of beaches to identify any changes. Examining the history of beaches and biodiversity in the coastal areas as well as interviewing the local community on the impact of new development around beach areas are also part of the project.

Sources: UNESCO. 2009. *Second Collection of Global Practices Education for Sustainable Development*. Paris: UNESCO; Jane Tauranii, Cook Islands Ministry of Education (personal communication, 16 June 2012)

Education for Sustainable Development in France: ESD does not constitute a new discipline in the French curriculum but is held to be an approach integral to each discipline and disciplinary field as well as a means for cross cutting disciplinary unification. It is seen as 'integrating certain dimensions of health, risk and citizenship education and, more generally, solidarity in development,' enabling students to measure the consequences of their environmental actions. A 'Desire to Act' programme has been developed at collège and lycée level to support young people's thirst for engagement in actions of solidarity, citizenship and sustainable development.

Source: Taken from UNESCO/ UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 136.

Environment Education in Costa Rica: In 2000 the Education Council approved environmental education as a 'transversal theme' in education with disaster risk prevention and mitigation as one of its main components. Although DRR topics and themes appear in various subjects and grade levels, disaster prevention is being introduced in grades 1-3 Science and grades 4-9 Social Studies, in particular. For example, grade 1 Science activities include developing prevention measures for risk situations in dry or wet seasons. Grade 4 Social Studies includes group activities to elaborate a risk management plan linked to earthquakes.

Source: Adapted from UNESCO/ UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF. p. 152.

Chapter 5

BOX XV

Examples of Pedagogical Approaches Suggested in DRR Teacher Guides

Fiji

Ministry of Defence. 2008. *Teachers' Handbook: Disaster Management and Earthquake Preparation*. Suva: Ministry of Defence.

- A 'Disaster Corner' (part of classroom is used to display DRR information furnished by both teacher and students)
- Group work
- Essay writing
- Dramas or skits
- Poems, chants, songs, make (traditional dance)

Georgia

UNICEF/National Curriculum Centre. 2011. *Teaching Disaster Risk Reduction with Interactive Methods: Book for Head of Class Teachers (Grades V-IX)*. Tbilisi: UNICEF/NCC.

- Mini-lectures
- Discussions
- Brainstorming
- Excursions
- Interactive presentations
- Case studies
- Role-plays
- The Socratic Method (debate between opposing viewpoints using questioning and critical thinking)
- Schematic drawings

BOX XVI

DRR Teacher Handbooks: Noteworthy Examples

Kazakhstan

UNICEF, European Commission, Ministry of Education and Science of the Kazakh Republic, Ministry of Emergencies. 2009. *Teachers' Manual on the Issue of Disaster Risk Reduction* (128pp.) [In Russian and Kazakh]

This manual was created as part of a project of the Ministry of Education and Science of Kazakhstan, the Ministry of Emergency and UNICEF, 'Providing Support in Disaster Risk Reduction among the Vulnerable Groups of Population of Kazakhstan.' →

BOX XVI CONTINUED

The manual covers:

- Basic pedagogical principles for DRR.
- Roles of the Kazakhstan education system with respect to DRR.
- Methodological guidelines for using the manual.
- Guidelines for using interactive pedagogies.
- Five hazard specific modules (on natural disasters, earthquake, flood, fire, flows and landslides) aimed at helping students develop the knowledge and skills needed during emergency situations.
- Monitoring and evaluation of DRR education programmes.
- Working with parents of the school children (including developing a working plan with parents).
- List of recommended resources and glossary of key terminology.

Viet Nam

SEEDS Asia, Da Nang University of Technology, Da Nang City Department of Education and Training. Undated. *Teachers' Handbook for Disaster Risk Reduction Education*. Kobe, Japan: SEEDS Asia. (61pp.). [In English]

This manual is an output of a project titled 'Capacity Building for School-Centred Community-Based Disaster Risk Management in Central Vietnam", implemented by SEEDS Asia, Da Nang University of Technology and Da Nang City Department of Education and Training, and financially supported by Japan International Cooperation Agency (JICA).

In addition to giving basic information on DRR and a rationale for DRR education at school, this handbook includes four kinds of DRR pedagogical approaches: lectures by teachers, student presentations, student practice, and student life-saving activities. More specifically the approaches are:

- Stories from affected people
- Essay writing/essay contest
- Drawing
- Making newspapers on disasters
- School walking and map making
- Town watching and map making
- Lectures and videos showing mechanisms of disasters and natural hazards

- Preparedness and non-structural mitigation
- Emergency bag making
- Sand bag protection
- Cooking
- Bucket brigade
- First aid
- Evacuation drills

Each section includes information on: aims and expected goals; target grade; length of time for activity; materials; preparation; assignments. The section ends with a sample lesson plan. Very brief case studies from both primary and secondary schools are also included under each section to highlight real experiences of using the suggested pedagogical approaches. →

BOX XVI CONTINUED

Benin

Ministry of Secondary Education, Technical and Vocational Training, Task Force for the Promotion of Home-grown and Innovative Initiatives, Ministry of the Environment and Protection of Nature, Climate Change and Development - Adapting by Reducing Vulnerability. 2009. *Climate Change Issues: Secondary Teachers' Guide.* (119pp.) English Translation. [Original in French]

Through a capacity building project for CC-DARE (a UNDP and UNEP-led programme providing technical support to countries in Sub-Saharan Africa and Small Island Developing States for flexible and targeted actions to address climate change adaptation), a secondary teachers' guide as well as an accompanying student guide were developed. In the process of developing the two guides, several workshops were organized around the country in order to integrate teachers' feedback.

The teachers' guide has four sections:

- Analysis of environmental education in Benin as well as existing windows of opportunity for integrating climate change in the secondary curriculum.
- Information on the basics of climate change science and impacts of climate change.
- Pedagogical strategies, methods and techniques to effectively address climate change in the secondary curriculum.
- 30 'reinvestment situations', which provide a number of opportunities to which students apply what they have learned through problem-solving activities and small group projects using interdisciplinary skills.

BOX XVII

New Zealand: Multi-Media DRR Package for Teachers and Students

What's the Plan Stan? (WTPS) is a teaching and learning resource package developed under the auspices of the Ministry of Civil Defence and Emergency Management (MCDEM). The resource features the cartoon figures of Stan the dog and five children who model best practice in disaster preparation and response. It is aimed at:

- Teachers, offering guidance in incorporating disaster awareness and preparedness into their teaching and learning practices.
- Principals, school managers and Boards of Trustees, offering advice on school emergency management.
- Students (aged 7 to 12) and their families, offering interesting and user-friendly DRR materials.

The WTPS package is available in printed and CD-ROM form and through a website (http://www.whatstheplanstan. govt.nz/earthquake.html). ➔

WTPS addresses multi-hazards including earthquakes, tsunamis, volcanoes, storms, floods and non-natural disasters (e.g. pandemics, wildfires, biohazards, transportation accidents, terrorist bombs and threats).

The teacher section of WTPS includes a comprehensive and very user-friendly *Teacher's Guide* that:

- Includes handout and worksheet templates, unit plans, additional resources, and ideas for using the CD-ROM with students.
- Is closely aligned with the New Zealand National Curriculum (especially with the following subjects: Health and Physical Education, Social Studies, Science, and English).
- Provides diverse pedagogical instruction on 'inquiry learning' that emphasizes student engagement in community, questioning and reflection.
- Offers practical advice on using formative assessment techniques.

The student section of WTPS includes facts on disasters most relevant to New Zealand, maps and historical accounts of disasters in New Zealand, photographs and video clips, an audio CD, interactive stories, quizzes and games.

BOX XVIII

Namibia: DRR Radio Programmes

In Namibia, as part of the project titled 'Lesson Learned - Educational Flooding Response & Shared Good Practices' (January to March 2010), eight radio programmes on DRR were produced and broadcast on national and community radio. The programmes were based on lessons learned from Caprivi (one of Namibia's northern regions devastated by the 2009 torrential rains and subsequent floods). The initiative is held to have contributed to mitigating the psychosocial impact of current and future floods on teachers and students by focusing on disaster preparedness and sharing best practice. The initiative is in line with national MoE contingency plans and Namibian government efforts to operationalize its DRR management policy in the education sector.

Source: Adapted from Tomren, G. 2010. *HQ US Contribution Funds for the Reconstruction of Education Systems in Post-Conflict Countries- Phase 2. Country Project Terminal Report.*

BOX XIX

DRR Student Activity Books: Noteworthy Examples

Myanmar

UNICEF. Undated. *Ready – Set – Prepared!* Naypyidaw: UNICEF Myanmar. [In English]

This activity book for secondary school children offers learner-friendly, informative and practical learning about disaster mitigation, prevention and preparedness. It covers multi-hazards (i.e. earthquakes, tsunamis, storms, floods, thunderstorms, cyclones, tornadoes, floods, landslides, wildfires).

When each hazard is introduced in the book, a traditional figure from Myanmar's culture (for instance, a Nat, a guardian of nature) explains the hazard's causes and effects. The booklet includes clear guidance on what to do before, during and after the hazard period and also gives useful advice on recognizing signs of looming disasters. Some guidelines on how to mitigate and prevent natural disasters are also included. The book gives hands-on advice to help students take precautions: making disaster preparedness plans, planning their own disaster supply kit, creating family communication plans in times of disaster and drawing a safety map of their community.

Thailand

Save the Children Sweden. 2008. *The Alert Rabbit.* Save the Children.
http://seap.savethechildren.se/en/South_East_Asia/Misc/Puffs/The-Alret-Rabbit/ [in English and Thai]

This story book is an outcome of a collaborative effort between grade 4-6 children at Baan Talae Nok School and a partner group in Ranong Province as part of the Save the Children's Child-led Disaster Risk Reduction Programme in Thailand. The story draws on the experiences of the Baan Talae Nok children and their community in the aftermath of the December 2004 Tsunami. This story, composed by a group of children for other children, is a good example of peer-learning and active child participation in DRR education. Animals appearing in the book teach the importance of disaster preparedness to save lives. The book includes games that check readers' understanding of key messages expressed in the book.

Chapter 6

BOX XX

Georgia: Teacher Training on DRR Content and Pedagogy (linked to the DRR Teacher's Guide)

DRR teacher training for the Head of Class Hour Programme (see Box VIII, p. 149, and Box XII, pp. 154-5) was a one-day (7-hour) workshop given in two parts:

- **Disaster risk reduction**: global disaster trends and statistics; disaster prevalence in Georgia; role of educational system in disaster risk reduction – the need to teach DRR; disaster prevention and rules of behavior before, during and after disasters; consideration of the 16 thematic modules; importance of community involvement in the learning process.

- **Interactive teaching methods**: encouraging and exemplifying engagement of students with DRR through mini-lectures, discussions and debates, group brainstorming exercises, games, interactive presentations and discussions as well as a variety of practical activities (such as simulations, competitions).

The training program was organized in a highly practical and interactive manner. Participating teachers were guided through using the teacher's guide: Teaching Disaster Risk Reduction with Interactive Methods: Book for Head of Class Teachers (Grades V-IX).

BOX XXI

Vanuatu: DRR Teacher Education Workshop

Box 42. Vanuatu: Disaster Risk Reduction Teacher Education Workshop

Prior to the pilot testing of grade disaster risk reduction curriculum in 2012 for grades 4, 5 and 6 in the Republic of Vanuatu organized by Save the Children, some thirty teachers from ten piloting schools underwent three days of training, with principals and regional education officers also in attendance.

The basic programme is given on the next page. The unifying and consolidating elements in programme delivery listed below make the training particularly distinctive.

1. Throughout the first two days of the programme in particular, teachers were required to experience for themselves the activities they would be conducting in class on the principle that effective facilitation of activities calls for prior immersion in different learning approaches and activity types.

2. The training introduced teachers to disaster risk reduction and the idea of introducing disaster risk reduction across the curriculum and also trained them in DRR learning and teaching and learner assessment.

3. After the first morning's session, inputs by the trainer *always* followed the activities and, as much as possible, involved whole group discussion of activity experiences and the facilitation challenges raised. ➔

BOX XXI CONTINUED

4. Activities were organized into three clusters (*awareness-raising activities, hazard specific activities and, resilience-building activities*), providing a suitable programme framework for the first two days.

5. Throughout the programme, the facilitator was seen to role model the facilitation style that the teachers were encouraged to use in their classroom.

6. 'Home groups' were created to bring together teachers from different schools at the end of each day to discuss and reflect upon their experiences, identify gaps in their learning and questions they needed answering. Home group sessions were each followed by a whole group discussion during which groups aired issues and raised questions.

7. Teachers' roles and responsibilities in the pilot evaluation process (e.g. through keeping a diary of reflection, completing implementation feedback sheets after each lesson) was explained and discussed.

8. On the last morning teams of teachers practiced facilitation of an activity they themselves had experienced using the microteaching approach.

3-day Programme Overview

	DAY 1	DAY 2	DAY 3
AM	• Introduction, rationale for workshop, explanation of workshop style • Explanation of disaster risk reduction and disaster risk reduction education • Explanation of convergence of DRR and climate change education (CCE) • Review of opportunities for integrating DRR and CCE across the Vanuatu primary curriculum • Rationale for DRR learning approaches being used in the workshop • Explanation of the three activity clusters	• Hazard-specific activities: participants engage in four sample learning activities	• Teachers take turns leading micro-teaching sessions for each other in two breakout groups • Explanation of teachers' roles and responsibilities in evaluating the pilot
PM	• Awareness-raising activities: participants engage in four sample learning activities	• Resilience-building activities: participants engage in four sample learning activities • Participants discuss school action plans in 'home groups'	• Assessing student DRR learning • School groups (including principal) determine school implementation plans • Final Q & A session

Source: Save the Children Australia. 2012. *Disaster Risk Reduction & Climate Change Education in Vanuatu: Pilot Curriculum Materials, Teachers' Guide and Evaluation Instruments.* Port Villa. Additional input from Marla Petal, Save the Children Australia.

BOX XXII

Training of Teachers and Trainers in Mainstreaming DRR in the Education Sector in Lao PDR

A three-day DRR Training of Teachers and Trainers programme was carried out by the Lao Ministry of Education, in conjunction with the National Disaster Management Office, ADPC and UNDP in November 2009.

The two objectives of the training were:

- To build the capacity of teachers and of the regional centre training officers of the MoE National Teacher Training Institute in leading the integration of a DRR training module during the annual pre-service and in-service training of teachers in their area of jurisdiction
- To serve as a guide in the conduct of pre-service and in-service training for teachers so as to enable them to transfer DRR knowledge and create a culture of prevention and safety in their schools.

Day one of the programme covered the following topics: disaster management policy/strategy and concepts; disaster impacts in the region; integration of disaster in the curriculum; the range of natural and human-induced hazards. Day two focused on teaching, learning and assessment aspects, introducing DRR materials (modules, teacher's guide, student's textbook, booklets, posters). A group exercise to create a lesson plan closed the day. Day three included another group exercise concerned with creating a lesson plan. Plans were then shared and discussed. A final group exercise involved first devising and then sharing and discussing follow-up plans.

Source: Information provided by ADPC

BOX XXIII

Timor Leste: Systematic DRR Professional Development for District-level Curriculum Development

Save the Children's April to November 2011 *Disaster Risk Reduction in Primary School Project* sought to increase the resilience and reduce the vulnerability of children to disasters in Manufahi and Ainaro, two of the thirteen districts of Timor Leste. The project eventually moved beyond its designated 50 schools to reach over 100 primary schools and more than 12,000 students.

One of the main features of the project was the close working relationship with the Ministry of Education especially at district level but also at regional and national levels. At district level, Ministry inspectors, school directors and teachers led on project implementation and were involved in implementing and monitoring lessons as well as training teachers on how to deliver DRR education in class. Of key importance to the project was the establishment of a Teacher Disaster Response Group (TDRG) made up of 22 school directors, inspectors and district education focal points.

To support devolved project leadership and back the TDRG in assuming a prominent leadership role, a comprehensive and systematic approach to professional development that embraces the training of inspectors, school directors and teachers was adopted. The training began with an introduction to DRR and the project itself, familiarization with DRR learning materials and training in lesson plan development, a training of trainers element, and finally, training in monitoring and reporting. →

BOX XXIII CONTINUED

The following training, review and briefing structure was adopted.

Training Round One

A 4-day event for inspectors and school directors to introduce DRR, DRR learning materials and facilitator training, determine membership of the Teacher Disaster Response Group, and draw up a plan of activities. (34 participants)

- Facilitated by Save the Children education officers and partner NGO 'master trainers'
- Participatory and interactive training
- Examined ministry district level plans for schools and reviewed how the plans fit with the project
- Planned the involvement of 'satellite schools' (i.e., schools beyond the originally designated 50 schools)

Training Round Two

A 3-day event for school teachers (25 per district) also attended by school directors, at which inspectors who had been selected as members of the TDRG facilitated some of the training.

- Participatory and interactive training on how to use DRR learning materials and how to design and develop DRR lesson plans (by TDRG inspectors)
- Training support for TDRG trainers from Save the Children and partner NGOs made available on-site
- Training of TDRG members and teachers in lesson delivery in 'satellite schools'
- After the event, delivery of DRR learning materials to schools

Training Round Three

A one-day refresher training for teachers and TDRG members held in the two districts (25 teachers attending in each district)

Training Round Four

A one-day monitoring training for TDRG, inspectors, district focal points and selected school director. (23 participants)

- Principles and concepts of monitoring and evaluating DRR learning introduced
- TDRG, inspectors, district focal point personnel and school director familiarized with using the Save the Children monitoring form
- Schedule and work plan for monitoring DRR lessons developed, and decisions made on how feedback would be collated and shared

School-level Implementation

Curricular and extra-curricular sessions conducted in the original 50 schools and an additional 68 schools (based on the decision of TDRG to outreach to other schools with vulnerability to disaster) over a ten-week period.

Follow-up Briefing and Review Sessions

A series of meetings held for briefing and review purposes.

- Project briefing meetings for other education officials through regional and district level meetings (inspectors, superintendents, directors of basic schools) →

BOX XXIII CONTINUED

- Early review meetings held in each district to monitor project progress and seek feedback on reception of materials; both followed by district-level briefing workshop for inspectors and directors on review meeting outcomes
- Bi-monthly review meetings held with TDRG members in each district to monitor progress, share results of school and in-class observation, and give feedback on lesson implementation drawing from the monitoring forms

National Level Final Review Meeting

Attended by Ministry of Education, National Disaster Management Directorate and representatives of non-governmental organizations and UN agencies

Training Round Five

A refresher training for district focal points and project teachers entirely conducted by TDRG (at the closing of the project).

BOX XXIV

DRR Pilot Teacher Training in Armenia

A small scale 2010-2011 DRR pilot project led by UNICEF and the State Academy of Crisis Management (CMA) used teacher education as a central vehicle for change. The project is noteworthy because of its emphasis on locally relevant disaster topics and interactive pedagogies in training events, the training of principals together with teachers, and guidance and support given at school level after to the first training.

The project consisted of five phases:

Phase 1

Expert Group (EG) formed. EG reviewed relevant materials and developed a comprehensive training module including both DRR concepts/content and pedagogical approaches for in-service pre-school and schoolteachers.

Phase 2

EG offered a three-day rigorous training of trainers (ToT) for more than 20 teachers and principals from four districts. The training programme focused on both urgent disaster topics in their districts and interactive methodologies. Principals additionally learned about the project's evaluation plan for school implementation.

Phase 3

Participants developed thematic units on DRR to be taught at their own schools. The unit development process was supported by EG members through their visits to schools. The process resulted in the development of 24 thematic units covering all kinds of natural hazard

BOX XXIV CONTINUED

Phase 4

EG offered three-day teacher training events for four different regions. In addition to the teachers and principals initially trained in Phase 2, an additional 70 pre-school teachers and schoolteachers were trained. The training included a classroom teaching simulation and used highly participatory training approaches. Both DRR content and a range of pedagogical methodologies were included in the training.

Phase 5

Reflecting on needs raised by the teachers, EG adjusted and further developed teachers' and students' DRR materials. One handbook for teachers and three handbooks for students (for pre-school, elementary and secondary levels) were completed for publication.

The programmatic elements of the training approach used in this small-scale example are relevant to and replicable in at-scale in-service training interventions, including the training in DRR concepts and content and in facilitating participatory learning, the encouragement and support given to teacher-led curriculum development with a localized dimension, and the emphasis on post-training aftercare and support back in school.

Source: Adapted from CMA (State Academy of Crisis Management)/UNICEF. 2011. *DRR in Education Project. Final Report*. (Unpublished)

BOX XXV

Sri Lanka: Mainstreaming DRR through Nationwide Teacher Education

The devastation caused by the December 2004 tsunami became a turning point for the Sri Lankan government to proactively seek a new approach to deal with natural hazards. As a first concrete step, in 2005 the Ministry of Disaster Management and Human Rights was established and a national strategy was developed. The important role of the education sector was emphasized among the contributions to be made by a number of ministries. A division within the Disaster Management Centre under the Ministry of Disaster Management and Human Rights acted as interface with the education sector.

From October 2005 to December 2008, the Disaster Risk Management and Psycho-social Care in Schools project was implemented within the framework of the Sri Lankan education reform by German Agency for Technical Cooperation (Deutsche Gesellschaft fuer Technische Zusammenarbeit, GTZ) in collaboration with the Ministry of Education and the National Institute of Education.

An overall objective of the project was 'to establish pre- and in-service training in disaster safety education for lead administrators at Sri Lanka's education authorities, lecturers at the National Colleges of Education and school teachers'.[1]

Providing psycho-social counseling for school children traumatized by the tsunami and civil war was also included in the project.

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1   GTZ. 2009. *Basic Education and Disaster Risk Management: Concept Paper*.
http://www2.gtz.de/wbf/4tDx9kw63gma/Basic_Education_and_Disaster_Risk_Management_konzept_englisch.pdf; GTZ. 2008.. No pagination.

BOX XXV CONTINUED

The project strategically and collaboratively worked at three different levels for the sustainable integration of disaster risk management into the Sri Lankan education system. The table below summarizes key actors involved in the project.

Key Actors in Sri Lanka Disaster Risk Management and Psycho-social Care in Schools project	
Level	Key actors in the education sector (key roles)
National level	• Ministry of Education (policy and guideline development) • National Institute of Education (developing curriculum, offering pre-service and in-service teacher training and developing instructional materials) • Centre for Educational Leadership Development (offering in-service training in leadership for principals and education managers) • National Colleges of Education (17 colleges training in-service teachers across the entire nation)
District level	• Teacher Training Centers (some 100 centers around the country responsible for developing methodological knowledge and skills of teachers through both pre- and in-service training)
School level	• School principals • School-based in-service teacher trainers (offering training and support to colleagues in schools)

The project's strategy is mapped out in a schematic diagramme[2] on the next page, and key project steps are described below.

• Analysis of national education context with respect to disaster preparedness and school disaster safety.

• Development of a project strategy (see schematic diagramme).

• A 14-day training course on disaster risk management and schools for 24 executive/senior members from the Ministry of Education, the National Institute of Education, the National Colleges of Education at the Indian National Institute of Disaster Management, followed by a similar training course for teacher trainers and key education administrators.

• Training-the-trainers (Sri Lankan educators who had been trained in India trained others in their own institutions).

• Integration of disaster safety education components into a new syllabus of pre-service teacher training by a Core Working Group consisting of senior members in the National Institute of Education and the National Colleges of Education. The newly developed cross-subject syllabus consists of five training modules: (1) basic concepts of disaster risk management, disaster mitigation and disaster relief; (2) disaster safety at schools; (3) practical drills and exercises in disaster safety; (4) post-disaster psychosocial counseling; (5) post-disaster health care practices.

• Translation of the new syllabus material for pre-service teacher training into Sinhalese and Tamil following official approval of the new syllabus. →

2 GTZ. 2008. *Sri Lanka: Teaching Disaster Risk Management in Sri Lanka's Schools*. p. 15
http://preventionweb.net/files/submissions/27358_ensrilankateachingdisasterriskmanagement.pdf

BOX XXV CONTINUED

Sri Lanka: Disaster Risk Management and Psychosocial Care in Schools Project Strategy

Development of curriculum components on disaster safety education

School teachers use the new, revised curricula to instruct their students

Support and capacity development

Preparation of training and instruction materials

Integration of disaster safety education in pre-service teacher training

Students and teachers are familiar with the disaster risks and respond correctly in emergencies

Training of lecturers and instructors at the National Colleges of Education and Teacher Training Centres

The National Colleges of Education teach and practice disaster safety

In-service teacher training to enable teachers:
- to implement school projects on disaster preparedness
- to teach the revised syllabus

Providing schools with emergency equipment

Disaster preparedness drills at schools and educational facilities

Educational facilities are better prepared for emergencies

Training school principals in the application of guidelines governing disaster safety

BOX XXV CONTINUED

- Training for several instructors of each National College of Education before the introduction of the new syllabus by the Core Working Group.

- Training for some 400 in-service teacher trainers at school level for qualified staff of the National Institute of Education Training.

- Integration of school disaster safety components into in-service training programmes for school principals and education administrative staff by the Core Working Group.

- Training for 225 lecturers and instructors from the National Colleges of Education as well as school-based in-service teacher trainers in pedagogical methodology by the National Institute of Education.

- During the in-school training year, training teachers were obliged to conduct a school project on disaster risk management and school disaster safety.

- During the project, an informal inter-ministerial coordination group was established to support improved communication and transparent decision making processes.

A review of the project implementation revealed the following key factors contributing to the project's success:

- Early buy-in of senior managerial personnel in the education sector through a training course; close intra- and inter-ministerial cooperation and collaboration mechanisms.

- Integrating DRR elements into the existing structure of curriculum and school management; sensitivity to the conflict situation of the country and promoting peaceful coexistence (i.e., by ensuring balanced participation by all ethnic groups and minorities; making project materials available in three languages; ensuring gender balance among the project participants).

Although the project finished at the end of 2008, the disaster risk management component was integrated into the GTZ Education for Social Cohesion programme[3] to facilitate sustainable institutionalization and roll out pilot activities across the school system.

Source: Adapted from: GTZ. 2007. *Basic Education and Disaster Risk Management: Concept Paper*. http://www2.gtz.de/wbf/4tDx9kw63gma/Basic_Education_and_Disaster_Risk_Management_konzept_englisch.pdf; GTZ. 2008. *Sri Lanka: Teaching Disaster Risk Management in Sri Lanka's Schools*. http://preventionweb.net/files/submissions/27358_ensrilankateachingdisasterriskmanagement.pdf; GTZ. 2009. *Sri Lanka: Disaster Risk Management and Psycho-Social Care in Schools*. http://star-www.inwent.org/dokumente/bib-2010/gtz2010-0389en-sri-lanka-psycho-social-care.pdf

3   http://www.giz.de/themen/en/12404.htm

Chapter 7

BOX XXVI

Children's Learning in Disrupted Contexts

'When children's lives have been disrupted, they need to find structure, consistency and security in their day. When trust has been shattered and children have lost their sense of belonging, they need to experience kindness, inclusion and recognition. When children are distracted by intrusive memories of distressful events, they need to be given opportunities to learn in ways that are creative, engaging and active.'

Source: UNICEF. 2009. *The Psychosocial Care and Protection of Children in Emergencies: Teacher Training Manual*. p, 97.

BOX XXVII

Student DRR Action in the Community: Some Examples

Planting Trees, Haiti

Local children in Thiotte took part in a 'Risk Reduction Day' and planted trees in order to help reduce the risk of mud/landslides during flood incidents.

Source: ActionAid. 2009. *Disaster Risk Reduction through Schools: A Groundbreaking Project*.

Child-Led Emergency Drill, the Philippines

During the Children's Summer Camp, a student-led emergency drill was conducted using a drill scenario of a 7.5 magnitude earthquake and an incipient fire with mass casualties.

Source: Save the Children. 2010. *Living with Disasters and Changing Climate*.

Community Map, Thailand

As part of a Disaster Risk Reduction training programme, students in Phayao province created a community map identifying risks and safe areas. The map also identified families with children and elders in the community. They learned how to help them in case of a disaster.

Source: Save the Children. 2010. *Living with Disasters and Changing Climate*.

School Relocation, the Philippines

When students in San Francisco municipality learned that their high school was going to be relocated to a landslide risk area, they debated whether and where to relocate the school. A community-wide referendum was held. Students organized a campaign and their proposal for relocating the school to a safer location won in the vote.

Source: Plan International. 2007. *Case Study: The Power of Children's Voices in School Relocation*.

Student Risk Ambassadors, France

In order to motivate students to understand and be involved in helping solve local risks (e.g., floods, industrial accidents), a programme of 'Student Risk Ambassadors' was launched in a local high school and was later replicated in other schools. →

Source: UN ISDR TPKE. 2008. *Disaster Prevention for Schools Guidance for Education Sector Decision-Makers. Consultation Version*.

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BOX XXVII CONTINUED

Measuring Rainfall, Brazil

Children are taught to measure rainfall to give an early warning of floods or landslides.

Source: Save the Children. Undated. *Reducing Risks, Saving Lives.*

Song: 'Qasidah's', Indonesia

Children's group in Rembang adapted Qasida (a form of poetry from pre-Islamic Arabia used for religious poetry along with chanting and percussion in Rembang district) for a DRR and climate change adaptation campaign. Children performed at village gatherings.

Source: Plan International. 2010. *Child-Centred DRR Tool Kit.*

Child-Led Community Radio Programme, Sierra Leone

The Moyamba District's Children's Awareness Radio is a child-led and community based radio station. It produces a weekly one-hour radio programme on DRR by reaching out about 250,000 community members.

Source: Plan International. 2010. *Child-Centred DRR Tool Kit.*

BOX XXVIII

What is Vulnerability and Capacity Assessment (VCA)?

VCA is 'a participatory investigative process designed to assess the risks that people face in their locality, their vulnerability to those risks, and the capacities they possess to cope with a hazard and recover from it when it strikes…. VAC helps people to prepare for hazards, to prevent them from turning into disasters and to mitigate their effects.'

There are a number of tools used for VCA. They include:

- Semi-structured interviews.
- Focus-group discussion.
- Mapping (creating maps which indicate the location of risks and hazards as well as resources in the community).
- Transect walks ('walking through a community to observe the surroundings, people, land use and resources').
- Seasonal calendar (a chart with 'the months of the year along the horizontal axis and the events and activities significant to the community listed in the vertical axis,' illuminating when hazards and risks take place and also helping the community reflect on 'living habits according to its vulnerability to hazards').
- Historical visualization (creating a chart which shows how key aspects of people's lives have changed over time).

Source: International Federation of Red Cross and Red Crescent Societies (IFRC). 2007. *VCA Toolbox with Reference Sheets.* p. 6, pp. 19-20.

Towards a Learning Culture of Safety and Resilience

Chapter 8

BOX XXIX

The Philippines: Establishing a Strong Legal and Policy Framework for Mainstreaming DRR in Education

In response to the 2007-9 Mainstreaming DRR in the Education Sector (MDRD-EDU) project (see Box IV, pp. 144-5), the Department of Education of the Government of the Philippines issued a departmental order to undersecretaries, assistant secretaries, bureau directors, directors of services/centers and heads of units, regional directors, schools city/division superintendents, and heads of public and private schools to prioritize the mainstreaming of disaster risk reduction management (DRRM) in the school system and ensure implementation of programmes and projects related to DRR.

With the passage of the Disaster Risk Reduction and Management Act of 2010 (RA 10121) - "An Act Strengthening the Philippine Disaster Risk Reduction and Management System, Providing for the National Disaster Risk Reduction and Management Framework, and institutionalizing the DRRM Plan, Appropriating Funds Therefor and for Other Purposes" - in May 2010, efforts to main-stream DRR were boosted. Implementing Rules and Regulations for RA 10121 were approved on September 2010 and the eventual approval of a National DRRM Plan (NDRMMP) in February 2012 further strengthened the National Disaster Risk Reduction and Management Council (NDRRMC) and the Department of Education's mandate for integrating DRR in curriculum and schools.

RA 10121 provides a legal basis for policies, plans and programmes to deal with disasters, outlining activities aimed at strengthening the capacity of national and local government to build disaster resilient communities, enhance disaster prevention/mitigation and preparedness and response capabilities at all levels, and institutionalize arrangements and measures for reducing disaster and climate risks. With this stronger legal mandate, disaster management in the country shifted from a reactive to more proactive ethos.

Section 4 of RA 10121 specifically included provision for the development of policies, plans, actions and measures pertaining to knowledge building and awareness raising (Section 4) and the integration of DRR education in school curricula at secondary and tertiary levels, in the National Service Training Programme (NSTP), in mandatory training in DRR for public sector employees, in formal and non-formal vocational and indigenous learning and in out-of-school youth courses and programmes (Section 13). It also provided for the establishment of at least three training institutes for continuous and sustained DRR education.

The NDRMMP serves as the roadmap for mainstreaming disaster risk reduction and climate change adaptation in development processes such as policy formulation, socio-economic plan-ning, budgeting and governance, including in the education sector. In such processes, disaster practice has moved from a single hazard to a multi or all-hazard approach while the focus has become inter-sectorial, inter-agency and an all-government. One dimension of this shift has been the early review of the 2009-19 Strategic National Action Plan so it reflects the new DRR vision and strategic objectives. →

BOX XXIX CONTINUED

To support DRR mainstreaming in the education sector a Build a Safe Learning Environment project has been conducted (2007-8) under the auspices of the Safe Schools Programme of the Department of Education. In partnership with the Education in Emergencies Cluster and the NDRRMC, the project involved validating teams being assigned to areas to monitor and boost school safety through a combination of observation, comparison of findings, discussions/ recommendations and dialogues with elementary and secondary students, their parents and teachers.

Under the new arrangements, each national agency is mandated to formulate its own DRRM Implementing Plan and manual of operations. Using RA 10121 as the legal framework, the Department of Education has established a DRRM Core Group composed of the Central Office key officials. The Group offers an arena for discussing DRRM and Education in Emergencies issues, and for recommending policies, programmes and projects for disaster risk reduction.

The Department of Education has also created a DRRM Office (DRRMO) that is becoming the focal point in mainstreaming DRR in the education system and in fostering a system-wide culture of safety. The DRRMO has reviewed and revised subject curricula so as to better utilize opportunities for addressing disaster- and climate change-related issues. At the time of writing, the DRRMO is formulating a monitoring and assessment tool that can be used to further evaluate and assess the impact of projects, programmes and interventions on education for disaster risk reduction and climate change adaptation.

Source: Response to authors' query on status of mainstreaming of disaster risk reduction in the education sector in the Philippines submitted on their behalf by ADPC, June 2012.

BOX XXX

Turkey's Basic Disaster Awareness in Turkish School's Project

In Turkey an online *Basic Disaster Awareness in Turkish School*s project took place between 2003 and 2005 involving collaboration between the Ministry of Education, Boğaziçi University, Kandilli Observatory and the Earthquake Research Institute and funding by USAID. With free online registration, it aimed at allowing school teachers to learn the rudiments of individual and family disaster preparedness through a 4-hour self-study curriculum. Two thousand five hundred volunteers took this initial online training, which served as a filter for selecting 100 instructor trainers for a week-long face-to-face training. Instructor-trainers and trainers then used the portal to report on cascading workshops delivered face-to-face to teachers nationwide. By 2012 voluntary efforts had provided and reported on delivery of face-to-face awareness seminars to an estimated 294,000 teachers.[1] In 2010-11 the Ministry of Education in Turkey put up its own e-learning portal. The first offerings were developed with the Ministry by Risk RED with support from the American Red Cross and Boğaziçi University. Two complete interactive online self-study courses (a total of twenty 45-60 minute lessons) were offered on Individual and Household Disaster Preparedness and School Disaster and Emergency Management. Registration is through administration ID or school ID.[2] Both on-line programmes received endorsement from the Ministry of Education although they were not made mandatory. Within the first six months of offering this online programme 10,000 teachers had voluntarily completed all lessons in each course and at least 75,000 users had collectively completed 250,000 lessons.[3]

1   Basic Disaster Awareness in Turkish Schools Online Program. http://www.koeri.boun.edu.tr/aheb/memlogin.htm

2   *School Disaster & Emergency Management* online program. http://uzaktanegitim.meb.gov.tr/faces/Oys01001.jsp

3   This section on Turkey is based on information provided by Marla Petal and Zeynep Turkmen, Risk RED

Chapter 10

BOX XXXI

India: Using Safety at School as an Entry Point for Disaster Risk Reduction Education

In India, UNDP has been promoting the introduction of disaster management education in schools. Some state Governments (e.g. Gujarat) have integrated such lessons into their curriculum while other states have yet to do so.

States that have had major or recent disasters have shown leadership in promoting DRR education. For example, the State of Kerala built DRR education around an integrated audit of the school covering both disaster aspects (i.e., floods and lightning) and safety aspects (i.e., traffic, chemical, electrical safety). The audit was conducted by professional safety and disaster management experts who were joined by a team of students from the school safety club. The members of the school safety club were chosen from various grades in the school and acted as champions, promoting safety issues in each class.

The audit report was prepared and approved by the safety audit team and submitted to the school management. This was followed by four kinds of action:

1. Structural changes by way of installing fences and other barriers on or around identified sources of hazards
2. Promoting key elements of safety relating to the school in all classes
3. Conducting a series of training events on key hazards identified (such as laboratory safety and first aid)
4. Promoting the messages in other schools by conducting a safety exhibition for schools in the region.

The initiative is to be repeated in 30 more schools in the region and is expected to achieve scale over five years starting from 2012.

Source: Muralee Thummarukudy, UNEP.

Annex 2
Tool Box

Chapter 1

TOOL 1

The Five DRR Dimensions in the Curriculum

The checklist below can be employed as a framework for curriculum review and development purposes as follows:
- Exploring current DRR provision according to the five dimensions across the whole curriculum
- Exploring current DRR provision according to the five dimensions in the curriculum of particular subjects
- Checking the weighting given to each dimension in successive drafts of curriculum during development.

Process:

1. Participants form small groups perhaps arranged by subject(s) or grade(s);
2. They are given a handout explaining the five dimensions together with copies of relevant curricula;
3. Groups copy the checklist on to a large sheet of chart paper
4. They examine the degree to which each dimension is addressed in the subject(s) or grade(s) in question;
5. Having determined the degree, they tick the appropriate box and write in bullet point notes on where and how in the curriculum the DRRE dimension is being addressed;
6. Using a marker pen of a different color, they make a bullet list of ideas on how the treatment of each dimension might be improved and/or increased by filling in all boxes to the right of the one initially completed (e.g. if they have checked 'Hardly at all' they write in suggestions on how the dimension might be 'Somewhat' or 'Strongly' addressed;
7. Each group presents their work;
8. General discussion follows reviewing findings and determining entry points and priorities for DRR curriculum development.

Five Dimensions of DRRE: Curriculum Checklist

	Hardly at all	Somewhat	Strongly
Dimension 1: Understanding Mechanisms			
Dimension 2: Becoming Safety Wise			
Dimension 3: Understanding Risk Drivers and How Hazards Can Become Disasters			
Dimension 4: Building Community Risk Reduction Capacity			
Dimension 5: Building an Institutional Culture of Safety and Resilience			

Chapter 2

TOOL 2

Hyogo Framework for Action, Indicator 3.2: "Include DRR in the education system and the research community" – How to do it? UNISDR Recommended Steps

1. Establish a taskforce and various committees to focus on the different levels of education, including universities

2. Assess the current knowledge of disasters and disaster reduction at all age levels through surveys. Analyze existing curricula to determine whether disaster risk issues are appropriately addressed

3. Promote the inclusion of disaster risk reduction topics in existing subjects beyond science and geography alone, such as reading, art, history, sociology, engineering, environmental management, hydrology, planning and public health

4. Collect education material and analyze it in order to develop guidelines for educators on how best to incorporate disaster-related information into relevant areas of their curricula

5. Provide training for teachers and school officials regarding disaster risk education

6. Encourage universities to develop degree programmes specific to disaster management and risk reduction issues

7. Encourage the use of electronic and distance learning to further expand access to disaster risk reduction education

8. Encourage the development of applied scientific, socio-economic and technical research to advance understanding and application of disaster risk reduction in development practices

9. Create opportunities for dialogue among researchers, policy makers and practitioners.

Source: Taken from UNISDR. 2007. *Words into Action: A Guide to Implement the Hyogo Framework.* pp. 64-65.

TOOL 3

A Consensus-building Tool: The We-agree Workshop

The 'We-agree Workshop' is a tool for use during the formative stages of DRR curriculum development to achieve an optimal level of technical working group cohesion.

Session 1: Getting to Know Each Other.

Participants draw and share and discuss self-drawn roadmaps of their professional life journeys up to joining the DRR curriculum development initiative, focusing on experience and expertise they collectively bring to the task.

Session 2: Values and Visions.

Participants all write their own set of cards, each expressing a different value or vision for DRR. The cards are pooled, organized, clustered and commented upon on chart paper and discussed with a goal of arriving at a mutually agreed vision.

Session 3: Problems and Constraints.

Participants all write cards, each identifying a hindrance or obstacle that might stand in the way of successful curriculum development. Cards are shared one by one to trigger discussion and agreement on how to pre-empt, circumvent or solve the problem.

Session 4: Smooth Ways of Working.

In pairs, small groups and then as a whole group, participants share opinions on what behaviors make for positive and productive ways of working together and what behaviors tend to disrupt collaboration. The group arrives at an agreed list of collaboration styles they will employ.

Session 5: Mapping the Curriculum Development Process.

Working within the broad curriculum development framework and schedule they have been given, participants agree on detailed scheduling, roles and responsibilities.

Note: This is an abridged, hybridized version of a number of global education consensus building workshop tools, namely: Kinghorn, J.R. & Shaw, W.P. 1977. *Handbook for Global Education: A Working Manual.* Charles F Kettering Foundation; Richardson, R, Flood, M & Fisher, S. Undated. *Debate and Decision: Schools in a World of Change*. London: World Studies Project.

TOOL 4

A Consensus Building and Planning Tool: Force Field Analysis

Force Field Analysis is a helpful planning tool for policy makers and practitioners at all levels in the process of integrating DRR into curriculum that helps to facilitate discussion, debate and dialog.

Procedure

1. Form a small group of six to eight persons and decide the area of DRR curriculum change to be discussed. Write it down in a box in the center of a sheet of chart paper (as in the example below). This focal point of the discussion might be a desired DRR curriculum policy goal (at national, regional or local/ school level) or a DRR curriculum objective.

2. Brainstorm to create a list of the forces driving change to the left side of the box and forces working against or restraining change to the right.

3. Examine and sort out all the driving and restraining forces according to common themes and their magnitude, rating them from 1 (weak) to 5 (strong). Some guidance on rating can be found in the example below.

4. Discuss and identify ways forward to reduce the restraining forces and to capitalize on the driving forces.

Forces for Change

- A new national governmental policy on DRR and Climate Change [5]
- Increasing public concerns on devastating impacts of natural hazards [4]
- Students' and teachers' interests in learning more about topics related to hazards and safety [4]

[Total: 14]

Goal

Integration of DRR at all primary grade levels

Forces against Change

- No co-ordination mechanisms [4]
- Untrained teachers [5]
- A lack of capacity among MoE curriculum writers [4]
- Many other priorities within the national education agenda [3]

[Total: 17]

Source: Hovland, I. 2005. *Successful Communication: A Toolkit for Researchers and Civil Society Organizations.*

TOOL 5

DRR Curriculum Planning Tools: Problem Tree Analysis and Objective Tree Analysis

Problem tree analysis and objective tree analysis, commonly used as planning tools among development agencies, are equally applicable to DRR curriculum planning. A problem tree assists stakeholders in mapping out and clarifying causes and effects around a focal issue. An objective tree draws from the problem tree exercise to transform the problems identified into objectives and future solutions. Discussion, debate and dialogue among participating stakeholders are the heart of both exercises. Concerns and decisions emerging from the exercises can be the focus of further discussion and elaboration.

Procedure

- Working in a small group, identify a core or focal problem relating to DRR curriculum development. Write it down in the middle of a sheet of chart paper.
- Identify the causes and effects of the focal problem (these become the roots) and then identify consequences of the focal problem (these become the branches). Add to the chart following the kind of layout set out below.
- Once the problem tree has been completed, create an objective tree by converting each problem into desired improvement.

1) Problem Tree Analysis

2) Objective Tree Analysis

ENDS

| Better prepared for future natural hazards | Active participation in community DRR projects | Increased sense of responsibility |

CORE OBJECTIVE

Increased student knowledge and skills for disaster risk reduction (DRR)

| DRR lessons taught frequently at sch000l | Student safety clubs created | DRR student learning materials available |

MEANS

| Teachers trained for DRR lessons | New govern-ment DRR curriculum policy | School safety action plan and committee | Resource sharing mechanisms developed |

Sources: Hovland, I. 2005. *Successful Communication: A Toolkit for Researchers and Civil Society Organizations*; UNESCO IIEP/UNICEF WCARO. 2011. *Integrating Conflict and Disaster Risk Reduction into Education Sector Planning.*

TOOL 6

Six-Step Approach to Curriculum Development

Step 1: Initiation of a Dialog between the NDMO and the national agency responsible for curriculum development linked to the Ministry of Education

- NDMO hosts a workshop for MOE officials to introduce DRR and build consensus.
- Outcome would be a formal Memorandum of Understanding setting out the objectives, scope and expected outcomes of a DRR curriculum partnership.

Step 2: Formation of a Working Group and Advisory Group

- Technical Working Group established with membership of the MOE curriculum agency, NDMO and technical agencies
- Advisory Group established, chaired by a senior figure in the MOE and with senior representation from all ministries and agencies concerned to guide the process and oversee the Technical Working Group (the ongoing functions of the Advisory Group would include: reviewing the work plan, analyzing successes and failures, adjusting targets in the light of lessons learned.)

Step 3: Kick-off Meeting

- A joint meeting of the Technical Working Group and Advisory Group.
- Purposes of meeting would be to: develop a detailed work plan, assign responsibilities, propose target dates.

Policy Makers/ Curriculum Developers: the kick-off meeting could use any or all of Tools 3, 4, 5.

Step 4: Development and Testing of the Draft Curriculum (Technical Working Group)

- Review of existing curricula and determining grade level and subject locations for DRR integration.
- Development of new subject or module to integrate in different subjects.
- Development of teachers' manual and training teachers from selected pilot schools as well as education officials responsible for those schools.
- Pilot testing the subject/cross-curricular module, synchronizing the pilot with the school calendar and allowing a sufficient span of time to receive teacher feedback.
- Revising the draft curriculum in the light of feedback.

Step 5: Liaison with the National Curriculum Review Committee

- Technical Working Group works closely with national curriculum review committee to enable infusion of DRR learning during next curriculum revision.

Step 6: Integration of DRR into the National Curriculum

- Final approval of Advisory Group sought and attained.
- Budgetary provision ensured.
- Multi-level consultations and dissemination.

Source: Asian Disaster Preparedness Center (ADPC)/Regional Consultative Committee on Disaster Management (RCC). 2007. *Integrating Disaster Risk Reduction into School Curriculum*. RCC Guideline 6.1. 8-12.

Chapter 3

TOOL 7

Developing Subject-based DRR Curriculum Learning Outcomes

Main Target Groups for Exercise

Curriculum specialists and developers of one or more subjects, teacher educators, teachers, technical working group members for DRR or DRR with CCE/ESD curriculum development.

Purpose

To develop subject-specific DRR learning outcome lists.

Procedure

1. Reflect on the notion of curriculum infusion (i.e. that DRR knowledge, skills and attitudes/dispositions can be infused into subject curricula).

2. Introduce the idea of refraction, the change in direction of light waves as they enter another medium (e.g., the perceived bend in a straight stick when seen entering the surface of a pool of water).

3. Then raise the notion of curriculum refraction (i.e. that a cross-curricular DRR theme and generic DRR learning outcome applied to a particular subject may well be conceived and formulated differently within that milieu).

Curriculum Refraction: An Example

4. Have participants work in small subject specialist groups to consider in broad terms if and how each of the learning outcomes listed in the summary Learning Outcome Clusters table (see below) could be accommodated in the subject in question; also, where within the subject curriculum contributions towards realizing the outcomes might be located (i.e. at different grade levels and/or within specific subject units/topics).

5. Have participants pool and share ideas in a general discussion.

6. Distribute the full list of generic learning outcomes (Table 3, pp. 70-1).

7. Returning to their small groups, ask participants to elaborate specific learning outcomes under each outcome cluster heading that they think the subject in question could address, writing each specific outcome in the standard terminology of the subject. →

TOOL 7 CONTINUED

8. Conclude with general discussion with the aim of drawing up a list (or lists) of subject-aligned DRR learning outcomes.

Knowledge and Understanding	Skills	Attitudes/ Dispositions
• Knowledge of self and others • 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 the conflict/disaster risk reduction interface • Knowledge of human rights/child rights aspects of disasters	• Skills of information management • Skills of discernment and critical thinking • Skills of coping, self-protection and self-management • Skills of communication and interpersonal interaction • Social/emotional skills • Skills of action • Systemic skills	• Altruism/valuing • Respect • Compassion, care and empathy • Confidence and caution • Responsibility • Commitment to fairness, justice and solidarity • Harmony with the environment

TOOL 8

Paving the Way for Blended Cross-curricular DRR Provision

Main Target Groups for Exercise

Curriculum specialists and developers, teacher educators, teachers and principals (the exercise lends itself to whole-school learning outcomes mapping and development), technical working members for DRR or DRR with CCE/ESD curriculum development.

Purpose

Primary- or secondary-level curriculum developers and/or teachers representing different subjects meet to discuss integrated whole-curriculum delivery of DRR learning outcomes.

Principals: This tool can play a significant part in cultivating teachers' vision of the school as a DRR learning organization.

Procedure

Stage 1: Exploring Subject Learning Outcome Potential

1. Have those involved meet in subject groups with copies of the Learning Outcome Clusters table (Tool 7, p. 183) and one or more copies of the subject curriculum, texts and other teaching/learning materials.

2. Ask groups to discuss the potential in the subject for realizing each of the learning outcomes and the degree to which that potential is currently being exploited, writing down key points and ideas on chart paper. →

3. Follow with reports in whole group session on the discussions, group by group, participants referring to the chart paper notes.

4. Hold a discussion with the whole group on links identified between actual and potential learning outcome coverage across the subjects.

Stage 2: Mapping Whole Curriculum Learning Outcomes

1. Back in their groups, have participants identify specific learning outcomes falling within each learning outcome cluster to which they think the subject in question can contribute, writing a list for each cluster on a separate sheet.

2. Have the whole group contribute to a large DRR Knowledge Learning Outcomes Map for the whole curriculum with subjects represented along the horizontal axis and grade levels arranged on the vertical axis.

   • First, have participants write in actual and potential subject contributions to DRR knowledge outcome clusters, grade level by grade level, on the map (directly above where the subject appears on the horizontal axis).

   • Second, ask the whole group to consider learners' actual and potential exposure to each knowledge outcome at each grade level and through the grades (linking points of exposure with a continuous line can be helpful).

3. Repeat step 6 (probably in two additional sessions) creating a DRR Skills Learning Outcomes Map and a DRR Attitudes/Dispositions Learning Outcomes Map.

4. Retain the sheets produced during step 5 for purposes of ongoing curriculum development, making them available for consultation during Stage 3.

Stage 3: Scoping and Sequencing Learning Outcomes

1. Have a team organize and group all inputs and ideas in a document and distribute for study in advance of undertaking step 12

2. Hold one or more DRR Scoping and Sequencing sessions to consider questions such as:

   • What potentially rich areas for realizing DRR learning outcomes have emerged from the mapping of the curriculum?

   • How might the scheduling of topics across subjects be reconfigured to optimize the impact of the curriculum on DRR learning?

   • Should subjects be earmarked as primary and reinforcing carriers of DRR learning outcomes? If so, how would that be arranged and managed?

   • How might teachers of different subjects collaborate so as to optimize the realization of DRR learning outcomes?

   • What changes in texts and other learning materials are needed to better achieve DRR learning outcomes?

   • What changes are needed in the style and places of teaching and learning to better realize DRR learning outcomes?

   • Has the process revealed professional development needs?

   • What structures and mechanisms can be put in place for monitoring DRR learning outcome delivery across the curriculum with a view to establishing a process of continuous improvement?

TOOL 9

Localizing DRR Learning Outcomes

Main Target Groups for Exercise

Curriculum specialists and developers and teacher educators working at local level; school teachers and principals; members of local communities including those experienced in, and working with, traditional and indigenous disaster risk reduction knowledge and practices; local disaster risk reduction, climate change and sustainability specialists.

Purpose

Some countries include a 'local content curriculum' element while other countries allow flexibility in adjusting centrally developed curriculum to local contexts and needs.[1] Yet other countries have developed policies for the infusion of indigenous practices and worldviews in the curriculum. [2]This exercise suggests a simple process for looking at generic DRR learning outcomes through local and indigenous perspectives.

Procedure

1. Assemble teachers and educators, community members, those with local hazard, climate change and sustainability expertise, and those with knowledge of indigenous/traditional disaster risk reduction practices.

2. Review with participants the Learning Outcome Clusters table (Tool 7, p. 183) or the generic outcomes list (section 4.3) and ask them to meet in groups to discuss three issues: (a) the general appropriateness of outcomes for the locality and local culture; (b) how the outcomes could be reworded to make them more locally relevant and culturally appropriate; (c) learning outcomes they think are missing, but which should be included to ensure locally and culturally attuned curriculum.

3. Have groups report back and discuss each issue, addressing differences between indigenous and scientific perspectives as they emerge.

4. Create an agreed list of learning outcomes for local DRR learning.

5. Share the list across the community, elicit feedback and meet to review comments, amending the learning outcomes as felt necessary.

6. Use the learning outcomes determined by the process to frame the development of local content DRR curriculum.

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1   UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.

2   See, for example, Ministry of Education, Republic of Vanuatu. *Vanuatu National Curriculum Statement*. Port Vila: Ministry of Education. pp. 1-13.

TOOL 10

Developing Competency-based Curriculum

Main Target Groups for Exercise

National curriculum development team; [at local level] community members, principals, teachers, members of disaster and climate change related organizations; teachers in pre-service or in-service training.

Purpose

To develop competency-based DRR curriculum.

Procedure

1. Have participants work in groups to consider and list national, sub-national and/or local hazard and potential disaster situations for which students need to be equipped.

2. Give each group a situation to consider in terms of competencies, asking what knowledge, skills and attitudes a graduate from the school system would need to possess to be able to cope with and be proactive in the situation.

3. Have groups go through the list of learning outcomes (Box 23) looking for knowledge, skills and attitudinal outcomes that should be added to their competency bundle, refining the wording of the outcome as necessary.

4. Ask groups to report back and encourage a creative critiquing of each other's work.

5. Have groups work together again to think about the topics, themes, learning and assessment approaches that should be developed for delivering the competency.

6. Ask groups to present and again creatively critique each other's work

Note: The outcomes of the work can be used as a basis for in-depth curriculum development.

Chapter 5

TOOL 11

Matrices

Lessons/Learning Outcomes Matrix

Lessons \ Learning Outcomes	Knowledge and Understanding	Skills	Attitudes/ Dispositions

[Matrix to be expanded to cover number of lessons]

Lessons/Learning Dimensions Matrix

Lessons \ Learning Outcomes	1	2	3	4	5

[Matrix to be expanded to cover number of lessons] →

Lessons/Pedagogies Matrix

						Learning Modalities
						Brainstorming
						Small group discussion
						Whole group discussion
						Multi-media presentation
						Case study research
						Project work
						Surveys/interviews
						Media analysis/response
						Board games
						Role plays, skits, dramas, puppetry
						Simulation games
						Field visits
						Community engagement/campaigns
						Imaginal learning (visualizations)
						Somatic learning
						Artistic expression

[Matrix to be expanded to cover number of lessons]

TOOL 12

ESD Learning Experience Planning Template (Manitoba)

This is a standard format that may be modified to meet individual needs.

Grade Level - Identify the grade or grades involved in the activity
Guiding Questions - Use guiding questions to provide focus for the activity. It is often useful to start with what you want the students to learn, and then work backwards to craft the activities so that they meet the objectives.
Identify Subjects and Space – Also establish the setting information. This helps in planning the activity (e.g., inside the classroom, outside on the schoolyard, or off of school property).
Duration – Establish how long it will take to complete the activity.
Group Size – Ensure an exchange of ideas in small groups for at least part of the time.
Vocabulary – List curriculum words and additional words that are relevant to the activity.
Materials – Provide a list of items required for the activity.
Safety – Review school and divisional policies. If students are travelling beyond the classroom, visit proposed areas beforehand to ensure there are no safety hazards.
Activity – Review the step-by-step methods for doing the learning activity.
Debriefing – Ask the student some pre-planned affective and cognitive questions in the debriefing session after the activity (but remember to use spontaneous questioning, too!).
Post Activity – Determine activity extensions and follow-up activities.

Source: Derived and adapted from Manitoba Education. 2011. *Education for Sustainable Development: Kindergarten to Grade 12 Correlation Chart Template and Kindergarten Tool Kit*. Winnipeg: Manitoba Education. p. 8-9.

TOOL 13

Activity: Bouncing Back (grades 4-10)

Explanation
- Pupils are helped to understand the concept of resilience

Time Needed
- 30 minutes (5 minutes demonstrating 'bouncing back'; 10 minutes in pairs; 10 minutes brainstorming; 5 minutes explaining resilience and posing the key question).

Learning Outcomes
- Understanding of idea of 'resilience'
- Enhanced ability to communicate personal experiences and emotions

Materials
- A bendy stick, a rubber band, a rubber ball, an eraser and/or any other everyday object that if bent, pulled or squeezed out of shape return to their original shape when released
- Blackboard and chalk

Procedure
Use the bendy/stretchable/squeezable objects brought to class to demonstrate the capacity to 'bounce back' by bending them, stretching them and squeezing them. Let each pupil try too!

1. Ask pupils to join together in pairs sitting on the floor or on chairs facing each other.

2. Ask them to sit quietly for a few moments thinking about times when they have 'bounced back' after experiencing some difficulty or setback. It may be, for example, after a sports defeat. It may be after someone has said something unkind and left them feeling flattened. Have them think about the qualities they showed in 'bouncing back'.

3. Ask each pair to nominate person 'A' and person 'B'. Ask 'B' to tell 'A' those personal 'bouncing back' stories they feel happy to share, with 'A' listening carefully to what is said. After two minutes reverse the process and ask 'A' to tell 'B' their stories, with 'B' listening carefully.

4. Then ask pairs to discuss the 'bouncing back' qualities revealed by the stories. Were they similar? Or were different qualities shown in different circumstances?

5. Conduct a whole class brainstorming session of 'bouncing back' qualities revealed by the stories, writing all ideas on the blackboard.

6. In closing, explain that the ability to 'bounce back' from a difficult time is called 'resilience'. Ask the class to think about whether the same qualities of resilience are needed in a school, village or other community after being hit by some setback or tragedy

Extension
1. Have pairs form into fours to prepare small dramas about their 'bouncing back' experiences.
2. Have the groups of four present their drama.
3. Ask the class to decide what each drama shows and discuss whether there are lessons for communities in what is shown.

Curriculum Links
This activity can be used wherever the concept of resilience is addressed across the curriculum. The drama extension fits well into performing arts curricula.

Source: Adapted from a school activity that features in UNESCO/UNICEF. 2012. Climate Change in the Classroom: UNESCO Course for Secondary Teachers on Climate Change Education for ESD. Paris: UNESCO.

TOOL 14

Activity: Cyclone Message Match (grades 4-7)

Explanation
- Pupils learn about cyclone safety measures.

Time Needed
- 30 minutes

Learning Outcomes
- Understanding precautionary steps to take to avoid or reduce cyclone danger
- Enhanced ability to negotiate and work towards consensus
- Enhanced oral presentation skills

Materials
- A cut-up set of cyclone messages (see Handout provided on next page)
- A big sheet of paper and marking pen or paints for each of 3 groups

Procedure
Stage 1

1. Ask the pupils to stand in an open area.
2. Give each pupil one piece of a cyclone message.
3. Take a part-message yourself if the number in the class is uneven and have two pupils share a part-message if there are not enough part-messages to go round because of the size of the class.
4. Tell pupils that each message contains two parts and that they each have one part.
5. Invite them to move round the open area looking for someone they can join with so that their part-messages make sense when joined together.
6. When everyone is part of a complete message, ask each pair to read out their message.[1]
7. Ask for any questions about the messages, encouraging other pupils to answer them rather than answering them yourself.
8. When discussion begins to slow, tell the class that some of the messages advise on what to do before a cyclone strikes while others advise on what to do during a cyclone and yet others advise on what to do after a cyclone.
9. Invite pairs to decide which category their message belongs to and then move around to join other pairs whose message they think falls in the same category.
10. Have the large groups, so formed, read out their messages. Ask if everyone feels pairs have joined the right group. If not have the class discuss where they belong.
11. When everyone is satisfied that everyone is in the right group and the messages properly sorted, the activity can end or the class can turn to the extension (see below).

Extension

1. Invite groups to work together to turn their messages into Before a Cyclone, During a Cyclone or After a Cyclone sections of a Cyclone Code of Behavior for the school
2. Encourage them to do this by (1) rewriting their messages so they read like guidelines for a school code; (2) asking teachers, other pupils and community members for further ideas for a school code; (3) developing their own ideas for the part of the code they are working on
3. Have each group prepare a poster of their part of the code on a big sheet of paper and present it to the rest of the class; pupils should be encouraged to ask questions and make fresh suggestions after each presentation
4. Have the class present and speak about their completed posters to the whole school during an assembly.

Curriculum Links

This activity can be used in the science or social studies curriculum. It also aligns with the general listening, speaking and writing objectives of the language curricula.

1   In Vanuatu, it was decided to add a code to each pair of part-messages, so that at the end of the pairing the codes can be used to check if they are correctly matched.

CYCLONE MESSAGE MATCH HANDOUT

Fit shutters or	metal screens to all glass areas.
Stay inside and shelter away from windows	in the strongest part of the building.
Clear away everything that could blow about	and cause injury in extreme winds.
Remain indoors and stay	tuned into the radio or TV for advice.
Make sure everyone knows where	the strongest part of the building is.
Disconnect all electrical things	and use a battery radio for news.
Do not go outside	until the 'all clear' from the meteorological office.
Check that your building is in good condition	and especially that the roof is tied down and walls are strong.
Check for gas leaks	and do not use anything electrical if wet.
Stay inside and sheltered and have	an emergency kit with you.
If you have had to leave your building because of danger	don't return unless advised.
Trim treetops and branches	so they are well away from your building.
Close shutters on outside of windows, securely fasten	doors, and then stay away from glass windows.
Beware of damaged buildings, power lines and trees and don't	go in floodwaters.
Whatever the attraction	don't go sightseeing.
Listen to the radio for cyclone updates	and mark the path of the cyclone on a cyclone tracking-map.
In case of Blue Alert,	cyclone may come in less than 24 hours. Get ready.
In case of Red Alert,	cyclone is coming now. Take shelter.
In the middle of the cyclone	there is a quiet eye. Do not leave shelter - there is more storm coming.

Adapted from Tropical Cyclone Precautionary Advice, Vanuatu Meteorological Services, 2007

TOOL 15

Activity: Climate Change Despair and Empowerment Sequence (grades 9-12)

This is an amended version of a school activity that features in the UNESCO Climate Change Education for Sustainable Development teacher training programme It will be noted that an additional activity sub-heading – Potential – is used, giving space for fuller elaboration of the potential learning to be derived from the activity.

Explanation

Students share their anxieties about a climate-changed future and go through a series of discussion steps to discover their latent potential for contributing to a better future.

Time needed

• 60-90 minutes

Learning Outcomes

• Reinforced realization that often unarticulated fears and hopes for the future, as well as values and things held dear, are shared by peers

• Appreciation that people can direct their potentials to achieving a better future

Materials

• A circle of chairs, well spread out; sufficient cards, crayons, pencils and sheets of paper spread out within the circle; a flip chart and marker

Procedure

When students have become familiar with climate change issues and debates, the teacher takes the students, sitting in circle, through a series of stages each triggered by a question or instruction.

Stage 1: Feeling Powerful

Students are asked to think about times when they have had to do something really difficult or scary but where they came out feeling really powerful. After a few minutes' reflection they pick up a card and write down or draw images that capture the experience and feelings of those times. Students share their images round the circle. They store their card for future reference.

Stage 2: Thinking the Unthinkable

• The teacher asks students to each pick up a card and write three sentences beginning:

• 'The thing that worries me most about the warming of the climate is…'

• 'The thing I prefer not to think about happening with climate change is…'

• 'What scares me most about a hotter planet is…'

Three to four minutes are given for writing (the teacher avoids giving examples and urges students to write what they wish). The cards are collected in, shuffled and given out again. Each student reads out the card they have received. All sentences are accepted without comment. →

Stage 3: Climate Change Nightmares

With eyes closed, students are asked to silently run a film in their heads about dangerous climate change inspired by their recall of a bad dream or of something they have read in a newspaper or book or seen on film. Without opening their eyes, they draw a picture on paper, not to be shown to anyone, of their feelings.

Stage 4: Something You Love

Again with eyes closed, students are asked to think deeply about something they most value about life or the world. Volunteers are asked to share and describe things they thought of.

Stage 5: A Hopeful Future

On a new card, students write three sentences beginning:

- 'We really could face up to global warming by…'
- 'Life could be good, even better, if…'
- 'To transform things, a good way forward would be to…'

They read out their cards.

Stage 6: Brainstorming

Students are asked to brainstorm things that people and whole societies might do to prevent or mitigate dangerous climate change. All ideas are accepted and written on the flip chart by the teacher.

Stage 7: Revisiting Feeling Powerful

Students are asked to go back to the images of themselves being powerful and look again at their cards (Stage 1). They are asked to quietly reflect on how those feelings of power might be drawn upon by them to help reduce climate change and, in particular, be used in realizing any of the ideas brainstormed. Everyone in the circle is encouraged to share their reflections; those who wish are encouraged to write 'commitment to action' cards to be shared or not shared with the class as the writer sees fit.

Potential

This activity sequence is designed to take students through a roller coaster of powerful experiences and emotions before demonstrating their potential for social action. First, they recall feelings and moments of power (Stage 1) before encountering climate change dystopias in the face of which they may very well feel acute sense of powerlessness (Stages 2, 3). Their orientation then shifts (Stages 4, 5) to focus upon what they most value in life and to consider hopeful futures (something that is likely to be made more intense by just having considered what they love). The focus then turns (Stages 6, 7) to action to preempt or reduce dangerous climate change that segues into consideration of personal change agency potential by recalling the power that students have been able to find in themselves in earlier seemingly disempowering circumstances.

Chapter 7

TOOL 16

Community Vulnerability and Capacity Assessment

VCA is 'a participatory investigative process designed to assess the risks that people face in their locality, their vulnerability to those risks, and the capacities they possess to cope with a hazard and recover from it when it strikes.... VAC helps people to prepare for hazards, to prevent them from turning into disasters and to mitigate their effects.'

There are a number of tools used for VCA. They include:

- Semi-structured interviews.
- Focus-group discussion.
- Mapping (creating maps which indicate the location of risks and hazards as well as resources in the community).
- Transect walks ('walking through a community to observe the surroundings, people, land use and resources').
- Seasonal calendar (a chart with 'the months of the year along the horizontal axis and the events and activities significant to the community listed in the vertical axis,' illuminating when hazards and risks take place and also helping the community reflect on 'living habits according to its vulnerability to hazards').
- Historical visualization (creating a chart which shows how key aspects of people's lives have changed over time).

Source: International Federation of Red Cross and Red Crescent Societies (IFRC). 2007. *VCA Toolbox with Reference Sheets.* p. 6, pp. 19-20.

Stage 1: Planning and Preparing for Community Situation Analysis: Vulnerability and Capacity Assessment

- Determine the purposes and scope of the situation analysis to be conducted in the community.
- Choose the most appropriate windows of opportunity for the preparation of the visit based on the subjects to be investigated.
- Decide on how the situation analysis will be conducted (see Box XXVIII on Vulnerability and Capacity Assessment).
- Have students develop data collection tools, such as observation sheets, questionnaires and/or interview questions as appropriate (calibrate the help given to students to their age and level of maturity).
- Help students to identify key informants who can best answer their questions - their data collection tools may need to be refined depending on actual availability of key informants.
- Help students understand and have students practice using data collection techniques (including interviewing and observation).
- Help students to decide on roles and responsibilities within a group (for instance: Who will ask which question? Who will take notes? Who will collect observation data?).
- Have students conduct further preparation or research work before the visit, as necessary.
- Make ancillary and logistical arrangements for the student community visit. These would include: arranging the duration and schedule of the visit; determining the exact location for the visit; identifying and forewarning community members able and willing to make themselves available for the student visit as guides or interviewees.*
- Consider any roles for parents and community members beyond being interviewed or acting as guides.
- Encourage students to think ahead about what else they might need for a post-visit reporting session (e.g., photographs, drawings).
- Make sure that the activity will not expose children to any risk. →

Stage 2: Implementing the Community Inquiry

- Make sure that each student group follows their plans, by arranging or offering support as appropriate.
- Play an unobtrusive observer's role for at least part of the time.

Stage 3: Debriefing and Reflecting on the Community Inquiry

- Allow enough time for each group to reflect on data gathered, decide on what to report and how to present main findings.
- During the reporting phase, encourage each group to ask questions of others' reports.
- Hold a whole class discussion on the reports. Some debriefing questions include: What are things in common in the reports? What are key findings and messages? What different insights are there in different reports? Why? What are areas requiring more research/investigation? What might you do to address issues you have identified?

Stage 4: Engaging with the Community about Outcomes and Building Action Consensus

- Ask students in the same groups to think back on their community visit and decide on: key messages they want to communicate to the community; primary target group(s) with which they want to communicate; the channels/locations for communication.
- Help students to consider appropriate media for communication with the chosen target group(s) (e.g., poster, photo exhibition, radio message, local newspaper, video, street performance, songs, electronic messaging).
- Ask each group to explain their initial ideas for community engagement, inviting others to give critical feedback as well as constructive suggestions.
- Help each group draw up a detailed engagement plan (who does what, when, where, resource needs).
- Support each group, or the groups collectively to engage with the community in disseminating their findings and messages, and to seek an agreement on joint action to take (use Box 19, p. 97) for developing the action proposal).

Stage 5: Taking Action

- Consider how student community action projects can be linked to formal curriculum spaces.
- Have group(s) make action preparations in liaison with community members.
- Have group(s) implement their action plan with community members
- Have students reflect on their action experience, report and discuss as per the three steps in Stage 3.
- Repeat the cycle.

* Genre of local people to approach include: local government officers; local community leaders; youth leaders; religious readers; members of local environmental, climate change, development and DRR NGOs; local health workers; local media representatives; elderly community members; women's group; migrant minorities in the area.

Chapter 8

TOOL 17

DRR Curriculum Scaling-up/ Mainstreaming SWOT Analysis

In a group, first examine and discuss Table 4 (p. 106) on enabling and disabling factors in DRR curriculum scaling-up/ mainstreaming. Use the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis framework below, copied on a large sheet of chart paper, to examine current DRR curriculum scaling-up/mainstreaming efforts in your own context.

Strengths	Weaknesses
Opportunities	Threats

After brainstorming and writing down ideas under each section, discuss the following points:

- Ways in which to strengthen strengths
- Ways in which to seize opportunities
- Ways in which to minimize weaknesses
- Ways in which to counteract threats.

Then further discuss and develop strategies and action plans. Also discuss roles and responsibilities among different stakeholders.

TOOL 18

Tackling Disabling Factors in Scaling-Up/Mainstreaming

Examine Table 4 and choose one disabling factor that you hold to be most serious and urgent for your own DRR curriculum scaling-up/mainstreaming efforts (or create your own, if none of the factors faithfully capture your most serious and urgent problem). Use the Problem Tree Analysis exercise (p. 180) and then work on the Objective Tree analysis exercise (p. 181) to discuss the root causes and come up with strategies and actions.

Chapter 9

TOOL 19

Sustainable and Resilient School Audit

1. The Formal Curriculum	Excellent 4	Good 3	Fair 2	Getting Started 1	Not Happening 0
1. There are school policy and guideline documents clearly itemizing curricular learning outcomes for ESD and DRRE at the school					
2. There is effective co-ordination of ESD and DRRE learning across the curriculum and through the grade levels					
3. Every opportunity is taken to introduce issues of sustainable development and disaster risk reduction into all school subjects					
4. Teaching approaches encourage active student engagement in sustainability, disaster risk reduction and other issues					
5. Sufficient good quality learning materials and activities for ESD and DRRE are available					
Formal Curriculum Sub-Total					

2. Social Sustainability and Resilience	Excellent 4	Good 3	Fair 2	Getting Started 1	Not Happening 0
6. There are school policy documents clearly laying out a whole school commitment to sustainability and disaster resilience					
7. Students are given the opportunity to participate in an in-school and in-community ESD/DRRE action agenda					
8. Sustainability and resilience building approaches are gender sensitive					
9. The special needs of all students, especially those with disabilities or from marginalized groups, are taken into consideration					
10. The school is notable for humane, inclusive, caring and compassionate inter-personal relationships that foster sustainability and resilience					
Social Sustainability and Resilience Sub-Total					

TOOL 19 CONTINUED

3. Environmental Sustainability and Resilience	Excellent 4	Good 3	Fair 2	Getting Started 1	Not Happening 0
11. The school actively promotes attitudes of respect and care for the natural world					
12. The school is concerned to raise awareness of unsustainable treatment of the environment and how it increases vulnerability to hazard					
13. A watchful eye is kept on environmental factors that threaten school and community with disaster and action taken to mitigate any threat					
14. Resources are procured with an eye to minimizing environmental harm and reducing climate change					
15. The school is implementing recycling and energy saving measures					
Environmental Sustainability and Resilience Sub-Total					

4. Economic/Structural Sustainability and Resiliencee	Excellent 4	Good 3	Fair 2	Getting Started 1	Not Happening 0
16. School buildings have been built or retrofitted according to safety criteria					
17. Economic drivers of unsustainability and vulnerability, especially poverty and inequality, are given due weight in school discourse and decision-making					
18. Students learn practical measures and skills that will enable the local community to adapt its economy to climate change and other threats					
19. A sufficient allocation of funding resource is put behind the school's sustainability and disaster risk reduction efforts					
20. The economic consequences of unsustainability and any shortcomings in disaster management are made clear to all school stakeholders					
Economic/Structural Sustainability and Resilience Sub-Total					

5. Cultural Sustainability and Resiliencee	Excellent 4	Good 3	Fair 2	Getting Started 1	Not Happening 0
21. The prevailing ethos of the school gives high profile to matters of sustainability and disaster resilience					
22. The prevailing ethos also confirms that everyone matters and has a contribution to make in building a culture of sustainability and resilience					
23. The school joins forces with the local community in efforts to build a sustainable and resilient future					
24. There is a clearly articulated, clearly visible and clearly understood whole-school approach to sustainability and disaster management					
25. The school is a lively and engaged ESD/DRR learning community					
Cultural Sustainability and Resilience Sub-Total					

Transfer the five sub-totals to the table below to calculate an overall total out of 100. The higher the score the better the school's orientation towards ESD/DRR. Areas with a lower score indicate where action is especially necessary. In reporting the results, the Working Group should engage stakeholders in discussion regarding actions to be taken.

1. The Formal Curriculum	
2. Social Sustainability and Resilience	
3. Environmental Sustainability and Resilience	
4. Economic/Structural Sustainability and Resilience	
5. Cultural Sustainability and Resilience	
TOTAL	

Source: Adapted and elaborated from UNESCO. 2010. *Education for Sustainable Development Lens: A Policy and Practice Review Tool*. Paris: UNESCO. 84-6.

Chapter 10

TOOL 20

A School Safety Plan Curriculum (exploiting the learning potential presented by the development and implementation of a school safety plan)

STEP 1: ESTABLISH THE SCHOOL SAFETY CORE TEAM

Language/Social Science/Citizenship
Interview School Safety Core Team members about their visions, plans, as well as the role of students in developing the school safety plan. Write school newspaper articles based on the interview.

STEP 2: CREATE AWARENESS AMONG THE SCHOOL COMMUNITY

Science
Prepare presentations to give at awareness raising meetings/events on the mechanisms of the most relevant natural hazards.

Social Science
Research past local impacts of natural hazards and present at awareness raising meetings/events.

Expressive/Performing Arts
Create and perform a short play on the importance of preparedness in minimizing losses and damages from natural hazards. Make posters, brochures, leaflets on the same topic. Compose and perform DRR awareness songs.

STEP 3: IDENTIFY HAZARDS AND RESOURCES

Social Science
Research community perceptions of local hazards, including indigenous knowledge, and present to School Safety Core Team.

Mathematics
Analyze NDMO numerical data concerning hazard impacts on the community, graph the data, and present data portfolio to School Safety Core Team.

STEP 4: ESTABLISH AND TRAIN THE SCHOOL DISASTER SAFETY TEAM
(including first aid team, evacuation & drill team, warning team, search & rescue team)

Science
Learn about natural early warning signs for different hazards.

Physical and Health Sciences
Have pairs walk blindfolded along the school evacuation route; practice first aid procedures.

Language/Social Science
Have students interview trainees about the effectiveness of their training, combine findings, and write a report to the Principal.

STEP 4: ESTABLISH AND TRAIN THE SCHOOL DISASTER SAFETY TEAM
(including first aid team, evacuation & drill team, warning team, search & rescue team)

STEP 5: PREPARE THE SCHOOL SAFETY PLAN DOCUMENT

Social Science/Citizenship
Have students write one idea that they would like to have included in the School Safety Plan, organize the ideas and present them to the School Disaster Safety Team.

Art
Draw school and classroom evacuation maps as well as a village map for display at school and inclusion in the School Safety Plan.

Language
Create a child-friendly version of the School Safety Plan document and have the classs debate and discuss its contents.

STEP 6: DISSEMINATE PLAN AND CONDUCT DRILLS

Art
Creatively present the School Safety Plan using both visual and performing arts.

Social Science
Plan and implement student surverys on their views and perceptions on the effectiveness of drills.

Mathematics
Gather, analyze, compare, contrast and present data relating to time taken for drills on successive drill occasions.

STEP 7: EVALUATE AND UPGRADE THE PLAN

Language
Interview School Disaster Safety Team members regarding implementation and effectiveness of the Plan, reporting findings back to the Principal and Team.

Citizenship
Organize school assembly/student meetings where student feedback and proposals on the Plan are discussed, gathered and organized into a report.

Annex 3
Checklists

CHECKLIST 1

Debriefing an Activity

- ☐ Begin by asking a few broad, general questions to the whole class not to individual pupils. For instance: 'What new things did you learn from the activity?'; 'What surprised you about what you have done?; 'How did you find the activity?'; 'What special things have you learned about disaster vulnerability and resilience in your village?

- ☐ Also ask feelings questions right at the start if the activity has had an emotional dimension or has triggered an emotional response in pupils (What do you feel about…?, What did you feel when…?) and, only when feelings have been thoroughly aired and shared, move on to ask thinking questions ('What do you think about…?')

- ☐ Note down key points raised by the opening exchanges on the board and use as a checklist to open different areas of discussion as the debriefing progresses.

- ☐ Whenever students contribute an idea, insight or point of view, sum up what has been said and then put it back to the class for further input, e.g., 'Josephine and Edward think the old ways of preparing for a cyclone were the best. What do others think?'

- ☐ Encourage individuals and groups to ask each other questions.

- ☐ Input relevant new information at the end of the debriefing, as much as possible building upon what the students themselves have said and give recognition to their various contributions.

- ☐ Also at this time, introduce corrective information to challenge and provoke discussion surrounding misapprehensions that the debriefing has so far failed to reveal.

- ☐ Display charts and work produced by groups after the session, inviting everyone to take a close look at each other's work.

CHECKLIST 2

Conducting an Evaluation

- ☐ Involve stakeholders in evaluation design, implementation and follow-up, and ensure findings are shared with them.
- ☐ Obtain high-level authorization for the evaluation and establish an advisory group to maximize cooperation and buy-in to the results.
- ☐ Train evaluation team as well as participants who will have evaluation roles.
- ☐ Involve multiple categories of stakeholders and participants in the data collection process.
- ☐ For large programmes, choose in-depth, high quality evaluation in randomly or purposively selected institutions rather than thin data from all.
- ☐ Pilot test all data collection instruments to ensure their usefulness.
- ☐ Design evaluation instruments that will result in ideas to feed back into practice and on-going development.
- ☐ For quantitative data, ensure proper statistical analysis.
- ☐ For qualitative data, read through the data several times and allow key themes to emerge.

Source: Adapted from Sinclair, M. with Davis, L., Obura, A. & Tibbitts, F. 2008. *Learning to Live Together: Design, Monitoring and Evaluation of Education for Life Skills, Citizenship, Peace and Human Rights*. Eschborn, Germany: GIZ.

CHECKLIST 3

DRR Learning Outcomes

- ☐ Is a comprehensively articulated list of DRR learning outcomes available for the both primary and secondary curriculum as a whole?
- ☐ Are fully articulated subject- and grade-specific lists of DRR learning outcomes available?
- ☐ Do the lists give equal weighting to knowledge and understanding, skills and attitudinal/dispositional learning outcomes?
- ☐ Are DRR knowledge and understanding, skills, and attitudinal and dispositional learning outcomes systematically broadened and deepened grade by grade?
- ☐ Are learning outcome lists periodically evaluated and revised in the light of accumulating experience?
- ☐ Does the range of learning and teaching approaches employed fit its purpose of diffusing the agreed learning outcomes?
- ☐ Have clear and direct linkages between learning outcomes and forms and styles of assessment been established?
- ☐ Are DRR learning outcomes linked together with CCE and ESD learning outcomes?

CHECKLIST 4

DRR Student Assessment

☐ Is there *summative* assessment of students' DRR learning?

☐ Is there also ongoing *formative* assessment of their DRR learning?

☐ Is *portfolio* assessment of student DRR learning in place, drawing upon and bringing together a range of assessment modalities?

☐ Is assessment, taken as a whole, balanced, incorporating both summative and formative elements and diverse assessment modes?

☐ Is assessment designed to illuminate student DRR learning in a holistic and comprehensive way?

☐ Is equal assessment space given to DRR-related skills and attitudinal development regarding the acquisition of knowledge and understanding?

☐ Is assessment an interesting and welcomed aspect of student learning?

☐ Does the teacher feed learning from assessment into lesson revision and classroom facilitation?

☐ Is DRR student assessment linked together with CCE and ESD learning assessment?

☐ Are learner assessment tools constructively aligned with the range of DRR learning outcomes?

Source: Elaborated from UNESCO/UNICEF. 2012. *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries.* Paris/Geneva: UNESCO/UNICEF. pp. 195-96.

CHECKLIST 5

Facilitating Emotional Learning

☐ Offer flexible and shorter interventions (partial lessons) and activities considering the concentration level of the affected children.

☐ Help to restore a sense of structure, consistency, predictability and normality for children. This can be done, for example, by establishing daily routines and 'rituals' (e.g., start and end classes on time; start the lesson with a fun routine, such as a song, a movement to a rhythm, or a short game involving all the students; always end with the class with some positive remarks).

☐ Help to enhance the sense of self-worth of children with empathy, encouragement, recognition and praise.

☐ Promote positive interactions among children (e.g., incorporate collaborative group work; encourage peer learning; use active and participatory learning approaches).

☐ Create a classroom environment where children feel safe to express themselves.

☐ Be a role model by expressing emotions and thoughts, and not only asking questions.

☐ Encourage the students to talk about their ideas, hopes and worries without being judgmental.

☐ Practice active and empathic listening (offer full attention when children talk, especially when they are expressing their feelings; avoid cutting children off before they have finished talking; seek out children's opinions regularly).

☐ Pay attention to and engage with quieter children.

☐ Build children's competencies and life skills; based on learners' needs in a particular circumstance, offer the most relevant life-skills content such as: hygiene promotion, non-violent conflict resolution, practicing interpersonal skills.

☐ Involve learners in choosing topics they wish to learn.

☐ Be patient. Children's responses, when affected by disaster might have become slow, so speak slowly and repeat the key points; seek to understand reasons behind the troubled behaviours of children.

☐ Include opportunities such as: sports; making music (singing and musical instruments); dancing; drawing, storytelling; theatre/drama activities; puppet shows; journal writing and poems. For very young children, the following activities are most suitable: storytelling; puppet shows; singing and simple movements; free style drawing; creative playing.

Source: Adapted from IASC (Inter-Agency Standing Committee) 2007. *IASC Guidelines on Mental Health and Psychological Support in Emergency Settings*; UNICEF. 2009. *The Psychosocial Care and Protection of Children in Emergencies: Teacher Training Manual.*

Glossary

Ability	An inherent or acquired faculty for doing or achieving something. In typical educational practice, the terms 'abilities' and 'aptitudes' are used interchangeably to denote an individual's potential for acquiring and applying new knowledge or skills. (Adapted from: Pellegrino 1996).
Accountability	In general terms, accountability can be defined as a process by which actors provide reasons for their actions against the backdrop of possible negative (or positive) consequences. (Source: Hooge, Burns & Wilkoszewski 2012). The concept of accountability is particularly important in the context of decentralized education systems that encourage school autonomy, including decisions concerning the curriculum.
Adolescent learners	Adolescence is a distinct stage that marks the transition between childhood and adulthood. The Swiss developmental psychologist Jean Piaget described adolescence as the period during which individuals' cognitive abilities fully mature. According to Piaget, the transition from late childhood to adolescence is marked by the attainment of formal operational thought, the hallmark of which is abstract reasoning. Advances in the field of neuroscience have shown that the frontal cortex changes dramatically during adolescence. It is this part of the brain that controls higher-level cognitive processes such as planning, metacognition, and multitasking. Adolescent learners thrive in school environments that acknowledge and support their growing desire for autonomy, peer interaction, and abstract cognitive thinking, as well as the increasing salience of identity- related issues and romantic relationships. (Source: Seel 2012).
Assessment	The process through which the progress and achievements of a learner or learners is measured or judged in compliance with specific quality criteria.
Assessment as learning	Assessment that actively involves learners and encourages them to think about the way they learn. It occurs when learners reflect on and regulate and monitor their learning progress. It comprises learner reflection and peer and self-assessment.
Assessment for Assessment of learning learning	Assessment of learner's progress and achievement, the primary purpose of which is to support and enhance learning by adapting the educational process to meet the learner's needs. Learners are made aware of their strengths and weaknesses while being provided with adequate support to overcome learning difficulties. See also 'Formative assessment'.
Assessment of learner's achievement	the primary purpose of which is to provide information about what has been learned at a particular point in time. This process often involves the use of standardized tests or examinations. It is often, though not always, used for the purpose of promotion and/or graduation.
Assessment of learning outcomes	Assessment of an individual's achievement of stated learning outcomes, using a variety of methods (written, oral and practical tests/examinations, projects and portfolios) during or at the end of an education programme or a defined part of that programme. (Adapted from: UIS 2012).
Attained curriculum	Curriculum which indicates the knowledge, understanding, skills and attitudes that learners actually acquire as a result of teaching and learning, assessed through different means and/or demonstrated in practice. It may differ from the intended and the implemented curriculum. See also 'Intended curriculum', 'Implemented curriculum'.
Attitude	A learned tendency or readiness to evaluate things or react to some ideas, persons or situations in certain ways, either consciously or unconsciously. Attitudes are underpinned by values and beliefs and have an influence on behaviour.
Basic education	The foundation for lifelong learning and human development on which countries may build, systematically, further levels and types of education and training. (Source: UNESCO 1992). Basic education typically comprises primary and lower secondary education, and increasingly one or more years of pre-primary education. It usually encompasses compulsory schooling.
Benchmark	A reference point or standard against which performance or achievements can be assessed. (Source: OECD 2002).

Blended learning	Structured opportunities to learn which use more than one teaching or training method, inside or outside the classroom, through which at least part of the content is delivered online. This definition includes different learning or instructional methods (lecture, discussion, guided practice, reading, games, case study, simulation), different delivery methods (face-to-face or computer mediated), different scheduling (synchronous or asynchronous) and different levels of guidance (individual, instructor or expert led, or group/social learning). More commonly, blended learning refers to a combination of face-to-face teaching and technologies. (Adapted from: Seel 2012). It involves changing traditional schooling methods and organization by taking advantage of the new technologies.
Carrier subject	A subject that by its scope and nature is more likely to help learners develop certain knowledge, skills and attitudes that are not the domain of a single subject. An example is environment and sustainability 'carried by' biology and geography.
Child-centred approach	Placing the child at the notional centre of the learning process in which they are active participants. Involves giving children choices of learning activities, with the teacher acting as facilitator of learning.
Child-friendly environment	A supportive educational and community environment that is inclusive, healthy, friendly, protective and rights-based. The Child-Friendly School model, developed by UNICEF, promotes inclusiveness, gender-sensitivity, tolerance, dignity and personal empowerment.
Classroom-based assessment (CBA)	Assessment carried out by teachers based on the learning that has taken place within the context of a classroom, without reference to assessment being conducted in other classes or groups. It offers feedback to teachers and students on the quality of the learning performance supporting its ongoing improvement. Also referred to as 'classroom assessment' and 'teacher-based assessment'.
Climate change	Any change in global temperatures and precipitation over time due to natural variability or human activity.
Collaborative learning	A process through which learners at various performance levels work together in small groups toward a common goal. It is a learner-centred approach derived from social learning theories as well as the socio-constructivist perspective on learning. Collaborative learning is a relationship among learners that fosters positive interdependence, individual accountability, and interpersonal skills. For collaborative learning to be effective, teaching must be viewed as a process of developing and enhancing students' ability to learn. The instructor's role is not to transmit information, but to serve as a facilitator for learning. This involves creating and managing meaningful learning experiences and stimulating learners' thinking through real-world problems. Yet, the task must be clearly defined and be guided by specific objectives. Sometimes cooperative and collaborative learning are used interchangeably but cooperative work usually involves dividing work among the team members, whilst collaborative work means all the team members tackle the problems together in a coordinated effort. (Adapted from: Seel 2012). 'Collaboration' is frequently included among key competences/competencies and 21st century skills.
Competence	Within the European Union area a competence is defined as a combination of knowledge, skills and attitudes appropriate to the context. Competence indicates the ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development). Competence is not limited to cognitive elements (involving the use of theory, concepts or tacit knowledge); it also encompasses functional aspects (involving technical skills) as well as interpersonal attributes (e.g. social or organizational skills) and ethical values. (CEDEFOP 2011). Competences can be domain-specific, e.g. relating to knowledge, skills and attitudes within one specific subject or discipline, or general/transversal because they have relevance to all domains/subjects. In some contexts the term 'skills' (in a broader sense) is sometimes used as an equivalent of 'competences'. See also 'Key competences/competencies or skills'.

Competency-based curriculum	A curriculum that emphasizes the complex outcomes of a learning process (i.e. knowledge, skills and attitudes to be applied by learners) rather than mainly focusing on what learners are expected to learn about in terms of traditionally-defined subject content. In principle such a curriculum is learner-centred and adaptive to the changing needs of students, teachers and society. It implies that learning activities and environments are chosen so that learners can acquire and apply the knowledge, skills and attitudes to situations they encounter in everyday life. Competency-based curricula are usually designed around a set of key competences/competencies that can be cross-curricular and/or subject-bound.
Concept map	An external network-like representation of knowledge structures consisting of spatially grouped nodes with keywords representing concepts, connecting lines representing the semantic connection of concepts, and labels on the lines specifying the kind of semantic relation. In its simplest form, a concept map would consist of two concepts and a linking word, e.g. cats – are – mammals. Concept maps are potentially valuable tools for planning, learning, and (self-) assessment. When used for planning activities, concept maps allow an overview and the detection of the 'red line' running through different topics, steps, or key concepts. In learning settings, concept mapping can facilitate organization and elaboration processes leading eventually to the construction of high-level cognitive schemas. For assessment, concept maps provide the possibility to tap into a learner's cognitive structure and externalize, for both the learner and the teacher, what the learner already knows and does not know. (Source: Seel 2012).
Conflict (armed, violent)	Refers to armed or other violent conflict in or between countries or population groups.
Conflict risk reduction	The practice of reducing the risk of conflict through systematic analysis and management of the causal factors of conflict. This involves conducting conflict assessments to identify the 'drivers' of conflict (whether economic, social, political, or environmental) and how these impact on or are impacted by education. Strategies then need to be applied to reduce (and if possible prevent) those risks from negatively affecting education systems, personnel, and learners. The practice of reducing the risk of disaster through systematic analysis
Constructivism	A learning theory which places the learner at the centre of the educational process on the understanding that the learner actively constructs knowledge rather than passively receiving it. Thus, an individual's knowledge is a function of one's prior experiences, mental structures, and beliefs that are used to interpret objects and events. Largely influenced by the works of the psychologists Jean Piaget and Lev Vygotsky.
Consultation (in curriculum)	The process of seeking and valuing opinions and experience of experts and various, legitimate stakeholders that is an integral part of the broader review process.
Core curriculum	The body of knowledge, skills and attitudes expected to be learned by all students, generally related to a set of subjects and learning areas that are common to all students, such as languages, mathematics, arts, physical education, science and social studies.
Critical thinking	A process that involves asking appropriate questions, gathering and creatively sorting through relevant information, relating new information to existing knowledge, re-examining beliefs and assumptions, reasoning logically, and drawing reliable and trustworthy conclusions. Critical thinking calls for persistent effort to apply theoretical constructs to understanding the problem, consider evidence, and evaluate methods or techniques for forming a judgment. The cognitive skills of analysis, interpretation, inference, explanation, evaluation, and of monitoring and correcting one's own reasoning are at the heart of critical thinking.
Cross-curricular approach	An approach to formulating curriculum that favours the dynamic use of learning topics and themes to be covered and skills/competencies to be developed in a number of learning areas across the curriculum.
Cross-cutting themes	Important curriculum content which is to be covered across subjects (or disciplines or learning areas), rather than being taught and learned in one particular subject. These themes can connect programme content across disciplinary boundaries; enrich the curriculum without overloading it through the introduction of additional teaching subjects; and facilitate interdisciplinary thinking and collaborative learning. Examples include human rights, gender issues, peace education, and education for sustainable development.

Culturally responsive curriculum	A curriculum that respects learners' cultures and prior experiences. It acknowledges and values the legitimacy of different cultures, not just the dominant culture of a society, and encourages intercultural understanding. It incorporates cultural aspects into the curriculum, rather than adding them on as an extra or separate module or course.
Curriculum (plural curricula)	In the simplest terms, 'curriculum' is a description of what, why, how and how well students should learn in a systematic and intentional way. The curriculum is not an end in itself but rather a means to fostering quality learning. (Source: UNESCO IBE 2011). The term curriculum has many definitions, ranging from a planned 'course of study' (derived from the Latin) to an all-embracing view that includes all the learning experiences for which the school is responsible (e.g. "the curriculum is the totality of experiences which are planned for children and young people through their education, wherever they are being educated", Scottish Government 2009). Some examples of definitions: "The curriculum is a plan incorporating a structured series of intended learning outcomes and associated learning experiences, generally organized as a related combination or series of courses." (Australian Thesaurus of Education Descriptors). The curriculum is the "inventory of activities implemented to design, organize and plan an education or training action, including definition of learning objectives, content, methods (including assessment) and material, as well as arrangements for training teachers and trainers." (CEDEFOP 2011). "A curriculum is a plan for learning." (Taba 1962). "The curriculum defines the educational foundations and contents, their sequencing in relation to the amount of time available for the learning experiences, the characteristics of the teaching institutions, the characteristics of the learning experiences, in particular from the point of view of methods to be used, the resources for learning and teaching (e.g. textbooks and new technologies), evaluation and teachers' profiles." (Braslavsky 2003). The curriculum can also be viewed as a political and social agreement that reflects a society's common vision while taking into account local, national and global needs and expectations. Thus contemporary curriculum development and reform processes increasingly involve public discussion and consultation with a wide range of stakeholders. Curriculum design has evolved into a topic of considerable debate – with frequently conflicting perspectives – engaging policy- makers, experts, practitioners and society at large.
Curriculum adaptation	A process of adjusting the existing curriculum to meet the diverse needs of learners of all abilities.
Curriculum aims/goals	Broad descriptions of purposes or ends stated in general terms without criteria of achievement or mastery. Curriculum aims or goals relate to educational aims and philosophy. They are programmatic and normally do not delineate the specific courses or specific items of content. Typically they refer to the accomplishment of groups (e.g. all learners, learners in general, most learners) rather than the achievement of individual learners. They are broad enough to lead to specific curriculum objectives. Examples include: 'students will learn to respect and get along with people of different cultures'; 'students will develop a sense of civic responsibility'; 'students will attain an appreciation for literature, art, music'. See also 'Curriculum objectives'.
Curriculum change	Modifications introduced in the curriculum to improve or adapt it to new circumstances or priorities. This can be done through: minor adjustments that do not affect the curriculum structure; modernization to ensure that the curriculum remains current and relevant, reflects new developments in society and adequately prepares learners for life; innovation that brings new approaches and solutions; and large scale, system-wide reform that entirely reshapes the existing curriculum.
Curriculum design	The process of meaningfully constructing and interconnecting the components of a curriculum so as to address such fundamental questions as what needs to be learned and how and why, the resources required and how learning will be assessed.
Curriculum development	The process of designing the national, local or school curriculum. In order to produce a quality curriculum, this process should be planned and systematic. It should value the input of stakeholders and also cater for sustainability and long-term impact. In contemporary educational practice curriculum development is seen as a comprehensive cycle of development, implementation, evaluation and revision to ensure that the curriculum is up-to-date and relevant. (Adapted from: UNESCO IBE 2011).

Curriculum framework	An overarching document that fulfills some or all of the following: places national statements of vision, economic development and education policy in a curriculum context; sets out broad aims and objectives of the curriculum at the various stages of schooling; explains the educational philosophy underlying the curriculum and approaches to teaching, learning and assessment that are fundamental to that philosophy; outlines the curriculum structure, its subjects or learning areas and the rationale for the inclusion of each in the curriculum; allocates time to various subjects and/or learning areas in each grade or stage; provides guidelines to subject curricula developers, teacher trainers and textbook writers; prescribes requirements for curriculum implementation, monitoring and evaluation. (Source: UNESCO IBE 2011). The term can also be used to refer to a document which specifies the general outcomes (to be attained throughout the grades), the specific outcomes (to be attained by the end of a given grade), and the achievement indicators (e.g. a representative list of the depth, breadth, and expectations of the outcome) for a particular subject or subject area. It can also be used with reference to an educational stage or level (e.g. primary education curriculum framework).
Curriculum guidelines	A document or set of documents usually providing guidance for teachers and instructors on approaches and procedures for a successful planning and implementation of the curriculum at school, local or national level. Guidelines can focus on a specific learning area or subject (e.g. health education curriculum guidelines), a particular educational level (e.g. curriculum guidelines for preschool education), a specific group of learners (e.g. learners with special educational needs, minorities, immigrants) or more broadly on the curriculum (e.g. curriculum, instruction and assessment guidelines). Curriculum guidelines can provide ideas, suggestions and recommendations intended to help teachers to make informed decisions, or be more prescriptive and detailed specifying the content, activities, tasks, and materials to be used by teachers
Curriculum implementation	The process of putting the formal curriculum into practice. In the case of a new or revised curriculum this process ideally includes school development and improvement processes; fostered school leadership and ethos; in-service teacher training and the development of new textbooks, teaching and learning materials and resources, as well as guidelines.
Curriculum integration	The process of combining/articulating learning content and subjects with a view to promoting holistic and comprehensive learning. See also 'Interdisciplinary approach', 'Multidisciplinary approach', 'Transdisciplinary approach'.
Curriculum monitoring	A process of gathering information for evaluating the effectiveness of the curriculum and ensuring that the intended, implemented and attained curricula are aligned. This process typically focuses on such issues as relevance, consistency, practicality, effectiveness, scaling-up and sustainability, as well as whether learners are achieving the expected learning outcomes. It measures the extent to which the curriculum is commensurate with the diverse needs of all learners.
Curriculum objectives	Specific statements setting measurable expectations for what learners should know and be able to do, described either in terms of learning outcomes (what the learners are expected to learn), products or performance (what learners will produce as a result of a learning activity) or processes (describing the focus of learning activities). They can be seen as refinements of curriculum aims/goals that, for example, specify: performance standards or those skills and knowledge the learners are expected to be able to demonstrate; inferred or precise degree of mastery; and the conditions under which the performance will take place. In terms of effectiveness, curriculum objectives should: be concise and understandable to teachers, learners and parents; be feasible for the teachers and learners to accomplish; encompass previous learning and require the learner to integrate and then apply certain knowledge, skills, and attitudes in order to demonstrate achievement; and be measurable on a cumulative basis and at different stages of the learner's educational career.

Curriculum planning	The process concerned with making decisions about what to learn, why, and how to organize the teaching and learning process taking into account existing curriculum requirements and the resources available. At the general level, it often results in the definition of a broad curriculum framework, as well as a syllabus for each subject to be used as reference by individual schools. At the school level, it involves developing course and assessment plans for different subjects. At the classroom level, it involves developing more detailed plans for learning units, individual lessons and lesson sequences.
Curriculum policy	Formal decisions made by government or education authorities that have a direct or significant effect on the curriculum and its development. These decisions are normally recorded in a range of official documents.
Curriculum review cycle	A systematic approach to evaluating, reviewing and revising curricular areas and programmes within a specific timeframe which aims to identify gaps and weaknesses with a view to increasing curriculum effectiveness and continually improving student learning experiences. Normally it involves several phases including: research and selection; revision and development; implementation; and evaluation and monitoring.
Curriculum structure	The way in which the curriculum is organized, including the subjects or learning areas, when they must be studied and the 'pattern' in which they must be studied. The curriculum may be composed, for example, of core and elective subjects studied with some variation between grades. It may also comprise cross-cutting or cross-curricular themes.
Disaster risk reduction	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 Action 1 does not include conflict, but risk reduction principles can also be applied to contexts involving conflict and civil unrest.
Early childhood education (ECE)	ECE provides learning and educational activities with a holistic approach to support children's early cognitive, physical, social and emotional development and introduces young children to organized instruction outside of the family context. It aims to develop socio- emotional skills necessary for participation in school and society as well as some of the skills needed for academic readiness and to prepare children for entry into primary education. Within the framework of ISCED 2011 it includes early childhood educational development and pre-primary education. The former has educational content designed for younger children (in the age range of 0 to 2 years), whilst the latter is designed for children from age 3 years to the start of primary education. (Source: UIS 2012).
Education for All (EFA)	An international initiative first launched at the 'World Conference on Education for All' (Jomtien, Thailand, \1990) by UNESCO, UNDP, UNFPA, UNICEF and the World Bank. Participants endorsed an 'expanded vision of learning' and pledged to universalize primary education and massively reduce illiteracy by the end of the decade. Ten years later, with many countries far from having reached this goal, a broad coalition of national governments, civil society groups, and development agencies met again in Dakar, Senegal, and affirmed the commitment to achieving EFA by the year 2015. They identified six key education goals which aim to meet the learning needs of all children, youth and adults by 2015 (e.g. the Dakar Framework for Action). The six goals are: (a) expand and improve comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children; (b) ensure that by 2015 all children, particularly girls, those in difficult circumstances, and those belonging to ethnic minorities, have access to and complete, free and compulsory primary education of good quality; (c) ensure that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes; (d) achieve a 50% improvement in adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults; (e) eliminate gender disparities in primary and secondary education by 2005, and achieve gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality; and (f) improve all aspects of the quality of education and ensure the excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills. (Source: World Education Forum 2000).

E-learning	All forms of electronically supported teaching and learning, especially the web-based and computer- based acquisition of, and engagement with, knowledge and skills. It may take place in or out of the classroom. It is often an essential component of distant education and may involve virtual learning environments.
Emotional intelligence	The capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth. (Source: Mayer, Salovey & Caruso 2004).
Evaluation (in teaching and learning)	A systematic process aimed at judging the effectiveness of any teaching and learning programme.
External assessment	A process and method of assessment developed and used by an examination body or agency other than the learner's school. This process commonly involves standardized testing, and often serves to grade candidates for further educational opportunities and/or for certification purposes.
Extra-curricular activities	A range of activities organized outside of the regular school day, curriculum or course intended to meet learners' interests. These activities can help learners become more involved in their school or community and can help them to develop social and soft skills and to promote wellbeing. These activities can include athletics, sport, voluntary work, photography, drama, music, etc. In some countries, this is also referred to as 'co-curricular activities'.
Fairness (in assessment)	Refers to the consideration of learner's needs and characteristics, and any reasonable adjustments that need to be applied to take account of them. It is important to ensure that the learner is informed about, understands and is able to participate in the assessment process, and agrees that the process is appropriate. It also includes an opportunity for the person being assessed to challenge the result of the assessment and to be reassessed if necessary. Ideally an assessment should not discriminate between learners except on grounds of the ability being assessed.
Formal curriculum	The learning experiences and opportunities that are provided to learners in the context of formal education and serve as a basis for certification processes.
Formal education	Education that is institutionalized, intentional and planned through public organizations and recognized private bodies and – in their totality – constitute the formal education system of a country. Formal education programmes are thus recognized as such by the relevant national education authorities or equivalent authorities, e.g. any other institution in cooperation with the national or sub-national education authorities. Vocational education, special needs education and some parts of adult education are often recognized as being part of the formal education system. (Source: UIS 2012).
Formative assessment	Assessment conducted throughout the educational process with a view to enhancing student learning. It implies: eliciting evidence about learning to close the gap between current and desired performance (so that action can be taken to close the gap); providing feedback to students; and involving students in the assessment and learning process. (Source: CCSSO 2008).
Gender equality	According to the International Labour Office, gender equality refers to the enjoyment of equal rights, opportunities and treatment by men and women and by boys and girls in all spheres of life. It asserts that people's rights, responsibilities, social status and access to resources do not depend on whether they are born male or female. Gender equality implies that all men and women are free to develop their personal abilities and make life choices without the limitations set by stereotypes or prejudices about gender roles or the characteristics of men and women. (Source: ILO 2007).
Hazard	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.
Holistic learning approach	An approach that seeks to fully activate all aspects of the learner's personality (intellect, emotions, imagination, body) for more effective and comprehensive learning.

Implemented curriculum	The actual teaching and learning activities taking place in schools through interaction between learners and teachers as well as among learners, e.g. how the intended curriculum is translated into practice and actually delivered. Also defined as the 'curriculum in action' or the 'taught curriculum'. See also 'Attained curriculum', 'Intended curriculum'.
Informal learning	Forms of learning that are intentional or deliberate but are not institutionalized. It is consequently less organized and structured than either formal or non- formal education. Informal learning may include learning activities that occur in the family, workplace, local community and daily life, on a self-directed, family-directed or socially-directed basis. (Source: UIS 2012).
Inquiry-based learning	A process that provides opportunities for learners to construct their own understanding of the complexity of the natural and human world around them. Many models of inquiry-based learning share some common features such as: investigation into a relevant issue, problem or concept; a learner-centred approach; the discovery and examination of the complexity of understanding and the involvement of thinking and reflection in the learning process. A curriculum adopting this approach implies that learners work with new and challenging content and concepts, connect new information to former knowledge, select thinking and learning strategies deliberately and plan, monitor, and evaluate their own thinking processes. (Adapted from: Seel 2012).
Instruction	The creation and implementation of purposefully developed plans for guiding the process by which learners gain knowledge and understanding, and develop skills, attitudes, appreciations and values. Instruction is frequently associated with the term 'curriculum' and generally refers to the teaching methods and learning activities that a teacher uses to deliver the curriculum in the classroom. The terms 'teaching' and 'instruction' are often used interchangeably. (Source: Kridel 2010).
Intended curriculum	A set of formal documents which specify what the relevant national education authorities and society expect that students will learn at school in terms of knowledge, understanding, skills, values, and attitudes to be acquired and developed, and how the outcomes of the teaching and learning process will be assessed. It is usually embodied in curriculum framework(s) and guides, syllabi, textbooks, teacher's guides, content of tests and examinations, regulations, policies and other official documents. Also referred to as the 'official curriculum' and the 'planned curriculum'. See also 'Attained curriculum', 'Implemented curriculum'.
Interactive teaching and learning	The practice of involving learners in the educational process by encouraging them to bring their own experience and knowledge into the process, while also contributing to defining or organizing their learning.
Interdisciplinary approach	An approach to curriculum integration that generates an understanding of themes and ideas that cut across disciplines and of the connections between different disciplines and their relationship to the real world. It normally emphasizes process and meaning rather than product and content by combining contents, theories, methodologies and perspectives from two or more disciplines.
Key stages of the curriculum	A way of organizing the curriculum into blocks of school years and normally covering the period of compulsory schooling. This typically implies defining the knowledge, skills, attitudes and the related attainment targets/learning outcomes appropriate for the learner's age and maturity level within each stage. Key stages of the curriculum may not necessarily overlap with formal educational stages.
Knowledge	There are many definitions and forms of knowledge. It can be described as the body of concepts and factual information (data), including their interrelated structures and patterns, concerning the natural and social environment as well as our understanding of the world, people and society, gained through learning and/or experience. Declarative knowledge points to 'knowing what' (e.g. factual knowledge), while procedural knowledge to 'knowing how', e.g. knowledge of specific functions and procedures to perform a complex process, task or activity. Other forms of knowledge often considered are tacit and explicit knowledge (see, for example, CEDEFOP 2011). The former is knowledge learners possess which influences cognitive processing; however, they may not necessarily express it or be aware of it. The latter is knowledge a learner is conscious of, including tacit knowledge that converts into an explicit form by becoming an 'object of thought'

Learner centredness	An approach to organizing teaching, learning and assessment based on the learner's personal characteristics, needs and interests.
Learning	The complex and long-term psychosocial process consisting of the individual acquisition or modification of information, knowledge, understanding, attitudes, values, skills, competencies or behaviours through experience, practice, study or instruction. (Adapted from: UIS 2012). Note that the definition of learning depends on the philosophical and psychological approach adopted. There are at least three different models in defining the learning process. Behaviourism views learning as a measurable change of behaviour as a result of the joint action of a number of environmental factors. Cognitive theories emphasize internal mental organization of knowledge, stressing the acquisition of knowledge, mental structures, and the processing of information. Constructivism views learning as a process in which the learner actively constructs new ideas or concepts based on prior knowledge and/or experience. (Source: Kridel 2010).
Learning area	Grouping of traditionally discrete but related subjects with the explicit aim of integrating students' learning. For example, the learning area 'social sciences/studies' can include elements of geography, history, citizenship, economy/ commerce, philosophy, and sociology. (Adapted from: UNESCO IBE 2011). Many education systems organize the curriculum of general education around broad learning areas or fields
Learning environment	This term is used in a variety of ways. Essentially, it indicates the learner's immediate physical surroundings (classroom, school), the resources made available to support the learning process, and the social interaction or types of social relationship functioning within this context and having an influence on learning.
Learning experiences	A wide variety of experiences across different contexts and settings which transform the perceptions of the learner, facilitate conceptual understanding, yield emotional qualities, and nurture the acquisition of knowledge, skills and attitudes. In educational settings learning experiences are ideally challenging, interesting, rich, engaging, meaningful, and appropriate to learner needs. Previous learning experiences are considered to be key factors predicting further learning.
Learning objectives	Specification of learning to be achieved upon completion of an educational programme or an activity. (Adapted from: UIS 2012). Learning objectives can also be specified for a lesson, a theme, a year, or an entire course.
Learning outcomes	The totality of information, knowledge, understanding, attitudes, values, skills, competencies or behaviours a learner has mastered upon the successful completion of an education programme. (Adapted from: UIS 2012).
Learning progression	A description of increasing levels of difficulty and complexity in acquiring knowledge, skills and attitudes within a domain. It implies that learning is a process of increasing difficulty and complexity, rather than a body of content to be covered within specific grade levels. Teachers need to have in mind a continuum of how learning develops in any particular knowledge domain so that they are able to locate students' current learning status and decide on pedagogical action to move students' learning forward. Learning progressions that clearly articulate a progression of learning in a domain can provide a comprehensive view of what is to be learned, support instructional planning, and act as a touchstone for formative assessment. (Adapted from: CCSSO 2008).
Learning resources	Any resource – including print and non-print materials and online/open-access resources – which supports and enhances, directly or indirectly, learning and teaching. Typically the use of a learning resource in the classroom is subject to a process of evaluation and approval at the school, local or national level. Evaluation criteria may include relevance to the curriculum and expectations for learning, social considerations, and age or developmental appropriateness.

Learning styles	A set of behaviours and attitudes that influence how students learn and interact with teachers and peers. Learning styles are cognitive, affective, and physiological behaviours that serve as indicators of how learners perceive, interact with, and respond to the learning environment. For example, for David Kolb (1984) learning is the process whereby knowledge is created through the transformation of experience. In Kolb's model, learning is based on two continuums, namely: (a) processing continuum, e.g. approach to a task, such as preferring to learn by doing (active experimentation) or watching (reflective observation); (b) perception continuum, e.g. emotional response, such as preferring to learn by thinking (abstract conceptualisation) or feeling (concrete experience). The four combinations of processing and perceiving determine one of the learning styles (or learning preferences) of how individuals prefer to learn. According to the VAK (Visual, Auditory, and Kinesthetic – movement –, sometimes known as VAKT, Visual, Auditory, Kinesthetic, and Tactile) model, learners use these three/four modalities to receive and learn new information, one or two of these being normally dominant. An individual may have several learning styles which can change over time and according to the learning task. There are also more elaborate models.
Learning time	Generally the amount of time during which learners are actively working on tasks and are effectively engaged in learning. There are different approaches to time in education. For example, a distinction can be made between: (a) officially allocated time, which includes school time (i.e. the total amount of time spent in school), classroom time (i.e. the amount of time spent in the classroom), and instructional time (i.e. the portion of classroom time devoted to the teaching and learning of curriculum subjects); (b) engaged time or time-on-task, which refers to the portion of time during which students are paying attention to a learning task and attempting to learn; and (c) academic learning time, which indicates that portion of engaged time that students spend working on tasks at an appropriate level of difficulty for them and experiencing high levels of success (see, for example, Berliner 1990).
Lesson plan	An outline of a topic to be addressed in a given period which can take a variety of forms and be prepared on a daily, weekly or monthly basis. It normally involves defining specific learning objectives aligned with the existing curriculum, selection of subject matter, required materials and resources, the activities that will take place as well as time and class management notes, assessment methods, and the links between previous and following lessons.
Levels of education	Within the framework of the International Standard Classification of Education (ISCED), levels of education are an ordered set of categories, intended to group educational programmes in relation to gradations of learning experiences and the knowledge, skills and competencies which each programme is designed to impart. Levels of education are therefore a construct based on the assumption that education programmes can be grouped into an ordered series of categories. These categories represent broad steps of educational progression in terms of the complexity of educational content. The more advanced the programme, the higher the level of education. The ISCED 2011 classification consists of nine levels of education, namely: early childhood education (level 0); primary education (level 1); lower secondary education (level 2); upper secondary education (level 3); post- secondary non-tertiary education (level 4); short-cycle tertiary education (level 5); bachelor's or equivalent level (level 6); master's or equivalent level (level 7); doctor or equivalent level (level 8). (Source: UIS 2012).

Life skills	Originally defined by the World Health Organization as a group of psychosocial competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathize with others, and cope with and manage their lives in a healthy and productive manner. Life skills are not normally seen as a domain, or a subject, but as cross-cutting applications of knowledge, skills, values and attitudes which are important in the process of individual development and lifelong learning. They are not just a set of skills, nor are they equal to survival skills, livelihood skills, or vocational skills but are part of these skills. (Source: UNESCO 2004a). In some cases the term is used as an equivalent of key competencies/skills, and in certain contexts it is used to indicate a subject area. For UNICEF life skills are part of a rights-based approach to learning. Children are fundamentally entitled to quality education that respects their dignity and expands their abilities to live a life they value and to transform the societies in which they live. Child-friendly schools promote and enhance life skills.
Lifelong learning	All learning activity undertaken throughout life, which results in improving knowledge, know-how, skills, competences and/or qualifications for personal, social and/or professional reasons. (Source: CEDEFOP 2011).
Localization of curriculum	Process of defining parts or components of the curriculum at community/local or school level, normally with the involvement of local staff, stakeholders and institutions, so as to address issues that are locally relevant and allow for more meaningful learning experiences.
Lower secondary education	Lower secondary education programmes are typically designed to build on the learning outcomes from primary education. Usually, the aim is to consolidate the foundation for lifelong learning and human development upon which education systems may then expand further educational opportunities. Some education systems may already offer vocational education programmes at this level to provide individuals with skills relevant to employment. Programmes at this level are usually organized around a more subject-oriented curriculum, introducing theoretical concepts across a broad range of subjects. Teachers typically have pedagogical training in specific subjects and, more often than at primary level, a class of students may have several teachers with specialized knowledge of the subjects they teach. (Source: UIS 2012).
Multidisciplinary approach	An approach to curriculum integration which focuses primarily on the different disciplines and the diverse perspectives they bring to illustrate a topic, theme or issue. A multidisciplinary curriculum is one in which the same topic is studied from the viewpoint of more than one discipline. Frequently multidisciplinary and cross-disciplinary are used as synonyms describing the aim to cross boundaries between disciplines.
National assessments of student achievement	An exercise, task or activity undertaken by students nationally and designed to determine or measure the achievement of students in a curriculum area, often aggregated to provide an estimate of the achievement level in the education system as a whole at a particular age or grade level. Normally, it involves administration of achievement tests either to a sample or to a population of students, usually focusing on a particular sector in the system. The assumption is frequently made not only that national assessments will provide information on the state of education, but also that use of the information should lead to improvement in student achievements. (Source: Greaney & Kellaghan)
National curriculum	A description — normally set out in a document or series of related documents — of the prescribed common goals, objectives and quality and/or content criteria of a national school system. This may take the form of standards (defined objectives and achievement criteria at given levels of education and in specific subjects or learning areas). It may also indicate the extent to which decisions on curriculum content can be made on the local or school level. (Adapted from: OECD 2004).

Non-formal education	Education that is institutionalized, intentional and planned by an education provider. The defining characteristic of non-formal education is that it is an addition, alternative and/or complement to formal education within the process of the lifelong learning of individuals. It is often provided to guarantee the right of access to education for all. It caters to people of all ages but does not necessarily apply a continuous pathway-structure; it may be short in duration and/or low-intensity, and it is typically provided in the form of short courses, workshops or seminars. Non-formal education mostly leads to qualifications that are not recognized as formal or equivalent to formal qualifications by the relevant national or sub-national education authorities or to no qualifications at all. Non- formal education can cover programmes contributing to adult and youth literacy and education for out-of-school children, as well as programmes on life skills, work skills, and social or cultural development. (Source: UIS 2012).
Outcomes-based education (OBE)	An approach to schooling that makes outcomes (intended results) the key factor in planning and creating educational experiences. In the 1990s this approach was controversial in the USA and now the term is not frequently used. (Source: ASCD). Outcomes-based education and curricula became popular in other parts of the world as well. However, this approach is increasingly controversial especially when outcomes such as competences/competencies are used as curriculum organizers.
Peace education	Peace education is the process of promoting the knowledge, skills, attitudes and values needed to bring about behaviour changes that will enable children, youth and adults to prevent conflict and violence, both overt and structural; to resolve conflict peacefully; and to create the conditions conducive to peace, whether at an intrapersonal, interpersonal, intergroup, national or international level.
Pedagogy	The art and science of teaching, as a professional practice and as a field of academic study. It encompasses not only the practical application of teaching but also curriculum issues and the body of theory relating to how and why learning takes place. Because it derives from a Greek expression referring to the education of the young, pedagogy is sometimes taken to be specifically about the education of children and young people. The more recently coined term 'andragogy' is used in relation to the education of adults. (Adapted from: Wallace 2009).
Peer assessment	Assessment of learners' work by other learners
Peer learning	A process based on exchange of knowledge and information between learners who may also act as mentors. Also referred to as peer education.
Peer teaching/tutoring	A practice in which students share their knowledge and support the learning of their peers through assuming a teaching role within a school setting.
Performance assessment	Assessment that is designed to measure and judge what learners know and are able to do based on how they perform certain tasks. (Source: ASCD).
Personalized learning	A process of tailoring education to learners' current situation, characteristics, and needs in order to help learners to achieve the best possible learning progress and outcomes. Personalized learning can appear on different levels of education, including personalizing the curriculum, courses, learning materials and activities, and other learning support. Through personalized learning, each learner is provided with education that is tailored to his/her individual characteristics and needs and learns in a way that is most suitable for him/her, resulting in different learning experiences for each learner. (Source: Seel 2012).
Portfolio assessment	Assessment based on the systematic collection of learner work (such as written assignments, drafts, artwork, and presentations) that represents competencies, exemplary work, or the learner's developmental progress. In addition to examples of their work, most portfolios include reflective statements prepared by learners. Portfolios are assessed for evidence of learner achievement with respect to established learning outcomes and standards.

Pre-primary education or preschool education	Education typically designed for children from 3 years of age to the start of primary school. The educational properties of pre-primary education are characterized by interaction with peers and educators, through which children improve their use of language and social skills, and start to develop logical and reasoning skills. Children are also introduced to alphabetical and mathematical concepts, and encouraged to explore their surrounding world and environment. Supervised gross motor activities (i.e. physical exercise through games and other activities) and play-based activities can be used as learning opportunities to promote social interactions with peers and to develop skills, autonomy and school readiness. (Source: UIS 2012).
Prevention, mitigation, preparedness	Conflict and disaster risk reduction can be grouped into three areas : prevention, mitigation, and preparedness/readiness. Prevention : Activities undertaken to avoid the adverse impact of conflict or disaster. Examples : Locate and build disaster-resistant schools ; change attitudes and behaviour by raising awareness of risk and of conflict, for example, through peace education. Inclusive, good-quality education in itself can reduce the risk of conflict and disaster. Mitigation : Measures undertaken to minimize the adverse impact of potential conflict-related, natural, and human-made hazards. Examples : Retrofit schools ; educate education personnel and communities on risk reduction ; promote inclusive education and participation ; establish a child protection network ahead of flood season. Preparedness : Measures taken before and between hazard events to forewarn and prepare in order to ensure a timely and effective response. Examples : An early warning communication mechanism ; evacuation drills ; building skills in fire suppression, first aid, and search and rescue; stockpiling and prepositioning of food, water, and educational supplies ahead of flood season or worsening conflict ; safe keeping of records, teacher's guides, and curriculum material ; a national emergency preparedness and response plan ; a provincial contingency plan and a school safety/preparedness plan. The examples above are just illustrations of these concepts. Since each country and community is different, local ideas, adaptation, ingenuity, and learning from other experiences are essential.
Primary education	Primary education provides learning and educational activities typically designed to provide students with fundamental skills in reading, writing and mathematics (i.e. literacy and numeracy) and establish a solid foundation for learning and understanding core areas of knowledge and personal development, preparing for lower secondary education. It focuses on learning at a basic level of complexity with little, if any, specialization. (Source: UIS 2012).
Problem-based learning	A process designed to experientially engage learners in processes of inquiry into complex problems of significance and relevance to their lives and learning. It is intended to challenge learners to pursue authentic questions, wonders, and uncertainties in a focused way, which enables them to construct, deepen, and extend their knowledge and understanding. Thoughtful presentation of the problem is critical to this approach. Problems must be complex enough that there is a need to seek many perspectives on the issues, to engage in collaborative inquiry, and to generate multiple possible solutions. The problems have an authenticity that holds meaning for the learners, enables them to assume ownership of the problems, and results in findings of significance in the broader context of their lives. Problems must invite a deep approach to learning – to inquiry, thinking, and reflection – which leads to shifts or changes in learners' knowledge. At the same time, they leave room for learners to discover that knowledge is tentative, always reflective of a moment in time, and open to continued shifts and changes. (Adapted from: Kridel 2010).
Problem solving	Within the cognitive tradition, the set of thinking processes or actions involved in the solving of a problem. Problems may be routine or novel. Routine problem solving involves moving from a given state to a goal state based on a solution plan primed from similar past experiences. In contrast, novel problem solving entails the problem solver moving from a given state to a goal state by inventing the solution procedure. (Source: Seel 2012). Increasingly referred to as a key competence/competency and 21st century skill.

Project-based learning	A process that fosters learners' engagement in studying authentic problems or issues centred on a particular project, theme, or idea. Often the term 'project-based' is used interchangeably with 'problem- based', especially when classroom projects focus on solving authentic problems. The nexus for the project may be suggested by a teacher, but the planning and execution of contingent activities are predominantly conducted by learners working individually and cooperatively over many days, weeks, or even months. This process is inquiry-based, outcome-oriented, and associated with conducting the curriculum in real-world contexts rather than focusing on a curriculum that is relegated to textbooks or rote learning and memorization. Assessment is commonly performance- based, flexible, varied, and continuous. (Adapted from: Kridel 2010).
Risk	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 The worse the hazard, the greater the risk. Likewise, risk also increases when a community, system, or even a school is more vulnerable.
Resilience	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.
School-based curriculum development	Curriculum developed at the level of an individual school. This notion suggests a decision-making process with regard to the curriculum involving school staff, ranging from individual teachers adapting existing curricula to the whole school staff collaboratively working together to develop new curricula in order to make them more relevant and meaningful for learners. The school-based curriculum development movement was particularly active in the 1980s as an alternative to centralized curriculum decision-making.
School culture	The guiding beliefs or ethos, underlying assumptions, expectations, norms and values that give a school its identity, influence the way a school operates, and affect the behaviour of principals, teachers, support staff and learners. School culture deserves attention in the effort to support and enhance learning. Comprehensive models that have been developed for school reform have invariably included change in school culture.
Scope and sequence (in curriculum)	Interrelated concepts that refer to the overall organization of the curriculum in order to ensure its coherence and continuity. Scope refers to the breadth and depth of content and skills to be covered. Sequence refers to how these skills and content are ordered and presented to learners over time.
Secondary education	Secondary education provides learning and educational activities building on primary education and preparing for labour market entry, post-secondary non-tertiary education and tertiary education. Broadly speaking, secondary education aims at learning at an intermediate level of complexity. (Source: UIS 2012).
Self-assessment	Assessment by which the learner gathers information about and reflects on his or her own learning, judges the degree to which it reflects explicitly stated goals or criteria, identifies strengths and weaknesses, and revises accordingly. It is the learner's own assessment of personal progress in knowledge, skills, processes, and attitudes. (Adapted from: Ontario Ministry of Education 2002).
Skill	The ability to perform tasks and solve problems. (Source: CEDEFOP 2011). It is the ability, proficiency or dexterity to carry out tasks that come from education, training, practice or experience. It can enable the practical application of theoretical knowledge to particular tasks or situations. It is applied more broadly to include behaviours, attitudes and personal attributes that make individuals more effective in particular contexts such as education and training, employment and social engagement. (Scottish Government 2009).

Soft skills	Term used to indicate a set of intangible personal qualities, traits, attributes, habits and attitudes that can be used in many different types of jobs. As they are broadly applicable they are also seen as transferable often questioned because individuals learn to perform tasks in particular contexts and may not be able to apply them to others. Examples of soft skills include: empathy, leadership, sense of responsibility, integrity, self-esteem, self-management, motivation, flexibility, sociability, time management and making decisions. The term is also used in contrast to 'hard' skills that are considered as more technical, highly specific in nature and particular to an occupation, and that can be (generally) taught more easily than soft skills.
Spiral curriculum	Curriculum design (based on the ideas of the American psychologist Jerome Bruner) in which key concepts and topics are repeatedly presented over time in the context of new, broader and more complex learning experiences. It serves for consolidating pre- existent learning as well as broadening and exploring more in-depth the different learning content.
Standard(s)	A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. (Source: Website of the International Organization for Standardization—ISO).
Subject/subject area	A branch of knowledge organized as a discrete learning discipline and taught in a systemic way over time. Other terms often used interchangeably include teaching subject, academic subject, academic discipline, and study area.
Summative assessment	Assessment of learner's achievement at the end of a term, stage, course or programme usually, although not necessarily, involving formal testing or examinations. Summative assessment is most commonly used for ranking, grading and/or promoting students, and for certification purposes.
Syllabus (plural syllabi or syllabuses)	A document which outlines the aims, selection and sequence of contents to be covered, mode of delivery, materials to be used, learning tasks and activities, expected learning objectives or outcomes, and assessment/evaluation schemes of a specific course, unit of study or teaching subject. It is often used incorrectly as an equivalent of the term 'curriculum'.
Teaching	There are diverse approaches to teaching which also implicitly reflect the approach to learning. The didactic approach mainly entails lecturing and is typically teacher-centred and content-oriented, i.e. teaching as transmission where the learners are considered to be the passive recipients of information transmitted. Teaching can also be seen as supporting the process of learners' knowledge construction and understanding, building on what is already known by the learner and involving a learner-centred approach (i.e. teaching as facilitation). Another approach emphasizes the development of learners' cognitive processes and awareness and control of thinking and learning.
Test	An examination or assessment exercise designed to measure the learner's acquired knowledge and skills. Tests may be set and marked by the teacher or by an external agency.
Textbook	A written source of information, designed specifically for the use of students, on a particular subject or field of study that is usually developed based on a syllabus and geared towards meeting specific quality and learning requirements. School textbooks pertain to an instructional sequence based on an organized curriculum. Ideally they serve as a complement to a good teacher and an inquiring learner. (Adapted from: UNESCO 2003a and UNESCO IBE 2006).
Time allocation	The amount of time to be devoted to instruction in a certain subject or discipline according to official regulations, requirements or recommendations. It should be distinguished from the time that is actually spent on learning.
Transdisciplinary approach	An approach to curriculum integration which dissolves the boundaries between the conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems or themes.

Transfer of learning	Generally refers to the influence of learning in one situation on learning in another situation. It is concerned with how learning in a certain school subject affects subsequent learning in the same or another subject or how school learning influences achievements outside of school. There are at least three basic forms of transfer. Lateral transfer occurs when learners are able to solve different but similar problems of equal complexity as soon as they have learned to solve one of them. Lateral transfer involves a learning achievement at the same level as the initial learning but in another context. The concept of sequential transfer corresponds with the observation that most content learned in school is organized into broad disciplines and is taught sequentially. Sequential transfer happens in one and the same context, i.e. both are organized horizontally. Vertical transfer, on the other hand, requires that learning at a lower level must be transferred to a higher level of cognitive skills. Thus, vertical transfer is the ability to solve similar and at the same time more complex or elaborated problems with the help of previously acquired knowledge. (Source: Seel 2012).
Tutoring	Any activity offering a learner guidance, counselling or supervision by an experienced and competent professional. The tutor supports the learner throughout the learning process (at school, in training centres or on the job). Tutoring can cover: academic subjects to improve educational achievement; careers to ease transition from school to work; and personal development to encourage learners to make wise choices. (Source: CEDEFOP 2011).
Twenty-first century skills	An overarching concept for the knowledge, skills and attitudes citizens need to be able to fully participate in and contribute to the knowledge society. This need is mostly attributed to the changes in society, and more particularly, to the rapid development of technology and its impact on the way people live, work and learn.
Validation of learning outcomes	Evaluation of an individual's achievement of learning objectives using a variety of assessment methods (written, oral and practical tests/examinations, projects and portfolios) not presuming participation in an education programme. (Source: UIS 2012).
Values	Culturally defined principles and core beliefs shared by individuals and groups that guide and motivate attitudes, choices and behaviour, and serve as broad guidelines for social life.
Vertical and horizontal articulation (of the curriculum)	Organization of contents according to the sequence and continuity of learning within a given knowledge domain or subject over time (vertical articulation to improve coherence) and the scope and integration of curricular contents from different knowledge domains within a particular grade level (horizontal articulation or balance to develop integration between subjects, disciplines or knowledge domains).
Vulnerability	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.
Whole school approach	Involves addressing the needs of learners, staff and the wider community, not only within the curriculum, but across the whole-school and learning environment. It implies collective and collaborative action in and by a school community to improve student learning, behaviour and wellbeing, and the conditions that support these.

Sources: Adapted from UNESCO/UNICEF. 2011. Integrating conflict and disaster risk reduction into education sector planning. Draft. Paris: UNESCO/UNICEF. and UNESCO-IBE. 2013. Glossary of Curriculum Terminology. Geneva: UNESCO-IBE.

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Page	Credit	Description
15	© UNICEF/ John Isaac	Grade 4 students hold 'Window of Hope' certificates at the end of a life-skills education session at Ehenya Primary School in the town of Oshakati in the northern Oshana Region. The programme helps students, aged 10-14 years old, gain the knowledge and confidence to successfully navigate issues and relationships in their personal lives, including domestic problems. This, in turn, teaches skills to prevent HIV infection before they become sexually active. The certificates are awarded to students upon completion of each of the eight study modules in the programme. The session began with a prayer that included the wish to "help the Namibian people to understand the impact of HIV and AIDS". 'Window of Hope' complements 'My Future is My Choice', a life-skills high school programme more directly focused on HIV/AIDS prevention. [#1 IN SEQUENCE OF SIX] In September 2008 in Namibia, children continue to face poverty, violence, and food insecurity, exacerbated by the HIV/AIDS pandemic, which has reversed social progress on many fronts. Children represent over 40 per cent of the country's 2 million people. HIV infection rates among pregnant women now average 20 per cent, with rates as high as 42 per cent in some regions. More than half of new HIV infections are among youths under age 25. Some 250,000 children are orphaned or otherwise vulnerable. HIV/AIDS is contributing to rising rates of violence, school drop-outs, malnutrition and to family and community breakdown. Wide income disparities and other chronic inequalities also reflect the lingering affects of apartheid policies, imposed by neighbouring South Africa before Namibia achieved independence in 1991. Working with the Government, other United Nations agencies and NGO partners, UNICEF supports a range of programmes to: prevent mother-to-child transmission (PMTCT) of HIV and provide antiretroviral (ARV) medicines; care for orphaned or other vulnerable children; advocate against violence and the abuse of children and women; and promote child participation in government forums and elsewhere. UNICEF also helped create and promote life-skills training for young people to prevention new HIV infections: 'Window of Hope' is available in all primary schools, and 'My Future is My Choice' reaches 50 per cent of high schools. Studies indicate that these programmes have contributed to a decline in new HIV infections in this age group. However, they are optional after-school programmes; if mandatory in the curricula, they would reach all students.
16	© UNICEF/Tattersall	Sipai, 10, sits working in her grade five classroom at Long Lao Primary School. The school is part of a UNICEF-backed government strategy to improve the quality and access to primary education in Lao PDR. It is one of over 1,600 school applying the " School of Quality" approach. Thanks to UNICEF input, Long Lao primary school now has a new school building where all five grades can be taught, teaching and learning kits have been supplied and training for the school director, teachers and other members of the community has been provided.
36	© UNESCO/ Julia Heiss, 2014	A disaster drill at the Commonwealth Elementary School, located in the Quezon City district of Metro Manila, has a student population of over 9,000. The school is nationally recognized for having the best emergency/evacuation plan in the Philippines.

Page	Credit	Description
41	© UNICEF/ Josh Estey	(Standing) seventh-grade student Nguyen Dieu Hong, 13, make posters with her classmates during a life-skills training session in Kim Dong Lower Secondary School in the town of Sa Pa in Sa Pa District in remote Lao Cai Province. The school is among 120 lower secondary schools providing life-skills training on child rights, health, HIV/AIDS and other issues in an initiative implemented by the Government with support from UNICEF. In March 2009 in Viet Nam, UNICEF is supporting the Ministry of Education and Training (MOET) to provide bilingual education to ethnic minority children – in Vietnamese and their indigenous language – and to improve adolescent learning, especially among minority ethnic girls. The Norwegian Government and IKEA, the Swedish home-furnishings retailer, are major UNICEF funding partners. Norway has committed US $1.6 million, and IKEA has contributed more than US $1 million for these projects. Although 95 per cent of all eligible children attend primary school, an estimated 20 per cent of the children of the 11 million members of ethnic minorities do not have access to basic education. Additionally, drop-out rates among ethnic minorities are high due to the lack of trained bilingual teachers, limited bilingual texts and curricula and inadequate infrastructure. Adolescent girls are especially at risk because of poverty, cultural biases against gender equity in education and the lack of properly equipped child-friendly schools. UNICEF has worked with MOET since 2007 to research and implement educational models that support bilingual education for indigenous minorities, now benefiting some 5,000 students (including preschoolers) from the Hmong, Jrai and Khmer ethnic groups in the provinces of Lao Cai, Gia Lai and Tra Vinh. The programme to improve adolescent education, adding critical life skills, reaches an estimated 120,000 students and 3,000 out-of-school adolescents, in eight provinces. IKEA is UNICEF's largest corporate funding partner, supporting UNICEF education, child protection and health programmes for children in Asia, Africa and Europe.
42	© UNICEF/ Olivier Asselin	On 22 October, a girl waves to a friend as she and classmates wade through floodwater on their way home from school in Cité de Paix, a neighbourhood on the outskirts of the city of Cotonou. By 27 October in Benin, widespread flooding had affected over 680,000 people, including 122,000 children under age five. The crisis began in September, when Benin experienced twice its average rainfall, causing rivers to overflow. An estimated 180,000 people have been displaced and at least 46 killed, and the Government has declared a state of emergency. Nearly a hundred health centres have been damaged, and many others are inaccessible due to floodwater. Hundreds of schools have been destroyed, and crop damage has caused concerns about food security. Waterborne diseases are also spreading, with 846 cases of cholera reported. Flood survivors are in immediate need of shelter, clean water, food and medical care. In response, UNICEF is providing water tanks, sanitation supplies, therapeutic food, disinfectants and school kits. UNICEF is also chlorinating contaminated wells and promoting hand washing to prevent the spread of disease. Benin is the worst-affected of several West and Central African countries that are contending with torrential rains and flooding, a disaster that has killed over 400 people and disrupted over 1.8 million lives throughout the region.
47	© UNICEF/ Jim Holmes	School children gather in front of the Patuxai monument on World Water Day 2009. In conjunction with The Lao Youth Union the children colour in a mural painted on the pathway depicting the River Mekong watershed and the way water is used throughout the region. Vientiane.

Page	Credit	Description
56	© UNICEF/Gonzalo Bell	Seventh-grade students, (standing left-right) Ana Marjanishvili, Margo Khundzakishvili, Milena Mukaeliani and Ina Teimurazovi, present their poster on earthquakes, volcanoes and tsunamis. The poster is part of a presentation on how to stay safe in the event of natural disasters, at Mleta Public in Metla, a mountainous village north of Tbilisi, the capital. The school is one of eight pilot schools participating in the Disaster Risk Reduction (DRR) Programme. [#9 IN SEQUENCE OF NINE] In May 2011, Georgia continues to be prone to natural and man-made hazards, including earthquakes, mud flows, avalanches, landslides and floods. This is, in part, due to global climate changes, which increase the regularity, scale and impact of hazards around the world. Nevertheless, hazards only become disasters when a society's ability to cope within existing resources is overwhelmed; when this occurs, the poor and marginalized – of those, especially children – are most at risk. UNICEF has joined the Government and NGO partners to create the Disaster Risk Reduction (DRR) Programme – supported by the European Commission's Humanitarian Aid and Civil Protection – to better prepare at-risk children for these potential emergencies. The Programme is guided by the Hyogo Framework for Action, a plan, endorsed by 168 countries in 2005, to reduce disaster risks worldwide. The DRR Programme in Georgia includes a review of the country's educational policy, the development of teacher manuals and educational kits for children and the training of teachers to lead DRR sessions throughout the country. Beginning in the 2011–2012 academic year, the Programme will be introduced countrywide for grades five through nine.
59	© UNICEF/Anastasia Dutova	Girl at a Russian school working on geography lessons on earthquake and tsunamis.
60	© UNICEF/Kat Palasi	On 29 December, children who have been displaced by Tropical Storm Washi look at UNICEF-provided colouring supplies, at a child-friendly space in a high school in the coastal city of Iligan, Northern Mindanao Region. The spaces offer safe places for children to play, learn, and regain a sense of normalcy after a disaster. Thirteen of the city's schools are flood-affected, and 11 are currently sheltering evacuees. Schools are scheduled to reopen on 3 January, but challenges to meet this goal are great. On 19 December 2011 in the Philippines, Government-led emergency rescue, evacuation and relief operations continue following the devastation caused by Tropical Storm Washi, which hit the southern island of Mindanao three days before. More than 1,000 people have been killed, and an estimated 15,000 families and 200,000 children have been affected. More than 284,000 people are displaced; many sheltering in overcrowded evacuation centres in the hardest-hit cities of Cagayan de Oro and Iligan in Northern Mindanao Region. Many are in urgent need of rescue, water, food, and clothing. Homes and infrastructure were also destroyed. UNICEF has dispatched supplies for affected communities, including water containers and kits, water bladders and mobile water units, temporary pit latrines and other sanitation equipment, tarpaulin sheeting and tents for temporary shelter, hygiene kits, vitamin A for women and infants, school supplies and child recreation kits. UNICEF has also launched an appeal for US $4.2 million to meet urgent water and sanitation, health, nutrition, education and child protection needs.

Page	Credit	Description
72	© UNICEF/Gonzalo Bell	Fourth-graders, (left-right) Karina Sultanbai, Sabira Satygaliyeva, Arailym Tursynaliyeva and Symbat Otebay, seek shelter under a table during an earthquake preparedness exercise, at Elementary School No. 148 in the city of Almaty. Their school is one of the first in the country to implement the Disaster Risk Reduction (DRR) Programme. [#5 IN SEQUENCE OF SIX] In May 2011, Kazakhstan continues to be prone to natural and man-made hazards, including earthquakes, mud flows, avalanches, landslides and floods. This is, in part, due to global climate changes, which increase the regularity, scale and impact of hazards around the world. Nevertheless, hazards only become disasters when a society's ability to cope within existing resources is overwhelmed; when this occurs, the poor and marginalized – of those, especially children – are most at risk. UNICEF has joined the Government and NGO partners to create the Disaster Risk Reduction (DRR) Programme – supported by the European Commission's Humanitarian Aid and Civil Protection – to better prepare at-risk children for these potential emergencies. The Programme is guided by the Hyogo Framework for Action, a plan endorsed by 168 countries in 2005 to reduce disaster risks worldwide. The DRR Programme in Kazakhstan includes the implementation of standardized DRR training in the national school curriculum so children can identify different types of natural disasters and know how to respond to each in practical ways. It also involves carrying out measures to address risk assessment and preparedness for disaster at the local level.
90	© UNICEF/ Candido Alves	Students are happy and give applause/clapping their hands when participating in the launch of the Back to School Campaign hold at Farol Primary School on September 4, 2006.
99	© UNICEF/Giacomo Pirozzi	2006, Tanna Island, Imanaka primary school, Lenakel Area, this is a child friendly school supported by UNICEF. They follow the French curricula. Children in class learning about plants, learning how to make toys and baskets from palm tree leaves, dancing in the school garden wearing their traditional costumes, portraits in their traditional costumes and in class doing French first and then Mathematics.
109	© UNICEF/Gonzalo Bell	(Foreground left-right) Aruzhan Turganbayeva and Danil Tikhoncheyev, both of whom are 6 years old, read their Disaster Risk Reduction (DRR) Programme textbooks, which guide children through different types of emergencies and provide practical methods of response, at Kindergarten No. 53 in the city of Almaty. The school is one of the first in the country to implement the DRR Programme. [#3 IN SEQUENCE OF SIX] In May 2011, Kazakhstan continues to be prone to natural and man-made hazards, including earthquakes, mud flows, avalanches, landslides and floods. This is, in part, due to global climate changes, which increase the regularity, scale and impact of hazards around the world. Nevertheless, hazards only become disasters when a society's ability to cope within existing resources is overwhelmed; when this occurs, the poor and marginalized – of those, especially children – are most at risk. UNICEF has joined the Government and NGO partners to create the Disaster Risk Reduction (DRR) Programme – supported by the European Commission's Humanitarian Aid and Civil Protection – to better prepare at-risk children for these potential emergencies. The Programme is guided by the Hyogo Framework for Action, a plan endorsed by 168 countries in 2005 to reduce disaster risks worldwide. The DRR Programme in Kazakhstan includes the implementation of standardized DRR training in the national school curriculum so children can identify different types of natural disasters and know how to respond to each in practical ways. It also involves carrying out measures to address risk assessment and preparedness for disaster at the local level.
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124	© UNICEF/Gonzalo Bell	(Middle) fifth-grade student Anzori Burduli pretends to be injured as he is evacuated by two ninth-graders, Misha Burduli (left-right) and Shio Burduli, during a simulation exercise, at Mleta Public School in Metla, a mountainous village north of Tbilisi, the capital. The school is one of eight pilot schools participating in the Disaster Risk Reduction (DRR) Programme. [#6 IN SEQUENCE OF NINE] In May 2011, Georgia continues to be prone to natural and man-made hazards, including earthquakes, mud flows, avalanches, landslides and floods. This is, in part, due to global climate changes, which increase the regularity, scale and impact of hazards around the world. Nevertheless, hazards only become disasters when a society's ability to cope within existing resources is overwhelmed; when this occurs, the poor and marginalized – of those, especially children – are most at risk. UNICEF has joined the Government and NGO partners to create the Disaster Risk Reduction (DRR) Programme – supported by the European Commission's Humanitarian Aid and Civil Protection – to better prepare at-risk children for these potential emergencies. The Programme is guided by the Hyogo Framework for Action, a plan, endorsed by 168 countries in 2005, to reduce disaster risks worldwide. The DRR Programme in Georgia includes a review of the country's educational policy, the development of teacher manuals and educational kits for children and the training of teachers to lead DRR sessions throughout the country. Beginning in the 2011–2012 academic year, the Programme will be introduced countrywide for grades five through nine.
130	© UNICEF/Christine Nesbitt	A girl writes in her exercise book in an overcrowded classroom at Hanock Msokera primary school in Kasungu city in Kasungu district in Central Region of Malawi on October 30, 2012. Overcrowding in classrooms is a problem for both learners and children. More than 200 learners attend this class for Standard 7, the second last year of primary school, at Hanock Msokera primary school. The nationally recommended number is a ration of sixty learners to one teacher.

Page	Credit	Description
140	© UNICEF/Marco Dormino	(Centre) artist Alexandre Clarens, Jr. leads children in an arts-and-crafts activity in a UNICEF-supplied tent in Port-au-Prince, the capital. Mr. Clarens, Jr. is director of the NGO Mouvement Social pour l'Avancement de la Jeunesse (Social Movement for Youth Advancement). The community-based organization is among 92 managing child-friendly spaces in displacement camps and impoverished communities. It was one of the first to provide psychosocial support services in the aftermath of the 2010 earthquake. [#1 IN SEQUENCE OF THREE] In December 2011, Haiti and its approximately 4.3 million children continue to recover from the 12 January 2010 earthquake that killed some 220,000 people, displaced more than 1.6 million and further disrupted the country's already inadequate infrastructure. Progress has been substantial: a new national government is in place; about half of the mounds of rubble have been cleared; almost two thirds of those displaced by the quake have moved out of crowded camps; and the country's health, education and other core services are being rebuilt on a stronger foundation. Still, the country remains a fragile and impoverished state, requiring international support. Working with multiple international and national partners, UNICEF continues to address the emergency needs of children, while focusing on building the Government's capacity to uphold and sustain children's rights. In nutrition, an unprecedented expansion of preventive and treatment services for childhood under-nutrition has begun to address the pre-quake 'silent crisis' of chronic malnutrition. In health, routine child immunizations increased to almost 80 per cent in the past year; medicines and training for midwives have increased; HIV prevention and treatment services, including to prevent mother-to-child transmission (PMTCT) of the virus, are expanding; and a national emergency cholera treatment response was implemented (in response to the late 2010 cholera outbreak). Emergency WASH (water, sanitation and hygiene) services, including for cholera, have shifted from large-scale water delivery to camps, to urban and rural community-centred efforts to improve WASH access, practices and knowledge. Haiti's first metropolitan waste disposal and treatment site opened in September; 2.2 million people received cholera-prevention supplies; and cholera prevention is being integrated into school curricula. In education, although an estimated half of eligible children are still not in school, UNICEF supports a new government initiative to introduce free education; over 1,200 schools have been repaired or constructed since the quake; more children than ever before have received basic school supplies; and policies for early childhood pre-schools are completed. Nevertheless, needs remain enormous across all these vital sectors for children. To date, UNICEF has received US $351.3 million to fund its response since the earthquake and requires an additional US $54 million to support activities through 2012.

Towards a Learning Culture of Safety and Resilience:

Technical Guidance for Integrating Disaster Risk Reduction
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