

Concept Note:
Formal and Informal Education for Disaster Risk Reduction
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Introduction

The goal of developing ‘disaster-resilient communities’ is widely understood to rest heavily upon the success of disaster risk reduction education. The integration of both formal and informal education through schools is the one way to ensure that these messages reach into every home and community and that learning is sustained into future generations. This note elaborates the scope of formal and informal disaster risk reduction education in schools around the world and draws a case study from Iran to illustrate these in practice.

The theme of “Disaster Reduction, Education and Youth” was introduced during the UN World Disaster Reduction Campaign in 2000 (UN 2000). This priority has become integral to the 2005-2015 Hyogo Framework for Action as part of Priority 3, focusing on the “use [of] knowledge, innovation and education to build a culture of safety and resilience at all levels” (UNISDR 2005). More recently, the 2006-7 UNISDR campaign “Disaster risk reduction begins at school” aimed to promote the integration of disaster risk reduction into government plans for school curricula and to ensure that school buildings are safe from the impacts of natural hazards (UNISDR 2006, Wisner 2006). Activists connected with non-governmental organizations and scientific, academic and research institutions have worked with dedication to bringing this priority to life at both grassroots and policy levels. Increasingly, and in conjunction with climate change awareness and environmental education, Ministries of Education are taking on the challenge of disaster risk reduction education. The current International Decade of Education for Sustainable Development led by UNESCO, provides a long-term focus for taking this agenda forward.

Early efforts in disaster education focused exclusively on hazards, and usually completely in the abstract – teaching about volcanoes, earthquakes, floods that happened in other places, to other people and in other times (Lidstone 1999). More recent efforts have begun to engage children in discovering and recognizing the myriad local hazards that they face, and then often jump from hazard awareness to some very important engagement in response skills and response-preparedness. These may be missing out on the most important opportunity of all – to introduce *primary disaster risk mitigation: physical protection of people and property, environmental stewardship, and recognizing underlying vulnerability* connected with tenuous livelihoods (Petal 2007, 2008).

Today examples around the world are beginning to reveal the power of both formal education in disaster risk reduction, integrated into curricula for all age levels, as well as informal education introduced through co-curricular and extra-curricular activities that begin at school.

Informal Education

Informal education can and should be the rapid entry point for disaster risk reduction education. This can take many forms, offering fun and engaging ways to introduce important knowledge, skills and competencies for students of all ages.

Dissemination of written materials, uses of posters and signage are important ways to share disaster risk reduction messages.

Creative educational materials, whether toys and games, documentary and short videos, storybooks, comic books, puzzles, and computer games also can be creative ways to transmit awareness and knowledge.

Cultural and performing arts, whether music, song, poetry, dance, puppetry, magic, street theatre, improvisation, pantomime, or artwork are appealing, engaging and creative ways to introduce disaster risk reduction messages. The use of all forms of arts to transmit essential knowledge to parents and to the wider community is especially appreciated in the informal settings of assemblies, and special events (Bhattia 2006).

After school “safety clubs”, scouting badges, and project activities can develop interest and leadership among children. These provide an opportunity to develop awareness materials and displays, plan games and engage in performances and art projects to communicate with others. Small-scale models including, for example, shake table demonstrations are also powerful hands-on tools.

Projects that bring students into contact with local community and local government and community-service oriented clubs have been shown to be extremely effective for all they touch (Schick 2007). These practical efforts help to develop students’ analytic and problem-solving skills, as they research and identify hazards, tap into indigenous knowledge, oral history, public information, and scientific research and expertise to assess risks and identify solutions.

Competitions, awards and commendations generate parent, community and mass media interest and develop enthusiasm for the messages. Voluntary **drawing and writing competitions** engage many children. DRR Knowledge Tournaments can involve many schools and radio or television broadcast can be used to share knowledge and competencies more widely. **Sports Day activities** are an excellent time for drills and demonstrations, as well as for competitive games that introduce cooperative response skills (e.g. water bucket brigade competition, fire extinguisher target practice, injury transport relays, and knowledge games).

Involving parents and local community through regular parent, parent-teacher association or school welfare committee meetings, wider community fairs and “open house” are all important opportunities for informal education. Exhibitions and displays of student-created risk and capacity maps, models, art work and essays personalize this interest and make it more powerful.

There are **community partners** eager to assist in these efforts. There are academic and scientific institutions, Red Cross/Red Crescent national societies (Benouar 2007, ARC 2008), civic and non-profit organization, local government partners and businesses ready to assist and support schools in this effort. Community members may also engage as volunteers implementing physical protection measures such as re-mounting classroom doors to open outwards, painting exit signage, secure furnishings against earthquake shaking or digging channels to direct rainwater away from building.

Disaster drills often form the cornerstone of informal education because they are school-wide rather than single-course events. Simple drills include response to any early warnings, practice for what to do during fire, earthquake, and other hazards faced. Simulation drills include development and practice of response skills such as fire suppression, first aid, transport of injured, mass casualty non-medical triage, damage assessment, and light search and rescue.

Formal Education

Formal curriculum integration may be introduced fairly rapidly in the form of elective courses or modules that plug into existing courses. Disaster risk reduction can also be systematically and more slowly infused into the curriculum by elaborating its full scope and sequence, undertaking an audit of existing curriculum, and designing the entry points in the course of the curriculum adoption cycle for all subjects and age levels.

Curriculum integration refers to an approach that makes use of specially developed units, modules or chapters concentrating on disaster risk reduction. Ideally these are designed to fit into several specific course curricula, at specific grade levels, for a specific duration. This has clear advantages that the topic has a reserved place in the curriculum where it can be sustained and its richness and local content developed over time. Development and introduction of this curriculum can take place rapidly because it does not require the labor-intensive audit of every course at every grade level. This must be supported with teacher training to develop both competence and efficacy. However, for many countries, there seems nothing that could be squeezed out in order to squeeze in these special modules.

Extra-curricular integration is a compromise where needed content is slipped in to the school day. “What’s the Plan, Stan?” for example, developed in New Zealand, uses an appealing marketing

campaign and mascot to implement required extra curricular content. Links to community-wide public awareness campaign, and limited teacher training helps to strengthen the program (Civil Defence New Zealand 2006).

Curriculum infusion is a more comprehensive approach that distributes disaster risk reduction content throughout the curriculum, using lessons, readings, activities and problems, enriching the existing curriculum rather than displacing it. The process requires a consultative, multi-stakeholder approach that begins before the curriculum adoption cycle:

1. Elaborate the full scope and sequence of knowledge, competencies and skills desired for disaster risk reduction.
2. Conduct a complete audit of the existing curriculum seeking the places where the disaster risk reduction content can be integrated into lesson plans.
3. Develop and adapt educational materials and tools for infusion.
4. Train faculty of teacher-training institutes.
5. Provide in-service training and distance learning tools for working teachers.
6. Evaluate impact and adjust and support accordingly.

Normally this process would take just a little longer than the full curriculum adoption cycle, a 5-10 year effort. It requires high-level policy guidance, dedicated resources and intensive collaboration between curriculum specialists and disaster risk reduction experts.

A broad range of courses can be integrated or infused with disaster risk reduction: In most countries general education on natural hazards can be found somewhere in the natural science or geography curriculum. This may be an ideal place to begin to familiarize children with the hazards and risks affecting their own communities. Disaster risk reduction content can and should also be appropriately be infused into social studies, physical health and safety education, language arts such as literature and composition, civics, and mathematics. The content distributed in this way, needs to be linked in order to be complementary and to make sense. Care should be taken that this is not one-time content but rather that it be built upon systematically throughout the school years (BRI and GRIPS 2007). Increasingly as environmental education, citizenship, and environmental stewardship are all introduced into curricula, disaster risk reduction education provides a natural fit, enriching these subjects in personal and compelling ways.

Stand-alone courses refer to specialized course curricula focused on disaster risk reduction. In some countries where curriculum permits, these courses may supplement the existing curriculum at specific grade levels. This has been successfully introduced in India. In other countries they may be especially useful in high school where special elective courses can play imparting important in-depth knowledge in subjects such as disaster-resilient construction and disaster management (Petal et al 2006). However, since they will reach only a tiny number of students, these become most meaningful in a context in which the entire school-age population is exposed to a strong foundation in disaster risk reduction.

Curriculum resource materials guidance and lesson plans to be used on a voluntary basis by teachers, for integration into existing curriculum is a strategy that has been used in California and throughout the U.S. (American Red Cross 2008, Team Safe-T 2008). These may work where teachers are permitted flexibility to select materials, where wide access is facilitated through internet delivery and where a large pool of volunteers make themselves available to support lessons and projects in schools.

Case Study: Iran

In parallel with improvement of and new methods for design and construction of disaster-resilient structures, earthquake education has been developing consistently in Iran, led by earthquake experts in collaboration with public agency officials and policy-makers. Today, the education of children and young people in disaster preparedness takes place at nursery, elementary, secondary and high school levels on a national scale covering both urban and rural areas. This is accomplished through formal and informal means including special materials in the textbooks, stand-alone texts, films, nationwide “safety drills” for children of all ages, writing and drawing competitions and exhibitions, paintings and posters in educational environments, as well as using songs, games, puzzles, and other educational tools. These activities captivate the interest of children, their parents and teachers.

In Iran, the International Institute of Earthquake Engineering and Seismology (IIEES) initiated public awareness and preparedness on both the earthquake phenomenon itself and its consequences, and has consistently and actively promoted a “culture of safety” for almost two decades. The integration of local hazard and risk information into the curriculum of science, geography, social studies, and other

disciplines has become part of the core education that children receive rather than an optional “add on” (Finnis et al 2007). This nationwide program is led by Ministry of Education and relies upon guidance from the IIEES and the cooperation of many other public and civic organizations. Disaster lessons are integrated within science, geography, literature and other curricula with preparedness and practice books designed for different age levels of students and handbooks for teachers. Some examples include a six-page chapter, explaining the seismic hazards and safety measures, titled “*Safety against Earthquakes*” that was introduced into geography textbooks for 8th and 12th grades in 1991; a chapter in the 5th grade science called “*Restless Earth*”; a special textbook “*Earthquake Preparedness*” is part of the 8th, 9th and 10th grade curricula; a lesson called “*Mysteries of Earth*” appears in the 8th grade literature textbook. These are only few of the many disaster issues that have been integrated within the curricula in Iran (IIEES Website 2006).

“Safety drills” are among the favourite activities building slowly from a couple of pilot schools, to dozens, to a whole city and finally across the country. The first full National “Earthquake and Safety” Drill in Iran was held in 1999 involving more than fifteen thousand high schools. The Second National Drill in 2000 involved 11 millions students in secondary and high schools (Izadkhah 2004). The Ninth National Drill in 2007 reached 14.5 million children in more than 124,000 primary, secondary and high schools throughout the country (Parsizadeh 2007). The IIEES, the Iranian Ministry of Education, Ministry of Interior (National Committee for Natural Disaster Reduction), Iranian Red Crescent Society, Iran National Television and Radio, and many other related national organizations all cooperate to organize these annual drills to prepare students and staff for appropriate and rapid responses during earthquakes. An Earthquake Safety Alarm is broadcast on national and local radio. Voluntary “School Earthquake Safety Councils” involve teachers and parents in disaster risk reduction and preparedness efforts at the individual school level.

A variety of educational aids support formal and informal education. A pictorial brochure “*Earthquake Hazards Reduction at Educational Institutions*” was produced by IIEES and widely distributed among school children. A bilingual pictorial booklet “*Earthquake Preparedness*” shows appropriate steps to be taken at home or at work before, during and after an earthquake. Scientific concepts of the earthquake and safety measures are presented in this workbook in the form of puzzles, illustrations and easy-to-read explanations for elementary school children (Izadkhah and Hosseini 2005). A bilingual booklet, produced as a joint work of IIEES and UNDP, entitled “*E for Earthquake*” helps younger children to learn the individual precautions to protect themselves at the time of earthquakes. New materials include coloring books, comic strips, storybooks, and crossword puzzles for wide appeal for children and youth. Workshop and exhibitions for children have been held annually by IIEES since 1991 in order to make them more familiar with the concept of earthquakes.

More recently systematic introduction of disaster safety curriculum has begun for younger children in the kindergarten. In 2007, a guideline booklet on “*Earthquakes and Safety for Kindergarten Teachers*”, prepared by IIEES with UNESCO Iran Cluster, was published. Similarly, the first “*Earthquakes and Safety*” drill was held for kindergarten children on October 2000 in one of the central parks in the capital city of Tehran. By 2008, this annual drill had spread throughout Tehran and to 9 other provinces in the country.

Herein, it was tried to provide examples of the wide range of the existing formal and informal Iranian disaster materials, however providing all is beyond the scope of this paper.

Conclusions

The empowerment of children in matters that affect their own future is being pioneered by many child-oriented NGO’s (IDRC 1998, ISDR 2000, Tearfund 2004, Action Aid 2007, Plan International 2007, Schick 2007). Children, engaged in real-world problems in their local communities can participate in vulnerability and capacity assessments, learn and problem-solve about measures for disaster risk reduction, and take messages they have internalized home to their families, friends and neighbors (Izadkhah 2005). The continuous implementation of formal and informal education through schools, with linkages to community-based risk-reduction promises the development of a “culture of safety”, of societies less vulnerable and more resilient to the impact of disasters in the future.

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