Integrating disaster risk reduction in education education essay

This paper introduces Disaster Risk Reduction for integration in education at policy, curriculum, and classroom level. It is the most cost effective measure to reduce long term risk of disasters. The paper argues that disaster risk reduction must be integrated in the education through a participatory process and made a part of the formal assessment. The paper touches upon the ways and means of integrating DRR in formal and informal education and how the policy-makers in the ministry level set the guideline needed by school administrators and teachers to implement DRR strategies and practices in the classroom and other co-curricular activities. The paper also explores some of the areas where mainstreaming of DRR in education fell short of the mandated targets in Pakistan.

Introduction

One of the few attempts at defining disaster risk reduction (DRR) is in the UN-ISDR's vast Living with Risk report. It suggests that disaster risk reduction is " the systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impact of hazards, within the broad context of sustainable development" (2002, 25).

Disaster risk reduction is defined by the International Strategy for Disaster Reduction (ISDR), a United Nations framework, as: " The concept and practice of reducing disaster risks through systematic efforts to analyze 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.”

Disaster Risk Reduction (DRR) measures are designed to protect livelihoods and the assets of communities and individuals from the impact of hazards by:

Mitigation: reducing the frequency, scale, intensity and impact of hazards.

Preparedness: strengthening the capacity of communities to withstand, respond to and recover from hazards, and of government, implementing partners and Concern to establish speedy and appropriate interventions when the communities’ capacities are overwhelmed.

Advocacy: favorably influencing the social, political, economic and environmental issues that contribute to the causes and magnitude of impact of hazards.

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).

Hyogo Framework for Action (HFA) The Hyogo Framework for Action is a comprehensive 10-year strategy for disaster risk reduction which aims to reduce human and material losses from disasters by 2015. 168 governments have signed up to the HFA.

The HFA’s five key priorities are,

1. Ensure that DRR is a national and local priority with a strong institutional basis for implementation

2. Identify, assess and monitor disaster risks and enhance early warning

3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels

4. Reduce underlying risk factors

5. Strengthen disaster preparedness for effective response at all levels

Key activities under the HFA include the integration of DRR knowledge into relevant sections of school curricula, disaster-preparedness programs in schools and institutions of higher education and the promotion of school-based activities for learning how to minimize the effects of hazards. The most well-established routes to date include the introduction of DRR via the curricula, such as in textbooks and in teacher training and school safety plans, which are sometimes and ideally done in partnership with community safety plans. Additionally, there is the use of schools and school children in emergency response planning and teams, special awareness raising and

training sessions, and specifically targeted campaigns, such as the global One Million Safe Schools and Hospitals Campaign.

In addition to providing venues for educational purposes, the school buildings often serve as community meeting points and in case of emergencies as temporary shelters. Their locations are well known within the community and are usually spacious enough to accommodate families taking refuge from their damaged homes. When these school buildings are damaged by natural disasters, it affects not only the students disrupting their studies and undercutting the quality of education but also affects the entire community. Unsafe school buildings are also hazardous on their own, threatening the lives of students, teachers and education officers.

In addition, the loss of the lives of teachers in a disaster event has tremendous impacts on the society. Deaths of qualified teachers deprive the national education system of highly trained professional s and the students are deprived of mentors. The experience of losing friends, family members or teachers who bear influence in their lives, can l eave the students and adults alike traumatized.

Interruption to the education system caused by natural disasters affect numerous students worldwide. Disasters have a major impact on children and youth and education systems. Studies of disaster trends and the likely consequences of climate change suggest that each year 175 million children are likely to be affected by natural hazard related disasters alone. For example, some 38, 000 students died in the 12 January earthquake in Haiti, which also killed 1, 300 teachers and education personnel. The Ministry of

Education offices were destroyed along with 4, 000 schools – close to 80 % of educational establishments in the Port-au-Prince area. Also, during the Sichuan earthquake in May 2008, approximately 10, 000 students were crushed in their classrooms and more than 7, 000 school rooms collapsed. The 2007 Sidr cyclone in Bangladesh destroyed 496 school buildings and damaged 2, 110 more. The Super Typhoon Durian in the Philippines caused 20m USD damage to school, including 90-100% of school buildings in three cities and 50-60% of school buildings in two other cities. The 2005 Kashmir earthquake in Pakistan killed at least 17, 000 students in schools. It also seriously injured another 50, 000, leaving many disabled and over 300, 000 children affected and close to 900 teachers perished. The high student casualty was caused mainly by the collapse of over 10, 000 school buildings; in some districts 80% of schools were destroyed.

The pivotal role of education in reducing disaster risks has been recognized by national policy makers. It is now beyond the discussion stage that integrating DRR into the education system is essential and it should be done from different angles and on different fronts. There has been a marked increase of initiatives to promote the integration of disaster risk reduction into school education. Progress is evident in the assessment of existing teaching and learning materials, developing new ones, designing adaptive teaching approaches to training teachers and working in partnerships on strategies to make DRR a part of the official curriculum.

As set out in the Hyogo Framework for Action, knowledge, innovation and education lay the foundation for a culture of safety and resilience. Building such foundation needs to start early, with children. Mainstreaming DRR in

the education sector is therefore imperative. To make DRR education part and parcel of the education system necessarily involves adjustment in the curriculum, teacher training, teaching methods, learning materials and extra-curricular activities.

Opportunities for effectively mainstreaming DRR in the education sector exist. Creative approaches and synergy of action need to be sought. Systematic efforts need to be made to tap into the existing potential of each country’s education system. Decentralization of education and curriculum reform provide promising possibilities for DRR education to be mainstreamed. Local curriculum is being introduced in several countries. This provides a good opportunity for incorporating disaster risk reduction as well as indigenous knowledge on environment, risk reduction and management. Likewise, the decentralization of education and curriculum reforms taking place in many Asian countries has called for provincial and district education authorities to include local content in the official curriculum. This is also a way to insert indigenous knowledge as well. It will help avoid situations where DRR education is reduced to an add-on topic of discussion which, as experience with other topics has showed, risks dwindling after some time. The design of projects in basic education and secondary education sub-sectors for funding by such donors as the ADB and the World Bank, as well as the development of the education sector-wide development plan offer the needed channels for DRR education to be integrated. (UNISDR, Bangkok)

Parents’ involvement in mainstreaming DRR in education is crucial as making children understand the importance of building communities that are disaster resilient begins at home. From their homes, parents and guardians

are also expected to engage in active participation in the various efforts of school administrators and educators to increase awareness among children about the risk of disasters in their area and the appropriate responses to help reduce the impact of disasters.

Mainstreaming disaster risk reduction into education sector is a cost effective measure to reduce long term impact of disasters. Each USD invested in resilience and prevention, around USD four are saved in response. It helps prepare each new generation through institutionalization of disaster preparedness in the formal learning process. It ensures the safety of children who are among the most vulnerable groups and also the future of the society. It has far reaching impact of raising the awareness of the community as the educated children share their knowledge with the parents at home and also with their children when they become parents. It promotes construction of safer school buildings and encourages pro-active preparedness initiatives. The result is that it protects the lives of students, teachers and school officials and also those who take refuge at schools as the buildings are often turned into safe shelter during disasters.

Political commitment is a key ingredient in initiating, implementing, and sustaining the process of mainstreaming DRR in education. It means that the government has taken concrete steps to increase the likelihood of effective implementation of a strategy or program on mainstreaming DRR in the educational system, given the policy environment and institutional arrangements required. Formal coordination and collaboration mechanisms (e. g. MoU) between and among the Ministry of Education, national disaster management office, other relevant government agencies be established and

functioning, exemplifying a whole-of-government approach to mainstreaming DRR in education. Political “ champions” from the Ministry of Education, NDMO or other sectors, both government and non- government, should exist actively promoting DRR mainstreaming in education.

It is very important to have a legal mandate and regulations as bases for integrating DRR in school curriculum. The disaster management law in several Member States mandates this integration through specific provisions and supplementary guidelines. National legislation must be passed with provisions requiring the mainstreaming of DRR in the education sector. Policies specific on mainstreaming DRR in school curriculum are issued separately by the education ministry or incorporated in DRR national plans to complement existing national laws and regulations on disaster management in most Member States. Official policy on mainstreaming DRR in the school curriculum should be adopted and implemented by the Ministry of Education, with corresponding budget support.

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 nonprofit 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, and 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 extracurricular 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.

In mainstreaming Disaster Risk Reduction into Education Sector there may be some challenges. Firstly, Under the leadership of the Ministry of Education (MoE), DRR components have been integrated into current school curriculum in the life skills and science subjects. Nevertheless, in an education system where the emphasis is on completing the formal syllabus than attention given to extra-curricular activities or non-academic related subjects. Thus, learning priority is usually given to topics that are considered more relevant for the exams than disasters and related information. However, understanding the subject could make the children more concern about their surroundings and imbue a sense of responsibility to protect it. By skipping the issues, the society misses out on nurturing children to become effective, vibrant and active change agents.

Secondly, in general view, children belong to one of the most vulnerable groups in the society, passive dependent of the capable adults. It would be an oversight to assume so and it can obscure the actual role the children could play as the active disaster risk reduction practitioners, particularly in disseminating the disaster awareness information they learn in the classroom to their family and friends. Mainstreaming efforts, hence, need to highlight the invaluable contribution the children can provide and should look into creating opportunities for them to obtain prominent roles in community based disaster risk management programs.

Thirdly, even with support from the MoE and the international agencies, implementation of codes and specifications at the ground level will be a big challenge. This is due to two main reasons; (1) the builders: carpenters, masons and artisans, may not be familiar with the more multi-hazard construction techniques and (2) the suppliers might not have the essential materials. This proves the capacity building on disaster risk reduction needs to be extended to construction workers and also to people working in the support industry.

Fourthly, in evaluating the mainstreaming efforts, the biggest challenge is to prove the results: the behavior and attitude change of the students, teachers, education officials and the community. The proof needs investment of considerable amount of time and gaining financial and policy support sometimes can be difficult as the results are not tangible. The implementing agency should bring out this issue on the outset to sensitize all stakeholders involved to avoid raising misguided expectations.

In every country the curriculum revision exercise is repeated every few years. The cycle of revision usually varies from 3 to 5 years. The Department of Curriculum (or Pedagogy) within the Ministry of Education is responsible for curriculum revision. The revision is conducted over a number of years grade by grade. The actual process of revision is a long process and starts a year before the actual revision takes place, for each grade. Any new curriculum, whether it is a new subject or a revised content of the existing subject, can only be taught from the beginning of the new cycle and once approved by the Ministry of Education.

Hence in order to successfully integrate disaster risk reduction into the national curriculum system, the beginning of the new curriculum cycle is the best stage to commence activities.

Thus, it is essential to be aware of the National Education Policy and the curriculum revision cycle, and plan ahead, so that necessary steps can be taken to introduce disaster risk reduction concepts to the curriculum development board before or during the actual revision phase. This would provide enough time for the concerned agencies to develop a relevant curriculum related to disasters, train the teachers and also pilot test the curriculum so that any necessary revision could be carried out before the curriculum is actually adopted for teaching nationwide.

Another key issue is that any change in curriculum has budgetary implications. Change in the curriculum results in increase in teaching time and increase in corresponding costs of teaching and printing of textbooks. An ideal plan would provide the curriculum revision board with sufficient time to place the revisions in forthcoming education sector plan, so that budgetary arrangements are in place to cater for the increase in teaching costs necessitated due to the revision of the curriculum.

Ad hoc DRR in education interventions are not sustainable as disasters recur in most countries. Disaster risks should be considered in the Education Sector Development Plans/National Action Plans. This ensures that DRR measures are considered educational priorities. Policymakers can encourage and spearhead the development of an Education Sector Disaster Management and Contingency Plan as the basis of the sector’s preparedness

and response activities. An essential building block for the plan is a multi-hazard risk assessment. This ensures that the education sector assesses and monitors hazards that might disrupt education’s functioning at the national, sub-national and school level. Risks and hazards to the system need to be assessed initially and their monitoring incorporated into the EMIS.

Key elements of an Education Sector Disaster Management and Contingency Plan include:

The sector’s disaster management measures, risk reduction concepts and approaches.

Actions to mitigate risks before and after a disaster occurs and the necessary technical, human and financial resources to implement the plan.

Inter-sectoral linkages to the government’s overall disaster management plan, with operational linkages to disaster management plans of other relevant authorities and agencies. Strategic direction for sub-national and school-level preparedness and response plans, including regular school-level simulations and drills.

DRR mainstreaming into teaching and learning.

When a hazard strikes, policymakers need to implement the Education Sector Disaster Management and Contingency Plan. Appropriate actions following an event include:

Conducting a rapid needs assessment to determine impact on the education system.

Developing a response plan and implementing appropriate activities, e. g. establishment of temporary learning facilities, and provision of psychosocial support services. - Ensuring the continuation of safe schooling as soon as possible.

Teaching and learning about DRR and climate change is key to increasing individuals' and community's knowledge about hazards and what to do when they strike. Policymakers can mandate the mainstreaming of DRR in teaching and learning, linking this to the Education Sector Disaster Management and Contingency Plan and Education Sector Development Plans. Key elements of mainstreaming DRR in teaching and learning involve:

Mainstreaming of DRR into the curriculum and school-wide activities, starting from the primary level. This includes multi-hazard education, conducting drills and establishing school-level disaster management plans.

Including DRR in non-formal channels and in collaborative activities with the private sector.

Supporting community-led programs and community engagement in DRR teaching and learning. Ensuring teachers, school managers and staff have incorporated DRR into their training activities.

Ensuring DRR learning materials and resources are available to key stakeholders.

Encouraging children and youth to be champions and leaders in DRR.

Supporting professionalization of and research in DRR in institutes of higher education.

Policymakers have a responsibility to ensure that students are safe in and on the way to school. Policymakers can establish standards on safe school facilities by:

Setting reasonably high building standards to ensure that schools are built to withstand multi-hazards, provided with regular maintenance and upkeep, and not located in hazard prone areas.

Prioritizing modification of existing schools that are found moderately unsafe – retrofitting can often be done without high cost implications.

Providing first-aid kits and basic safety and rescue equipment for schools located in hazard prone areas.

Policymakers can support school-level disaster management by providing strategic direction within an Education Sector Disaster Management and Contingency Plan and other policies and plans. School disaster management involves:

Setting up school disaster management committees with participation from students, teachers, school administration and community members.

Implementing school Emergency Disaster Preparedness Plans that promote safety, protect the school and its students, and also provide operational direction to schools before, during and immediately after an emergency. It

includes warning systems, evacuation plans, and conducting regular emergency drills and simulations.

The HFA Priority 3 -Use knowledge, innovation and education to build a culture of safety and resilience at all levels- has, as its core indicator 2, the following statement: “ School curricula, education material and relevant training include disaster-risk reduction and recovery concepts and practices. However, the 2009 Global Assessment Report on Disaster Risk Reduction demonstrates that progress in the use of knowled