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TITLE: DISASTER RISK REDUCTION IN THE SCHOOL CURRICULUM, THE PRESENT AND POTENTIAL ROLE OF DEVELOPMENT AGENCIES AND THE IMPLICATIONS FOR THE HYOGO FRAMEWORK FOR ACTION 2005-2015 SUCCESSOR

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Executive Summary

This paper explores disaster risk reduction (DRR) curriculum development in four countries at high risk from natural disaster: Bangladesh, Cambodia, Indonesia and Pakistan. Each country is examined in terms of the degree to which an enabling policy context has been developed, curriculum development thus far, the learning and teaching approaches being used in DRR curriculum delivery, issues surrounding localization of curriculum, the extent to which DRR curriculum is being linked to safe school and school/community resilience-building initiatives, and the issue of teacher capacity. There is a particular focus throughout on the role development agencies play, and might play, in DRR curriculum development. To garner data an online questionnaire was employed, semi-structured interviews were conducted and a Delphi Forecasting process undertaken.

The four country case studies reveal the presence of a policy framework conducive to DRR curriculum development but patchy provision of actual curriculum. There is an absence of systematic learning outcome progression through the grades. Interdisciplinary learning potential is being little exploited. While there are many commendable curriculum development initiatives implemented by agencies that have produced innovative learning and teaching materials these are generally not being taken to scale. These same initiatives often promote active learning but the range of learning approaches being utilized is quite narrow. It appears a real challenge to turn around the factual knowledge orientation that marks the prevalent learning culture and replace it with the active and action-oriented pedagogy that DRR calls for. There are excellent examples of student involvement in safe school initiatives and in community resilience-building but little evidence that such involvement is being embedded in the formal school curriculum. Across the four countries change is being held back by teachers' lack of knowledge of DRR and their lack of training in facilitating DRR learning. There are good examples of project-oriented teacher training but an absence of systematic and sustained pre-service and in-service training provision.

Each country is facing its own particular challenges in terms of localization of DRR curriculum. The centralized textbook-led curriculum in Bangladesh, a country marked by localized combinations of hazards, is strong in terms of introducing DRR themes and topics but places significant barriers in the way of developing context-bespoke curriculum. In Cambodia the policy door is open to the development of localized curriculum but lack of local capacity stands in the way. The same holds more or less true of Indonesia where autonomy has been given to schools to develop their own curriculum. In Pakistan the national curriculum has been dissolved and curriculum authority devolved to the provinces presenting an opportunity for contextually appropriate DRR curriculum development. Again, capacity is the issue.

Out of the four country case studies emerge some significant signposts for the future role of development agencies in curriculum development.

First, while already fulfilling a significant advocacy role, the data suggest that agencies need to fulfill a more astute role based on greater insight into the culture and workings of ministries of education and, especially, their curriculum departments. Advocacy needs to be more evidence-based and research-based, involving ministry personnel as partners in the curriculum development process.

Second, there is a strong case for agencies widening their understanding of what a DRR curriculum should comprise. There is an over-emphasis on the mechanisms and effects of hazard and on protective mechanisms to the exclusion of curricular consideration of the physical, social, economic and environmental drivers that create vulnerability. There is insufficient organic linking of students' curricular and co-curricular DRR learning. There is still too little focus on the impact of disaster on women and girls and their role in disaster preparedness and risk reduction as well as on the needs and roles of people with disabilities, ethnic minorities and other marginalized groups.

Third, the advancement of DRR curriculum would be helped by development agencies forming more robust coordinating coalitions that are neither project-specific nor time-constrained but that allow for mutually supportive action that is both comprehensive in its vision and ongoing. Such coalitions might maintain a clearinghouse of initiatives to avoid duplication of effort, undertake a periodic stocktaking of progress and problems, and fulfill a compensatory role when weaknesses or gaps appear in work undertaken by their coalition partners. Indonesia comes closest to realizing this vision.

Fourth, there is a powerful case for agencies to focus significant effort upon helping develop systematic provision of DRR-related teacher training, working with teacher training institutions on developing core pre-service courses and working with the ministry of education and other partners on systematizing national and sub-national training of trainers programs and cascade training of local teachers. DRR curriculum development efforts will otherwise continue to be held back by low teacher capacity.

Fifth, and very importantly, there is an overwhelming case for agencies to fulfill a catalytic role in meeting the need for localized DRR curriculum not least by working on those factors militating against its development, i.e. the grip of a centralized textbook-fixed curriculum in Bangladesh and the incapacity to capitalize on local DRR curriculum opportunities in Cambodia, Indonesia and Pakistan.

Sixth, and finally, the paper suggests that agencies have a role in democratizing DRR knowledge by acting as a conduit through which the accumulating DRR expertise and wisdom of national higher education institutes can reach the classroom teacher. There is also a good case for agencies democratizing DRR conceptual understanding by working on accessible terminology and culturally appropriate imagery and metaphors that make knowledge graspable by local practitioners.

The paper ends by, first, enumerating ideas advanced by research participants for the HFA successor document and by, second, laying out suggestions for the successor to HFA Priority for Action, Core Indicator 12 as arising from the research findings.

Introduction

This paper explores disaster risk reduction (DRR) curriculum development in four countries at high risk from natural disaster in South Asia and South East Asia: Bangladesh, Cambodia, Indonesia and Pakistan. It looks at what curriculum has been developed, in what school subjects, and at shortcomings and gaps in curricular provision. It examines the degree to which there is evidence of *horizontal* curriculum integration (i.e. linkages being made between DRR curricula as manifest in different subjects) and *vertical* curriculum integration (i.e. any through-the-grades dovetailing, reinforcement and progression of DRR learning). It examines, too, whether and in what ways curriculum is systematically interlinked with other elements in a comprehensive approach to DRR at school, namely safe school and disaster management and school and community partnerships for disaster adaptation and mitigation. In looking at all these areas reference is made to the availability and nature of learning resources, pedagogical approaches being employed and the capacity building of teachers and other stakeholders.

A key focus throughout is on the role development agencies play, and might play, in curriculum development and curriculum support. The paper also looks at the role the agencies play, and might play, as catalysts of a 'whole school in community' approach to DRR in which curriculum provision is systematic and at the same time systemically linked to other DRR elements in school and community.

The paper closes by applying its findings and insights to a critical scrutiny of the explanatory text and education and training activities enumerated under the Hyogo Framework for Action, Priority for Action 3, Core Indicator 2: 'Use knowledge, innovation and education to build a culture of safety and resilience at all levels' (UNISDR, 2005, 9). Recommendations are made for updating and, hence, sharpening the relevance of the successor section to be adopted by governments at the World Conference on Disaster Risk Reduction, Sendai, Japan, 2015.

Research Methodology

The research for this paper has involved the assemblage and interrogation of data available in the public domain, namely, national DRR curriculum policy and action planning documents, curricula and syllabuses, teacher education and other professional development and guidance documentation (including curriculum delivery manuals), learning and teaching materials, professionally-oriented and academically-oriented literature, and evaluation documents.

Empirical research began with a snowball sampling process to identify key players and stakeholders in DRR curriculum development in five¹ countries. Well-informed DRR players at regional level were asked to recommend and give contact details of key national players in DRR curriculum development who were, in turn, approached and invited to complete a pro forma with their choice of six nationals. These, in turn, were asked to offer names, and so on. In what is a small field, names began to be frequently repeated so we called a halt to the process, taking it that we were working with a reasonably accurate map of key players in DRR curriculum development in each country.

The snowball sampling exercise elicited some 106 names in all (11 in Bangladesh, 20 in Cambodia, 44 in Indonesia, 31 in Pakistan), all of whom were invited to complete an online quantitative and qualitative questionnaire on DRR in the school curriculum seeking

¹ Sri Lanka was also to figure in the research but a thin response to the snowball sampling led to its exclusion.

perceptions of the state of the art of DRR curriculum development and support in their country². The percentage of respondents per country was as follows: 30% Bangladesh, 30% Cambodia, 38.6% Indonesia and 19.35% Pakistan.

Working from the questionnaire returns, the following criteria were then used to determine the choice of who to invite for semi-structured distance interview: evident extensive knowledge of DRR curriculum development in their country; clear grasp of the role of development agencies in advancing DRR curriculum development; frequency of mention in the snowball sampling. Interviews³ took place by Skype and by ongoing email exchange with the following:

- Interviewee 1: a program officer with a leading INGO in Bangladesh
- Interviewee 2: an education specialist with another INGO in Bangladesh
- Interviewee 3: a project coordinator with a third INGO in Bangladesh
- Interviewee 4: an ex-primary school teacher and teacher educator, now an education program officer with a leading INGO in Cambodia
- Interviewee 5: a program coordinator with a second INGO in Cambodia
- Interviewee 6: a departmental deputy in the National Committee for Disaster Management, Cambodia
- Interviewee 7: a regional-level INGO advisor in South-East Asia
- Interviewee 8: a governmental officer working on school-based disaster preparedness in Indonesia
- Interviewee 9: a program manager with a leading INGO in Indonesia
- Interviewee 10: an executive director with a national NGO in Indonesia
- Interviewee 11: an expert working with UN/INGOs in Pakistan
- Interviewee 12: a CEO with a national NGO in Pakistan
- Interviewee 13: an expert working with the UN, INGOs and provincial governments in Pakistan; also an academic.

A small panel of interviewees, chosen so that a rich variety of online survey and interview responses was represented was then invited to participate in a week-long Delphi Forecasting exercise. Using email communication, panel members were asked to write a one-page reflective piece on the potential future role of development agencies in fostering a holistic approach to DRR curriculum development within a 'whole school in community' framework. Responses were anonymized and collated and sent out to panel members to read and react to in a further page of reflections. The process then occurred a third time with a marked convergence of opinion occurring in some respects but a surfacing and sharpening of difference in other regards.⁴ The profiles of Delphi participants are as follows:

- Delphi participant 1: a program coordinator with an INGO in Cambodia
- Delphi participant 2: a CEO with a national NGO in Pakistan
- Delphi participant 3: an education program officer with an INGO in Cambodia
- Delphi participant 4: an expert working with the UN, INGOs and provincial governments in Pakistan
- Delphi participant 5: an expert working with UN/INGOs in Pakistan

² For the online survey form, go to: <http://www.sustainabilityfrontiers.org/index.php?page=dr-in-school-curriculum-questionnaire>

³ For the semi-structured interview schedule, go to: <http://www.sustainabilityfrontiers.org/index.php?page=individual-and-focus-group-semi-structured-interview-schedule>

⁴ For the Delphi Forecasting letter of invitation and explanation, go to: <http://www.sustainabilityfrontiers.org/index.php?page=dr-in-the-school-curriculum-survey-invitation-to-participate-in-a-delphi-forecasting-exercise-sample-letter>

- Delphi participant 6: a UN officer in Bangladesh
- Delphi participant 7: an advisor working out of the regional office of an INGO

All accumulated qualitative data was then read and re-read and color-coded as a means of understanding the curricular landscape in each country, understanding differences and divergences between countries, drawing out recurring themes and issues, and identifying commonalities and differences. Quantitative data was analyzed in terms of frequencies and percentages.

Disaster Risk Reduction Curriculum Development and Delivery in Four Countries

In this section we describe and scrutinize DRR curriculum development and delivery in the four countries featuring in this study, making reference as relevant to the contribution of development agencies. Disaster-oriented curriculum development in each country is happening against a somewhat different, in some cases starkly different, backdrop. Bangladesh offers an example of highly centralized, textbook-led national curriculum development. Cambodia manifests a strong national policy level approach opening up opportunities, still largely to be availed of, for sub-national developments. Indonesia devolves a significant overall level of autonomy and flexibility for curriculum and textbook development to each locality and school with significant space for 'local content curriculum'. Pakistan is in process of activating the decentralization of the curriculum to provincial level while wrestling with the question of how the opportunities offered by decentralization might best be exploited.

Bangladesh

The low-lying, deltaic and densely populated nation of Bangladesh is one of the most disaster-prone states in the world.⁵ A 'land of rivers,' it is ranked as the most climate-vulnerable country in the world.⁶ Each year cyclones of increasing frequency and intensity enter the Bay of Bengal and make landfall along the Bangladeshi coast. Cyclones are but one devastating component in a multiplicity of hazards that can strike in tandem including floods, coastal erosion and sea incursions (with consequent salinization of land and inland waters), earthquakes, landslides, droughts and tsunamis. Loss of agricultural production and setbacks to development programs happen in consequence. Lacking the protection of higher ground, predicted rises in sea level as climate change advances may well account for unprecedented economic and development losses. (MINISTRY OF WOMEN AND CHILDREN AFFAIRS, 2010, 6-7).

Governance and Policy Context

The government of Bangladesh has responded with a range of disaster management platforms and initiatives. The *National Disaster Management Council (NDMC)* chaired by the Prime Minister is the highest forum for the formulation and review of disaster management policy. The *Comprehensive Disaster Management Program (CDMP)* under the auspices of the *Ministry of Disaster Management and Relief (MoDMR)* but networking with thirteen ministries, including the Ministry of Education, works on strengthening disaster management

⁵ In the WorldRiskIndex (WRI) of 2012, Bangladesh is listed fifth in terms of vulnerability to risk. <http://www.ehs.unu.edu/file/get/10488.pdf> [Accessed 17 February 2014]

⁶ Maplecroft Global Risks Analytics' Climate Change Vulnerability Index 2014. <http://maplecroft.com/portfolio/new-analysis/2013/10/30/31-global-economic-output-forecast-face-high-or-extreme-climate-change-risks-2025-maplecroft-risk-atlas/> [Accessed 17 February 2014]

and risk reduction at all levels by implementing national strategic priorities and plans. Its first phase (2004-9) was concerned with piloting, institutionalizing and professionalizing disaster risk reduction frameworks and approaches while its second phase (2010-14) aims to secure the adoption of risk reduction approaches across the thirteen ministries and to 'channel support through government and development partners, civil society and NGOs into a people-oriented disaster management and risk reduction partnership'. *CDMP II* also aims to strengthen the linkages and synergies between DRR and climate change adaptation (CCA) efforts.⁷ Under a 'Disaster-proofing of development funding' heading the Program commits to incorporating disaster management into school texts, primary to higher secondary following piloting of DRR-related materials, a process to be accompanied by the implementation of training of trainers DRR courses.⁸ Under an 'Urban Risk Reduction' heading it also commits to ensuring the delivery of programs 'to raise awareness on earthquake risks in schools and communities'.⁹

A *Disaster Management Act* enacted in 2012 led to the establishment of the *Department of Disaster Management* with a mandate to strengthen and coordinate DRR and emergency response as undertaken by governmental and non-governmental organizations and, amongst other bodies, academic institutions.¹⁰ The momentum towards comprehensive disaster preparedness is also discernable in a variety of other initiatives. A *Disaster Management Training and Public Awareness Building Task Force*, with civil society and NGO representation, was established in 2011.¹¹ The *National Children Policy* launched the same year (MINISTRY OF WOMEN AND CHILDREN AFFAIRS, 2011) has a section on child protection during and after a disaster. Even more materially for the purposes of this essay, the Bangladeshi *National Education Policy* (MINISTRY OF EDUCATION, 2010, 9) includes disaster preparedness amongst its thirty aims and objectives for national education: 'to build students as skilled human resources to fight the challenges of the world threatened by climate change and other natural disasters and to create in them a social awareness about environment'.

DRR Curriculum Development

The National Curriculum and Textbook Board (NCTB), an autonomous organization under the Ministry of Education, has sole responsibility for translating policy into curriculum through textbook development, pre-primary through grade 12. Since 2004 DRR has been progressively incorporated into some thirty-nine textbooks. In January 2014 the Ministry of Education announced that, with CDMP financial and technical support, disaster preparedness would be integrated into a further ten texts.¹²

NCTB has introduced disaster and climate change-related chapters within the textbooks of a range of subjects at a number of grade levels. Particular favored in this regard are topics with a strong environmental slant under the General Science and Social Science subject areas that cut across the three levels of primary school (grades 1-5), junior high school (grades 6-8) and secondary high school (grades 9-10). Examples of DRR topics and themes included in the textbooks of various subjects are given below:

- *Religion and Moral Studies* (grade 3): earthquakes
- *Bangladesh & Global Studies* (grade 4): disaster and disaster management

⁷ <http://www.cdmp.org.bd/> [Accessed 17 February 2014]

⁸ <http://www.cdmp.org.bd/modules.php?name=Components&AuditID=106> [Accessed 17 February 2014]

⁹ <http://www.cdmp.org.bd/modules.php?name=Components&AuditID=104> [Accessed 17 February 2014]

¹⁰ <http://www.ddm.gov.bd/> [Accessed 17 February 2014]

¹¹ <http://www.dmic.org.bd/dmin/?q=node/442> [Accessed 17 February 2014]

¹² Bangladesh teaches disaster preparedness to reduce risk, IRIN humanitarian news and analysis, 17 January 2014. <http://www.irinnews.org/report/99488/bangladesh-teaches-disaster-preparedness-to-reduce-risk> [Accessed 17 February 2014]

- *Religion & Moral Studies* (grade 4): flood and drought
- *Bangla Language* (grade 5): a poem on cyclones
- *Bangladesh & Global Studies* (grade 5): climate and disaster
- *Primary Science* (grade 5): climate change
- *Social Science* (grade 6): natural disasters in Bangladesh (definitions of disaster, classification of different types of disasters; disaster planning)
- *English Literature* (grade 7): fire as human-induced disaster
- *General Science* (grade 7): floods, river bank erosion, drought in Bangladesh
- *General Science* (grade 8): natural disasters (cyclones and tidal surges), diseases during disasters, prevention measures, warning signals
- *General Science* (grades 9 & 10): objectives of disaster management, cycle of disaster management, national disaster management structure
- *Bengali* (grade 11): disaster prone earth; Bangladesh and the world (different types of natural and human-caused disaster), UN contribution to disaster management; post-disaster management in Bangladesh
- *Geography* (grade 11): rivers and flood control (definitions and effects of flood, flood control, salinity)
- *Commercial Geography* (grade 11): flood control and drainage (floods in Bangladesh, effects of floods, flood control systems, government initiatives in Bangladesh)

(After TAIYEB CHOWDHURY, et.al, 2013, 30; HAQUE, 2013, 325-6; ISLAM, 2010, 4-6)

While Bangladeshi school textbooks have been described as 'rich in the scope of materials covered and their detailed treatment and explanation,' and 'well-written in a manner that can be easily understood by learners' (TAIYEB CHOWDHURY, et.al, 2013, 29), the approach spearheaded by NCTB raises a number of important issues. First, as the above list suggests, there is a clear weighting of available DRR curriculum towards grade 6 and later. This presents a problem given the 'huge drop-out rate' from Bangladeshi schools after grade 5 meaning that as many as half of the student body are not exposed in any depth to disaster themes and topics and to aspects of disaster preparedness (interviewee 1). This speaks to grade 5 being the optimal grade for mature consideration of DRR for a substantial proportion of students and yet it is not addressed at that grade level (interviewee 1).

Teacher latitude in choosing which chapters they will use in already overcrowded textbook compounds the problem of student access to DRR learning. Teachers decide which chapters to read with their class. 'Typically in a book of, say, fifteen chapters, nine or ten will be covered within the school year.' Given that they have received no training in DRR, teachers may well avoid what may be seen as a 'chilly' topic: 'No disaster risk reduction training means no knowledge, meaning they avoid the chapter' (interviewee 1). The same interviewee went on to recall a survey of twenty coastal belt secondary schools in which it was found that eighteen of the schools were not addressing DRR. The problem is perhaps exacerbated by the tendency to often place a DRR chapter late in a book. For instance, the DRR chapters in grade 7, 8, 9 and 10 General Science appear respectively as chapters 24, 25, 21 and 21 (ISLAM, 2010, 5).

Alongside the question of access to DRR curriculum stands the question of vertical curricular progression. The textbook chapters listed above do not convey any sense of considered development and deepening of understanding of disaster risk through the grade levels. There is a lack of sequence and continuity to the disaster-related curriculum content grade by grade. 'There is no consistency and progression, no design, no elementary, intermediate and advanced knowledge steps; the same knowledge is repeated at different grades' (interviewee 1). Opportunities for paving the way for DRR learning in later grades through simple age-related treatment in grades 1 and 2 are not availed of (interviewee 2). Amongst

environmental themes in the curriculum, 'there are themes that are taught at primary level and also found to be continued till the end of the secondary stage. This itself is not necessarily a problem, but there has to be progression in terms of complexity and scope related to maturity and prior knowledge and understanding of students' (TAIYEB CHOWDHURY, et.al, 2013, 32). Interviewee 1 cites the example of the cyclone poem in the grade 5 Bangla language textbook (see above list): 'it is not embedded in DRR understanding; it is just a poem'. Disaster-related topics more or less stand as islands of knowledge disconnected from a framework of DRR learning outcomes each building upon and reinforcing what has gone before. This holds true both through the grade levels and between subjects.

Another way of looking at this problem is to say that information and knowledge as conveyed by the textbooks is organized within the restrictive confines of traditional academic disciplines with an emphasis on what matters to each discipline. The approach is multidisciplinary, i.e. one of applying the lens of a variety of subjects to DRR but falling short of having students consider how the learning from each subject relates to and raises learning challenges within other subjects (SELBY & KAGAWA, 2012, 17). An interdisciplinary approach that looks at the dynamics of human/environment relationships by bringing together disaster learning in the science and social science subjects and combining it with learning and insights from the creative arts, language and mathematics is hard to put in place when learning takes place through textbooks largely built around traditional disciplines (HAQUE, 2013, 327). 'It appears that the Curriculum and Textbook Board and the textbook writers and contributors remain wedded to a narrow and traditional view of a general/liberal education program rather than taking to heart the demands of education for sustainable development' (TAIYEB CHOWDHURY, et.al, 2013, 32).

A further perennial problem with textbook-driven curriculum development is that knowledge-oriented learning outcomes predominate at the expense of other learning outcomes. According to one respondent, the accent within curriculum delivery is on information and memorization of fact. 'Teachers see the best student as the one who can remember the facts, the worst student as the one who can't remember.' Under the new primary curriculum from 2013 the Bangladesh government is seeking to change this but there are resource limitations (interviewee 2). This presents a challenge to DRR curriculum in that disaster risk reduction learning not only calls for knowledge accumulation and the development of conceptual understanding but also for skills building (e.g. critical thinking, coping, self-protection and decision-making skills development) and the fostering of pro-social attitudes and dispositions in the student (e.g. cultivating responsibility for community protection and resilience). Textbook learning, a predominantly sedentary affair, is not best placed for practicing the range of skills and for actively internalizing the range of attitudes and dispositions that DRR learning calls for (SELBY & KAGAWA, 2012, 45-52).

Learning and Teaching Approaches

This brings us to the issue of pedagogy. The *National Education Policy* (2010, 14) lays down that 'teaching methods will be joyful, attractive and learner-friendly' and that 'an interactive learning method will be pursued to develop the creative faculties and skills of children and help them to do exercises through individual or group-work'. This aspiration is reflected in the new curriculum for primary education launched by NCTB in 2013 and in the new textbooks being introduced where there is a new prominence given to learner-centered and activity and games-based learning around topics and themes selected to 'address the needs of real life situations' and to instill 'humanistic values in them as well as broaden their mental horizon' (HAQUE, 2013, 324-7). Against this commendable new orientation stands a history of didactic learning from the textbook that will require a re-acculturation of teachers' habits,

assumptions and expectation to throw off. 'In the Bangladeshi classroom the system is of one-way communication, the teacher as giver, the student as learner. DRR lessons are being received in a passive rather than active way' (interviewee 1). 'There is a lecture-based not skills-based or demonstration-based pedagogy. Teachers facilitating a drama lesson facilitate through lectures; they don't demonstrate drama by using drama. Most of the lessons involve teachers facilitating through lectures. DRR lessons are also like this' (interviewee 2). This issue is of general significance but is particularly germane to the delivery of DRR curriculum with its emphasis on active learning and action-oriented learning. 'Disaster risk reduction education is about building students' understanding of the causes, nature and effects of hazards while also fostering a range of competencies and skills to enable them to contribute proactively to the prevention and mitigation of disaster. Knowledge and skills in turn need to be informed by a framework of attitudes, dispositions and values that propel them to act pro-socially, responsibly and responsively when their families and communities are threatened. A pedagogy that brings knowledge to life, practices skills, challenges attitudes and scrutinizes values is a pedagogy that is active, interactive, experiential and participatory' (SELBY & KAGAWA, 2012, 29).

A succession of UN and non-governmental organizations has worked on curriculum development projects seeking to address DRR through active learning. An early example involved adaptation of materials from outside of Bangladesh and aligning them with the local culture and context. In 2005 the Sustainable Development Resource Centre supported by Action Aid Bangladesh as part of a 'Know Risk–No Risk' campaign adapted a learning kit titled *Let's Learn to Prevent Disasters! Fun Ways for Kids to Join in Risk Reduction* and an accompanying board game, *Riskland* (published under the title *From Riskland to Land of Resilience*). These were the first materials in the Bangla language involving an active learning approach to DRR. In the materials children are asked to share their experiences graphically and through poems and other writing. The kit also includes several games. Teacher training was provided. After initial hesitations, school children received the materials very enthusiastically. 'I found the game entertaining as well as providing useful information to improve our lives,' wrote one; 'I hope we have similar interesting ways of learning every day,' wrote another (UNISDR, 2007, 5-8). While Action Aid sought government endorsement for the inclusion of the kit in the curriculum of primary and secondary schools in high-risk areas (UNISDR, 2007, 6), the kit was not mainstreamed.

More recently (2011), *Laily*, an educational animated cartoon on child-based risk reduction in the Bangladeshi context and in the Bangla language has been made available as an output of the 4th DIPECHO Action Plan. Developed by DIPECHO partners in Bangladesh (Action Aid, Concern Universal, Concern Worldwide, Islamic Relief Worldwide and Plan Bangladesh), it demonstrates how children can make a difference in building a culture of safety through risk preparedness.¹³ Bangladeshi research participants attest to the effectiveness and popularity of the cartoon with children. In the same year, Plan Bangladesh's Dinajpur Program Unit used a comic book featuring the character of Laily to convey disaster preparedness messages to children and, through them, families and communities. Following orientation sessions on aspects of DRR for primary teachers, community teachers, volunteers and community resource personnel, the comic book was shared with children, to great excitement, and its messages reinforced through follow-up activities. During 2011 the Laily sessions reached 17,394 students, 2,838 members of children's and community organizations, 303 teachers and 280 community resource personnel.¹⁴ Again, effective and

¹³ <http://videos.yaaya.mobi/wap/watch/EgztBTuMbrs/DIPECHO-Animation-Cartoon-Laily-Bangla-Version.html> [Accessed 17 February 2014]

¹⁴ <https://plan-international.org/where-we-work/asia/bangladesh/what-we-do/our-successes/comic-capers-aid-childrens-disaster-preparedness/> [Accessed 17 February 2014]; <http://oxfamblogs.org/bangladesh/laizu-lightens-up-her-family-with-laily/> [Accessed 17 February 2014]

popular as these pedagogical approaches have proved, they have so far not enjoyed governmental mainstreaming.

Curriculum Localization Issues

Different geographical zones in Bangladesh are affected by different clusters of hazards; for example, drought in the north, cyclones and tidal surges in the south, river erosion and flood in the middle of the country. The question follows as to the advisability and usefulness of a centralized 'one text fits all' approach to DRR curriculum development and textbook production. 'Under the existing centrally managed education system, there is little scope for making education centres at the grassroots responsive and accountable to make the community prepared for disasters early and reduce the risks' (RAJU & SHAHI, 2013). In curricular terms, this problem expresses itself in the weighting given to topics not being calibrated according to their relevance to the locality. Hence, areas not prone to cyclones but prone to drought spend as much learning time on cyclone risk reduction as they do on drought risk reduction although the latter is what is likely to most affect them (interviewee 1). 'The northern part is a non-flooding area but a place of earthquakes, the southern part has floods but no earthquakes but it is the same text for the whole country' (interviewee 2).

Development agencies have sought to localize curriculum. For instance, the 2005 Action Aid and Sustainable Development Resource Centre project, described above, included the adaptation of learning materials to local contexts (UNISDR, 2007, 6). More recently, the Coastal Livelihoods Adaptation Project, an initiative of German Development Cooperation (GIZ) has focused on developing disaster preparedness and management education in primary and secondary schools in five coastal upazilas (districts) in southern Bangladesh. The highly pictorial learning materials focus on local priorities – such as cyclone-warning signals and cyclone-resistant tree planting – and there is a commitment that 'the basic drafts of the books will be validated by the users themselves'.¹⁵

One research respondent recalls that Plan International had, after the massive flooding of 1998, advocated for a localized curriculum based upon context-appropriate, locally needs-based DRR life skills. He judged that governmental reluctance to enact this advice arose in part from cost considerations in that to accept the principle of localization would ramp up the pressure for local language textbooks in areas where Bangla was not the first language, for instance amongst the hill populations of the north of the country. To localize DRR would stir other local demands with cost implications (interviewee 2).

The same respondent points out that where DRR is addressed in school texts there is an assumption that the chapter will come under consideration in a non-disaster context. Given the frequency and intensity of hazard in Bangladesh this, he claims, is an unwarranted assumption and that there needs to be a curriculum for students in the midst of or immediate aftermath of disaster. 'During a disaster most children are traumatized, they have lost homes and belongings, but there is no clear guidance on mitigation curriculum, no special curriculum, from government, no play-based activities to reduce trauma.' He points out that given their experience with facilitating children care centers, temporary learning spaces and other safe havens in the wake of disaster events such as cyclone Sidr (2007) agencies have the experience to provide such curriculum.

Linking Curriculum to 'Whole School in Community' DRR Initiatives

¹⁵ http://www.iucn.org/about/work/programmes/ecosystem_management/disaster/?10583/Disaster-Risk-Reduction-through-school-education-IUCN-and-GIZ-work-together-to-assist-disaster-prone-communities-in-Southern-Bangladesh
[Accessed 17 February 2014]

No examples have been found of student involvement in safe school and school disaster management initiatives or in school/community partnerships for disaster adaptation and mitigation being formally and routinely embedded in the curriculum. This is not to say that children have not been involved in such initiatives. Consortia led by Action Aid Bangladesh (with Concern WorldWide and eleven local NGOs) and Save the Children UK (with Plan International and nine local NGOs) undertook a Disaster Risk Reduction and Preparedness at School Project in 2009 and 2010 involving 1,400 schools in flood and cyclone affected areas and aimed at building primary school resilience to disaster. The school and community-based multi-stakeholder initiatives included active student participation. Students were involved in community vulnerability information gathering, analysis and planning, manual work for resilience building, interactive theatre, setting up weather stations, weather recoding (temperature and humidity) squads, training programs on climate change and natural disaster and as participants in the project evaluation process. 'Children clearly remembered the key preparedness messages from all the initiatives. However, the knowledge and learning was not school-wide as only selected students participated in the process. ...The children from classes four and five were given priority in the process, without creating an institutional system for continuation of the knowledge' (ALAM, et al, 2011, 19-20). The closing evaluation of the project noted that while both consortiums 'involved boys and girls at some stages of vulnerability and subsequent planning, the issues of children were not sufficiently reflected in the plans because of the power dynamics and the cultural norms of rural Bangladesh' (IBID, 31). It recommended that future initiatives should 'adopt child-centeredness as the overarching principle' (IBID, vi).

Student participation in school and community resilience building was also evident in the 2007-12 Education in Emergencies and Post-Crisis Transition (EEPCT) program aimed at improved quality of educational response to emergencies, increased resilience of education service delivery, increased education sector contribution to disaster prediction, prevention and preparedness and the development of evidence-informed policy. Students were involved in: co-curricular Interactive Popular Theatre on DRR involving drama, skits, poems, stories, song and dance; helping compile a Climate Change Database, discussing the latest data and writing stories for a quarterly magazine; participating with teachers and community members in earthquake simulations (UNICEF, 2011, 7-8). An Education in Emergencies pilot capacity building project implemented in 1,000 vulnerable primary schools in ten upazilas and designed to ensure that project schools could continue their educational function in periods of hazard and disaster provided similar opportunities for child participation. These included: drawing and essay competitions; historic profiling of past disasters and generating a list of vulnerability problems requiring priority attention; reviewing draft disaster contingency plans; student (age 8 to 11) focus group discussions on past and current disaster experiences. That said, the project evaluation concluded that in similar future projects 'more children's participation should be ensured along with representatives from the upazila education authority, local government institutions, and local people' (AKRAM, et al, 2012, 261).

The DRR learning opportunities described in the last two paragraphs were not directly linked to the curriculum although children will have drawn upon knowledge and skills acquired in the classroom. The learning opportunities were not open to every child and their availability was dependent on a particular time-limited project or program. A critical question revolves around whether such opportunities – or ones in a similar vein - can become regularly recurring features of a school's DRR curricular provision.

Teacher Capacity

The elephant in the room throughout this section is that of teacher capacity to use a textbook frame more flexibly, or even dispense with the text for periods, and facilitate active

and action-oriented learning that develops in students the life skills and capacities for disaster preparedness and community resilience building. While there are small-scale initiatives to build teacher capacity for participating in short-lived DRR projects and programs, fully-fledged and systematic DRR training of teachers remains to be put in place. DRR is increasingly found in school textbooks but 'DRR issues in the whole training landscape – teaching, monitoring, supervision and leadership training – is not addressed with importance. In consequence, teachers don't give it importance because of lack of training' (interviewee 2). The absence of an integrated, project and activity-based approach to learning and teaching in Bangladesh is ascribed in one study to, amongst other things, the lack of experienced, well qualified and trained teachers, the lack of teaching aids and inadequate provision of teacher training (TAIYEB CHOWDURY et al, 2013, 32). Systematic in-service and pre-service training in facilitative DRR teaching that places a premium on participatory learning, that involves the exchange of insights between different subjects, that fosters the skills and dispositions for disaster preparedness as well as building disaster-related knowledge and understanding, and that takes the learner out of the classroom to engage with the 'real life' concerns and experiences of the community looks to be a priority.

Box 1: DRR Curriculum Development in Bangladesh: Synthesis

- ✓ DRR is increasingly embedded in school textbooks but the problem of student access to DRR curriculum remains because of significant levels of drop out from school after grade 5 and teacher avoidance of disaster-related chapters given their lack of DRR training
- ✓ Cross-curricular integration of DRR is not happening and progression through the grades of DRR learning and learning outcomes is more or less absent
- ✓ DRR learning focuses on facts and memorization, not skills or attitudes
- ✓ Although some excellent active learning materials are available, the predominating pedagogy is frontal (lecture) style teaching
- ✓ The centralized 'one text fits all' approach to curriculum is poorly calibrated to meet the diversity of hazard in different parts of the country
- ✓ While there are excellent project-based examples of student involvement in safe school and school/community resilience-building initiatives led by development agencies, such involvement has, so far, not been systematically embedded in the formal school curriculum
- ✓ While small-scale teacher capacity building in facilitating DRR curriculum has happened, there is no systematic pre-service and in-service DRR training provision

Cambodia

In terms of disasters, Cambodia is held to be the eighth most disaster-prone country in the world, experiencing 'almost all types of hydro-meteorological hazards such as flash and riverine floods, droughts, heavy storms (or typhoon), dry spells, fire incidents, epidemics, and occasional industrial disasters' (KINGDOM OF CAMBODIA, 2013). It is a 'disaster hotspot' (IBID). In the twenty-year period from 1993 to 2012 floods caused the greatest number of

fatalities and the greatest economic damage.¹⁶ Of Cambodia's land surface, 85% lies within the lower Mekong basin where the regularity of flooding is becoming 'almost an annual scourge' as climate change sets in.¹⁷ As extreme weather hazards follow one upon another in some areas, opportunities for recovery consequently diminish.¹⁸ Floods and typhoons have seriously affected the education sector through damage to school buildings, death and injury to students and teachers, restriction of access to schools and disruption of teaching programs (ADPC, 2010).

Governance and Policy Context

Cambodia has responded to the increased frequency and intensity of hazard in a systematic fashion. A National Committee on Disaster Management (NCDM) was established in 1995, a *National Disaster Management Plan* formulated in 2001 and a *Strategic National Action Plan for Disaster Risk Reduction 2008-2013* (SNAP) developed through a government-led participatory process (KINGDOM OF CAMBODIA, 2008). SNAP synthesized existing government policies and strategies notably the *National Strategic Development Plan 2006-10* and the 2006 *National Adaptation Program of Action for Climate Change* (IBID, 3). Two of the six DRR components of SNAP carried implications for the education sector. Component 5 (mainstreaming DRR into policies and programs of relevant government departments) enjoined the Ministry of Education, Youth and Sports (MOEYS) to proceed with the 'incorporation of disaster risk management and risk reduction into school curricula' (IBID, 16) while Component 4 (use knowledge innovation and education to build a culture of safety and resilience) called for the promotion of 'DRR education and training' (IBID, 10).

A further far-reaching policy and framework development with significant curriculum implications has been the progressive integration of DRR and climate change adaptation (CCA) initiatives. As the *National Action Plan for Disaster Risk Reduction 2014-2018* acknowledges: 'climate change has already increased the frequency and intensity of floods, storm and drought, and creates new hazards such as sea level rise and salinity intrusion on the coast' (KINGDOM OF CAMBODIA, 2013, 12). While the *National Adaptation Program of Action for Climate Change* made relatively little of the need for public awareness raising in general and climate change education in particular (KINGDOM OF CAMBODIA, 2006), a sea change in opinion has been unfolding in which, first, education is seen as a vital component part in promoting CCA and, second, climate change education and DRR education have come to be perceived as inextricably bound together. 'In Cambodia, civil society organizations and non-governmental organizations have been advocating DRR and CCA integration for years but the government has been reluctant to add more new content to the crowded curriculum. The government now likes the idea' (interviewee 5). The same research participant reports that, commencing October 2014, the Department of Curriculum Development within MOEYS intends to review the national curriculum with a view to integrating DRR and CCA as one in the curriculum. In this process development agencies are to be consulted (interviewee 5).

Another significant development has been the drafting of the *Cambodian Law on Disaster Management*. Long awaiting endorsement by the Council of Ministers¹⁹, the law acknowledges different levels and kinds of disaster risk in different parts of the country and hence the need for decentralization to sub-national level. It also acknowledges the

¹⁶ [http://www.emdat.be/result-country-profile?disgroup=natural&country=khm&period=1993\\$201](http://www.emdat.be/result-country-profile?disgroup=natural&country=khm&period=1993$201) [Accessed 17 February 2014]

¹⁷ <http://www.phnompenhpost.com/national/temperatures-rise-floods-increase-cambodia-report> [Accessed 17 February 2014]

¹⁸ [http://www.adpc.net/dms/dms_files/WFP\(5\).pdf](http://www.adpc.net/dms/dms_files/WFP(5).pdf) [Accessed 17 February 2014]

¹⁹ We have to hand September 2010 and November 2011 final drafts. The final draft is still awaiting ratification (interviewee 5).

importance of involving development agencies and civil society organizations in capacity building for DRR. While there is no direct reference to school curriculum, the law enjoins the National Disaster Management Council to 'promote education, dissemination and public awareness on hazards, vulnerabilities, risk levels, strategies, measures' (Article 38). (KINGDOM OF CAMBODIA, 2011)

Strategic Component 3 of the *National Action Plan for Disaster Risk Reduction 2014-2018* ('development and use of innovation and knowledge to build resilience') reaffirms that 'education plays a vital role in promoting a culture of prevention'. Achieving disaster resilience through 'the inclusion of DRR [in] the curriculum of all grades of primary and secondary schools' is identified as a key educational objective (KINGDOM OF CAMBODIA, 2013, 23-4, 30).

Cambodia has also entered into DRR regional arrangements. Amongst these is membership of the Regional Consultative Committee on Disaster Management (RCC), an initiative of the Asia Disaster Preparedness Center and involving the heads of national disaster management from 26 countries in Asia and the Pacific Region (RIQUET, 2013, 15).²⁰ It was out of an RCC initiative that Cambodian DRR curriculum development began in earnest.

DRR Curriculum Development

The Mainstreaming Disaster Risk Reduction (MDRD) Education Project, Phase 1, 2006-8, marked the first significant curricular response to DRR in the Cambodian education system. There was 'no major educational program or curriculum related to DRR in Cambodia before this project' (ADPC, 2008a, 19). The Project was the Cambodian arm of a three-country initiative of the RCC to integrate DRR in the secondary school curriculum, the partner countries being Lao PDR and the Philippines. The RCC is an initiative of the Asian Disaster Preparedness Center (ADPC). Each country opted to integrate DRR into the lower secondary school curriculum; Lao PDR and the Philippines into Science and Social Science at grade 7; Cambodia into Geography and Earth Studies at grade 8. The Cambodian project involved close cooperation between NCDM and MOEYS with support from UNDP, the Ministry forming a Project Technical Working Group who drafted the study modules and attendant materials. The piloting took place in school year 2007-8 in ten pilot schools in four districts within four flood prone provinces chosen by government according to 'perception of risk and priority'. Teachers from the schools underwent training and some 447 students were taught the pilot module (IBID, 13, 19, 24). The field-tested materials were integrated into chapters of the standard grade 8 Geography and Earth Studies textbooks and so mainstreamed. An additional student textbook covering a range of hazards was produced (IBID, 19), as was a *Teacher's Manual* giving details of lesson timings, resources required, teaching methods and student activities (MOEYS, 2008). Both documents are available to all schools.

DRR lesson topics that, as a result, became part of the grade 8 Geography curriculum, some focusing broadly on Asia and others focusing on countries other than Cambodia but, strangely, not on Cambodia itself, include: flood impacts and preparedness; coastal and river flooding and child protection; flood types and risks; flood disasters; acid rain; flood risk, deforestation and reforestation; flood mitigation measures; school flood mitigation measures; starvation caused by floods and drought. DRR lesson topics that became part of the national grade 8 Earth Studies curriculum are as follows: sea flooding; earthquakes; hurricanes; volcanic eruptions (MOEYS, 2008).

The avoidance of a Cambodia-specific focus is interesting given the MDRD Project's emphasis on a 'local flavor to the curriculum' (ADPC, 2008a, 11). A further point to note is that the

²⁰ Bangladesh, Indonesia and Pakistan are also RCC members. See: <http://www.rccdm.net/> [accessed 18 February 2014]

teaching and learning methodology proposed in the accompanying *Teacher's Manual* is for the most part a combination of large group and whole class discussion following the writing of answers in a workbook. Given such modalities, knowledge outcomes clearly predominate over skills development and attitudinal outcomes, something we raised above (p.10) in the discussion of Bangladesh DRR curriculum development.

It is noteworthy that concurrent with the MDRD Project, ADPC circulated a consultative document recommending the integration of DRR in the primary school as the priority: 'The primary sections are the most important to deliver the message of DRR to the students. Students in the primary classes are the most vulnerable to disasters. Of significance is the fact that in Cambodia there is a high drop out rate after primary school. If DRR is not taught at the primary level then a substantial number of potential targets are missed.' (ADPC, 2008b, 43). As with Bangladesh, the weighting of curriculum development towards higher grades means that many children, dropping out of school early, are missing exposure to DRR learning.

When the MDRD Project ended, despite advocacy for its continuance (interviewee 8), the process of mainstreaming DRR curriculum implementation stalled, a survey respondent attributing the delay to 'failure to find a donor to support the budget and lack of technical help'. There has, however, been no pause in curriculum development. Rather there has been a succession of projects producing curriculum materials, learning activities and involving the training of teachers from project schools; also, in some cases, promoting community hazard, vulnerability and capacity assessment activities loosely linked to the school curriculum. Examples include:

- The project leading to the *We Join in DRR* teachers' guide and student booklet (for grades 4, 5 and 6) produced by MOEYS with technical support from Action Aid, Plan Cambodia and the Child Rights Foundation and with financial support by DIPECHO, and launched in June 2008; some 3,000 booklets were distributed annually, 2011-13, by Plan Cambodia to 32 of its own project target primary schools in Siem Reap and Kampong Cham provinces;²¹
- *Before, During and After the Flood* booklets produced by UNICEF for grades 4, 5 and 6 with a countrywide launch of 10, 000 booklets in August 2013 and with Plan International's local partner, the Child Rights Foundation, distributing 700 copies for use in project primary schools in Siem Reap and Kampong Cham provinces;²²
- The piloting, publication and dissemination of the *Understanding Climate Change* booklet and teacher guide for grades 7, 8 and 9, the former by the Ministry of Environment, the latter by MOEYS with technical and financial support from Plan Cambodia and launched in August 2011, with 3,000 copies being published annually by Plan for use in 33 lower secondary schools in Siem Reap and Kampong Cham provinces.²³ The teacher guide, designed to orient teachers on how to mainstream the student booklet into the grade 7 geology curriculum, was launched countrywide in December 2013 accompanied by posters, leaflets and a video clip on climate change. Plan Cambodia also distributed the materials to other DRR/CCA implementing

²¹ The ten lessons include: Lesson 1, natural disasters; Lesson 2, hazards and disasters; Lesson 3, vulnerabilities; Lesson 4, DRR; Lesson 5, awareness raising in the community; Lesson 6, risk mapping in the community; Lesson 7, floods and their impacts; Lesson 8, what to do and not do during a flood; Lesson 9, feelings during a disaster; Lesson 10, other disasters (information from interviewee 5).

²² Information from interviewee 5

²³ <http://www.camclimate.org.kh/index.php/com-phocagallery/documents-and-media/key-facts/22-understanding-climate-change-reference-guidebook.html> [accessed 18 February 2014]; information also from interviewee 5

agencies and also published a series of related booklets oriented towards student action.²⁴

- A project involving Plan International and several other international non-governmental organizations to develop training-of-trainers climate change adaptation materials that, in June 2012, were distributed countrywide to governmental and non-governmental agencies for staff capacity building.²⁵

While the degree of project dissemination in these particular cases looks very promising, issues concerning mainstreaming of project developments remain. 'Regarding the integration of DRR into the school curriculum, it has been essentially project-based targeting a limited number of provinces and it is not yet institutionalized. Despite a clear commitment of MOEYS, there is no budget available for extending DRR integration into curriculum countrywide' (RIQUET, 2013, 35). 'Many non-governmental organizations are project-fixated rather than taking an integrated approach, connecting to government strategically, understanding the subtleties of what takes place in ministries and phasing developments in accord with the national curriculum development cycle' (interviewee 7). When there is advocacy with government it is often 'project driven and not good enough' (interviewee 5).

At the time of writing, national safe school guidelines are ready in final draft and are being prepared for publication by MOEYS. To develop the guideline document, MOEYS formed a Safe School Guidelines Development Task Force consisting of six MOEYS officials and two representatives of the Child Rights Foundation (CRF).²⁶ Under the management of the Task Force a writing committee was established to write the guidelines. To ensure wide agency engagement in the process of guideline development, key agencies (Plan Cambodia, Save the Children, the Child Rights Foundation, and World Vision) joined together to form a Disaster Risk Management in Education Working Group. The Working group has provided technical support to the writing committee and also direct to the Task Force through its two CRF members. The agencies involved are intending to play a key role in the dissemination of the guidelines (KAGAWA & SELBY, 2013, 25-6).

The guidelines, going under the title *Promoting the Safety of Children in Schools* and developed as complementary to 'health, safety and protection of children' dimension of the *Cambodian Child Friendly School Policy* (see p.20) mark a milestone of potentially far-reaching significance in DRR curriculum development in Cambodia.

First, they open the way for the ongoing systematic integration and infusion of DRR into existing school programs as well as the provision of stand-alone courses. 'DRR should continue to be integrated into the curriculum systematically with DRR components available to all age levels, including carrier subjects, with clearly identified learning outcomes' (MOEYS, 2012, 49)²⁷. This, the document explains, can be achieved in three ways after an audit of exiting curriculum has been undertaken. Using *curriculum integration*, DRR can be inserted within 'specific course curricula, at specific grade levels, for a specific duration'. This has 'clear advantages in that the topic has a reserved place in the curriculum where it can be sustained and its richness and local content developed over time'. Using *curriculum infusion*, a more comprehensive approach, DRR themes and issues can be woven into the curriculum wherever opportunity allows using appropriate stimulus material, activities and problems.

²⁴ Information from interviewee 5

²⁵ Information from interviewee 5

²⁶ A national NGO established in 2000 to work for full implementation of CRC in Cambodia through awareness raising and advocacy. Since 2002, it has worked in close partnership with MOEYS on embedding and mainstreaming child rights and child-centered participatory approaches in the Cambodian education system (KAGAWA & SELBY, 2013, 26).

²⁷ The document cited here is the 2012 English version of the guidelines. The final version is so far available only in Khmer but we are reliably informed (interviewee 5) that the 2012 English version remains a reliable source.

The process is one of 'enriching the existing curriculum rather than displacing it'. Using *stand-alone courses*, dedicated program time can also be allotted to considering DRR, especially at high school level. 'However, since these will reach only a tiny number of students these become more meaningful in a context in which the entire school-age population is exposed to a strong foundation in disaster risk reduction' (IBID, 51-2).

Second, they place great emphasis on forging interdisciplinary DRR connections. While natural science and geography make ideal places to begin familiarizing children with hazards and risks affecting their communities, DRR 'should also be appropriately 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 it be built upon systematically throughout the school years.' A 'natural fit' is discerned linking DRR with other cross-curricular themes such as environmental and citizenship education (IBID, 52).

Third, they underline the importance of linking together curricular and co-curricular aspects of DRR learning. A bringing together of the child's DRR learning experiences inside and outside the classroom is proposed under the novel heading of *extra-curricular integration*. Informal education is seen as 'the rapid entry point for disaster risk reduction education' (as against working within an elongated formal curriculum development cycle). It can draw on knowledge, skills and competencies developed within curriculum time by having children share DRR messages with the rest of the school, parents and the community through posters, writing and drama, street theatre, song, dance and puppetry performance. It can take the form of after-school 'safety clubs' and projects, bringing children into contact and dialog with, as well as action alongside, local community and local government. It can be a matter of children forming community partnerships with non-governmental organizations, local government and business. Disaster drills are seen as forming the 'cornerstone' of informal education approaches being especially important in that they involve the whole school community rather than linking to particular parts of the curriculum (IBID, 49-51).

Learning and Teaching Approaches

Against this backcloth of upcoming bold new guidelines but relative failure to mainstream innovation in curriculum and in learning/teaching approaches, a means of circumventing the lack of DRR teaching in the primary school was developed through a 2012/13 collaboration in Koh Kong Province between Save the Children, the MOEYS Curriculum Development Department and provincial and district education officers to develop a manual guiding teachers on how to apply DRR and CCA activities to the teaching of science and social studies textbooks, grades 4 to 6. The *Teachers' Manual* (STC/MOEYS, 2013) takes teachers through a multi-stage process involving:

- *Content Analysis*: analysis of textbook content; identifying existing, available resources in the school library, amongst those with knowledge and expertise inside and outside the community, and in the local natural environment; identifying ways in which students can systematize pre-existent knowledge through investigation of and interaction with local resources;
- *Preparation of Ideas for Learning and Teaching Sequence*: synthesis of lesson content in the textbook with existing, available resources and students' 'entry attributes' (i.e. what they can bring to the learning through their own experiences); developing a learning and teaching sequence to facilitate students in developing tools for data collection, developing an action plan, collecting data and information (from the textbook, the library and other data sources, local people, local places); analyzing

and synthesizing data they have collected; developing an investigation report; using the report, and disseminating findings to other students, the local community and other relevant people;

- *Writing Lesson Plans*: using the hours allotted in the text to make a complete plan going over several lessons; writing lesson outcomes; liaising with the school management team; contacting community members who will be involved in advance; writing action plans for students to collect information, identifying tasks and locations for each learning group; listing role and activities of teacher at each step;
- *Teaching and Learning Activities*: ensuring activities are congruent with desired learning outcomes, linked to daily life and motivating and inclusive; developing activities for students to devise data collection tools, for data collection and analysis, and for report writing (including developing poems and drawings).

The *Teachers' Manual* offers concrete examples of the process in action with photographs and graphics. The approach is distinctive in a number of regards. First, it offers a 'different picture' (interviewee 4) or model of DRR/CCA curriculum development in which, in contrast to the MDRD project (pp.16-17), the emphasis is not on developing disaster and climate change-specific curriculum but rather on demonstrating to teachers how to infuse issues of disaster and climate into the lessons they are already teaching. As such, it aligns with the curriculum infusion proposals of the *Promoting the Safety of Children in Schools* guidelines (pp.18-19). 'Many organizations support the Ministry of Education with reference materials for teaching disaster risk reduction and climate change but even with training teachers don't know how to use and fit them in the learning process. In the primary curriculum DRR does not appear clearly so it is hard to put it into practice especially with the pressure of the curriculum. This project helps the Ministry and teachers reflect on how DRR/CCA can be integrated into the everyday learning process with lesson plans based on investigation, data collection and analysis' (interviewee 4).

Curriculum Localization Issues

A second, and related point is that the STC/MOEYS *Teachers' Manual* implicitly suggests a shift in the locus of curriculum decision-making and design away from the national platform to the local or micro level. It makes teachers the discoverers of local 'windows of opportunity' for bringing DRR/CCA into the curriculum. As such, it suggests a very different form and style of professional development aimed at cultivating the 'reflective practitioner;' that is, a teacher not only able to facilitate children's learning effectively but also able to actively reflect upon, construct and evaluate their curriculum and its delivery with significantly reduced reliance on centrally devised and prescribed texts, manuals and activities; a teacher, too, able to make reflection-informed improvements to their re-teaching of a topic.

This path finding project, while involving the MOEYS Curriculum Development Department, took place in one province and involved a limited number of schools. It has so far not been mainstreamed.

Linking Curriculum to 'Whole School in Community' DRR Initiatives

In 2007 MOEYS launched its *Child Friendly School Policy*, a child-friendly school being defined as 'a school that recognizes and nurtures the achievement of children's basic rights'. Informed by the UN Convention on the Rights of the Child, the *Policy* has six dimensions: access to schooling; effective learning; health, safety and protection of children; gender responsiveness; participation of children, families and communities in the running of their school; national education system support and encouragement for schools to become child-

friendly (MOEYS, 2007). DRR stakeholders in Cambodia perceived that Dimension 3 – ‘To ensure that all children [participating] in education are cared for and supported by all concerned people and institutions to keep them healthy and safe’ – could be widened and deepened by including child protection from natural hazards (KAGAWA & SELBY, 2013, 26). Dimension 5 – to enhance the dynamic relationship and two-way participation between schools and communities – was also seen as opening the door for school/community partnerships for DRR in which children could play a part (IBID). Subsequently, Dimension 2 – to develop teacher proficiencies that promote active, creative and child-centered learning – came to be seen and used as justification for active and action-oriented learning for DRR for stronger skills enhancement.

Plan International’s program, *Strengthening Children’s Voices in Promoting Safe Schools* initiative in Cambodia, China and Indonesia, 2011-13, enshrines this thinking. Undertaken in Cambodia in twelve primary schools in three disaster-prone provinces, the project supported children aged 7 to 12 in learning the basic concepts of DRR, identifying potential local hazards and developing and implementing DRR action plans. In each school, children undertook a hazard, vulnerability and capacity assessment (HVCA) to promote school safety, developed DRR action plans through Children Councils, implemented aspects of their plan, joined the School Support Committee, and received ten lessons on different hazards relevant to the Cambodian context. Underpinning developments was a commitment to the child’s right to protection (CRC Article 20) and the child’s right to participation (CRC Article 12). The project exemplifies a confluence of child-friendly school and DRR imperatives (KHUN, 2013, 97-103).

The soon to be launched safe school guidelines (pp.18-19), *Promoting the Safety of Children in Schools* is based upon the Comprehensive School Safety Framework with its three pillars of school safety: Safe School Environment (Pillar 1); School Disaster Management (Pillar 2); Risk Reduction Education (Pillar 3). As such, it treats of the three pillars as interconnected elements. Curriculum is thus linked to both safe school environment and school disaster management. Safe school construction and retrofitting are seen as learning opportunities for both children and community. School Disaster Management Committees, responsible for carrying out whole-school DRR programs, should involve students as members with a role in ‘awareness raising, mounting exhibitions, writing competitions, debates and dramas’ (IBID, 25, 32).

This holistic framing of DRR in the safe school guidelines (pp.18-19) extends to student participation in school and community hazard, vulnerability and capacity assessment that is seen as ‘an important component of DRR training’. Drawing upon key HVCA toolkits²⁸, the guidelines outline a range of participatory activities, including hazard ranking and mapping, devising seasonal hazard calendars, researching and writing community disaster histories, and developing a school safety plan and school emergency preparedness, response and recovery plans (IBID, 36-48). Throughout there are implicit rather than explicit links made to curriculum. There is further work to be done on optimizing potential synergies between curriculum and the other two pillars of the Comprehensive School Safety Framework.

Teacher Capacity

²⁸ PLAN INTERNATIONAL. 2010. Child-centred Disaster Risk Reduction Toolkit: <http://plan-international.org/about-plan/resources/publications/emergencies/plans-child-centred-disaster-risk-reduction-toolkit/> [accessed 18 February 2014]; SAVE THE CHILDREN. 2012. Child-led Disaster Risk Reduction: A Practical Guide: <http://resourcecentre.savethechildren.se/library/child-led-disaster-risk-reduction-practical-guide-part-2> [accessed 18 February 2014]; ADPC. 2007. Child-oriented Participatory Assessment and Planning: a Toolkit: http://www.gdonline.org/resources/ADPC_CDP_COPRAP_toolkit.pdf [accessed 18 February 2014]

Another issue is the absence of systematized, institutionalized in-service and pre-service teacher training with training happening as an element of project implementation but neither sustained nor taken to scale. Within DRR and CCA curriculum development initiatives there is good evidence of child-centered learning but these remain islands within a wider landscape of 'lecture type' lessons (interviewee 7). Concern in this regard extends to child-friendly schools. 'Before the child-friendly school, children copied into their notebook from the blackboard. When the government introduced the child-centered learning approach, it just became children sitting in groups. The child-centered learning process is more active and interactive but children learn based on the textbook only and answer questions from the textbook. Child-friendly schooling has too much of a textbook reliance; there is lack of an outcomes-based approach' (interviewee 4). The soon-to-be-published safe school guidelines for Cambodia (pp.18-19) acknowledge that the quality and volume of training teachers receive needs to be improved if they are to facilitate a learner-centered classroom and develop strategies for incorporating DRR into curricular and co-curricular learning activities. 'Although good progress has been made in working with schools to incorporate DRR and CFSP²⁹, teachers need more support in developing curriculum material and effective integration of these topics into formal curriculum as well as non-formal and extra curriculum approaches with communities. Education materials that can be shared, re-used and adapted should be developed and tested for effectiveness. Teachers would benefit from learning from the experience of other teachers, particularly what has worked well and ideas on how to improve DRR lessons' (MOEYS, 2012, 53).

Referring to DRR and CCA primary and secondary curriculum policy developments and frameworks put in place over recent years, one research participant reflected that: 'We now have a good car but not a good driver. My concern is about how teachers are going to facilitate the learning process' (interviewee 4).

Box 2. DRR Curriculum Development in Cambodia: Synthesis

- ✓ A thoroughgoing policy framework for DRR curriculum development has been put in place
- ✓ DRR has been mainstreamed into the national grade 8 Geography and Earth Studies curriculum but not elsewhere leaving the likelihood that the many students dropping out of school before lower secondary level do not receive any DRR education
- ✓ There has been a series of innovative curriculum development projects reaching out to an impressive number of schools but that have fallen short of being mainstreamed
- ✓ National safe school guidelines are close to publication offering, budget allowing, real leverage and purchase for advancing the systematic mainstreaming of integration, infusion and interdisciplinary approaches to DRR, as well as stand-alone, dedicated programs
- ✓ A recent MOEYS-backed project offers the prospect of local and school-based curriculum development through teacher capacity building
- ✓ While there are excellent project-based examples of student involvement in safe school and school/community resilience-building initiatives within the national child friendly schools framework and through development agency projects, such involvement has, so far, not been systematically embedded in the formal school curriculum

²⁹ Child-friendly School Policy

- ✓ While teacher capacity building is happening through the agency of the national child-friendly school initiative and through discrete DRR curriculum development projects, there is no systematic pre-service and in-service DRR training provision

Indonesia

Indonesia is the world largest archipelagic nation situated in a geographically, geologically, hydrologically and demographically disaster-vulnerable zone. Located at the meeting point of the Eurasian, Pacific and Indo-Australian tectonic plates, Indonesia is prone to geo-seismic hazards such as earthquakes, tsunamis and landslides. There are more than 500 volcanic mountains with 128 still active. Its geographical location is also marked by dynamics of weather and fluctuations of climate that make the country prone to thunderstorms, tropical cyclones, the effects of El Nino and La Nina, drought, floods and landslides. Combined with climate change impacts, increasing population density, rapid urbanization and poverty, Indonesia presents a high level of disaster risk (MINISTRY OF NATIONAL EDUCATION, 2010; PLAN INDONESIA, undated).

Governance and Policy Context

The devastating 2004 Indian Ocean tsunami and the Indonesian government's commitment to HFA led to the enactment of *Law number 24 year 2007 concerning Disaster Management*. The law marks the foundations of DRR in Indonesia by encapsulating a paradigm shift from a relief and rehabilitation emphasis to holistic disaster management. It mandates that DRR become part of the development process, with a role for the education sector. The *National Agency for Disaster Management (BNPB)* and *Regional Disaster Management Agencies* were established as a result of the law.³⁰ The law clearly states that every citizen has the right to 'have education, training and skills in disaster management' (BNBP, 2009, Article 26). *Government Regulation number 21 year 2008 concerning Disaster Management* states that formal, non-formal and informal education and training need to be provided 'in the forms of basic, secondary, technical, simulation, and rehearsal training programs' by the national and regional governments (BNPB, 2008, Article 14).

In examining the opportunities and challenges presented by DRR integration into school curricula in Indonesia, it is important to highlight the devolution of governmental institutions that has been in train since 1999, with the decentralization of the education system including school curricula happening since 2000. Mandated through *Law No.20/2003 regarding the National Education System*, the Education Unit Curriculum (KTSP), which is a competence-based curriculum, was introduced in 2006 through the *National Education Minister's Regulation (No. 22/2006)*. KTSP provides a significant level of autonomy and flexibility to each school to develop their own operational curriculum by taking the needs of the school and the surrounding local context into consideration. Schools can develop and adopt their own syllabus, lesson plans, teaching materials and pedagogical and assessment methodologies within the framework of national guidelines and policies (PANDEY, 2007; PUTRAWIDJAJA, 2008). The new national curriculum called Curriculum 2013 has been introduced since the 2013/2014 academic year in some 6000 schools and it is anticipated that it will be implemented throughout the country by 2015.³¹ Since 1994, the Indonesian school curriculum has included local content curriculum as an independent subject with an allotment of 20% of the curriculum (PUTRAWIDJAJA, 2008).

³⁰ BNPB was established in 2008. Provincial Agency for Disaster Management was established in all 33 provinces and 387 District Agencies for Disaster Management were established out of total 497 districts (KAGAWA & SELBY, 2013).

³¹ <http://cogitasia.com/by-the-numbers-indonesias-new-school-curriculum/> [Accessed 17 February 2014]

In Indonesia there have been numerous DRR education programs and initiatives at school level in the form of teaching and learning materials development, teacher training, advocacy and campaigning, and school road shows of simulation drill activities by the government, non-governmental organizations, and national and local educational institutions over the years.³² In the wake of the 2004 Tsunami, increased realization that there should be more effort to coordinate, synthesize, synergize and institutionalize activities and materials for DRR learning and teaching led to the creation of the Consortium for Disaster Education (CDE) in 2006. CDE is a networking organization consisting of some 60 member organizations including UN Agencies, governmental agencies, NGOs, INGOs, CSOs, and universities which are engaged in implementing school-based DRR in Indonesia. CDE's mission 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 to DRR education.'³³ As a way to synergize the existing good practice, approaches, tools and methods developed by its members³⁴, CDE developed a *Framework of School-based Disaster Risk Reduction* in 2006, further elaborating it as a *Framework of School-based Disaster Preparedness* in 2012. The CDE framework is underpinned by values such as empowerment, basic human rights, partnership, local wisdom and inclusivity. It is also underpinned by principles that include the 'interdisciplinary and comprehensive' (i.e. DRR learning in all existing subjects), 'intercultural communication' (i.e. interaction and communication among people from different cultural backgrounds), 'action-oriented', 'relevance to local condition' and 'participatory' (CDE, 2012, 17-18). CDE has been influential in forming the Indonesian DRR curriculum integration landscape as described below.

The establishment of a national *Strategy for Mainstreaming Disaster Risk Reduction in Schools* in 2010 is one of the key milestones on the road to DRR curriculum integration initiatives in Indonesia. In response to the above-mentioned legal mandate (Law No.24/2007) and the 2007 Presidential Instruction to the Ministry of National Education and Ministry of Home Affairs to mainstream DRR into school intra- and extra-curricular activities, the Ministry of National Education led the process of DRR education strategy development supported by the *Safer Communities through Disaster Risk Reduction (SC-DRR) in Development Project*.³⁵ The first stage - drafting, refinement and consultation - of *Strategy* development was primarily undertaken by a task force established by the Consortium for Disaster Education. The second stage - refinement and consultation - was conducted by a cross-sectorial task force led by the Directorate General of Primary and Secondary Education of the Ministry of National Education and including the Ministry of National Education, BNPB, the Ministry of Religious Affairs, the Ministry of Health, the Indonesian Science Institute (LIPI), the Ministry of Environment, the Research and Technology Ministry, the Ministry of Energy and Mineral Resources and the National Education Commission for Indonesia-UNESCO. The strategy draft was finalized in 2009 following public consultation involving educational representatives from provincial and district levels (ARBON, 2011; SARDJUNANI & HADI, 2010).

The *Strategy* is intended to serve as 'a guide and/or reference for policy makers and school administrators (principals, teachers and school committees) in preparing disaster risk

³² http://www.unicef.org/eapro/Indonesia_Country_Paper_Beijing-2010.pdf [Accessed 17 February 2014]

³³ http://www.preventionweb.net/files/4019_FrameWorkingFeb2207.pdf [Accessed 17 February 2014] ;

http://www.preventionweb.net/files/26013_26008aframeworkofschoolbaseddisaste.pdf [Accessed 17 February 2014]

³⁴ They include LIPI, Kogami, UNESCO, YTBI, Indonesia Red Cross, MDMC, ASB, Lingkar and KerLiP (BNPB, 2013).

³⁵ SC-DRR was a Governmental initiative led by the National Development and Planning Agency in collaboration with BNPB, technically supported by UNDP. The ultimate goal of SC-DRR was to ensure a culture of safety to become the norm of Indonesia. SC-DRR was supported by a number of international donors including DFID, AusAID, UNESCAP, ISDR, BCPR UNDP, UNDP Indonesia, IDA-DSF (HILLMAN & SAGALA, 2012).

reduction programmes for elementary and secondary school students' (MINISTRY OF NATIONAL EDUCATION, 2010, vii). It highlights three special objectives for mainstreaming DRR at primary and secondary level: 1) empowering institutional roles and the capacity of the school community; 2) DRR integration into school curricula; 3) establishing partnerships with various stakeholders to support the implementation of both structural and non-structural DRR in schools (MINISTRY OF NATIONAL EDUCATION, 2010, 20). In terms of DRR integration into school curricula, the *Strategy* emphasizes the autonomy of schools, stating that schools 'are given the freedom to choose their own school subjects, learning activities and extra-curricula activities as a basis for integrating the disaster risk reduction according to the local disaster characteristics' (MINISTRY OF NATIONAL EDUCATION, 2010, 23). Box 3 describes three proposed 'models' for DRR integration into school curricula together with some implementation mechanisms.

Box 3. DRR Curriculum Integration into the School Curriculum in Indonesia

a) Integration of DRR education materials into the main school subjects in accordance [with] local disaster characteristics:

- Analysis of competence on every school subject in the Content Standards and Graduation Competence Standards related to disaster risk reduction material/knowledge
- Formulate the syllabus and teaching and learning plan integrating DRR material and knowledge
- [Develop] teaching and learning sessions which integrate disaster risk reduction into the main school subjects and involve students [to be] active and participate during the learning process
- Formulate procedure and assessment techniques related to disaster risk reduction materials

b) Integration of DRR education materials into local content subjects in accordance [with] local disaster characteristics:

- Formulate competence standards and basic competence on disaster risk reduction which will be integrated into the local content
- Formulate the syllabus and teaching and execution plan which integrates DRR with local content
- [Develop] teaching and learning session which integrate disaster risk reduction into local content and encourage the students to be active and participative during the learning process
- Formulate procedure and assessment technique related to integrating disaster risk reduction materials into local content

c) Integration of DRR education materials into the extra-curricula activities in accordance with local disaster characteristics

- [Integrate] the principles of disaster risk reduction into various extra-curricula activities such as boys' and girls' scouts, self-development, self healthcare unit, little doctors and other activities

(MINISTRY OF NATIONAL EDUCATION, 2010, 23-25)

The *Strategy* was integrated into the *Circular Letter of Minister of National Education on Mainstreaming Disaster Risk Reduction in Schools* (No.70a/MPN/SE/2010) dated March 2010, and was sent to all governors, mayors, district heads and education agencies in the country, encouraging DRR implementation at school through the three avenues outlined in *Box 3*. At

the local level, some local authorities recently affected by catastrophic disasters additionally issued Regional Government Regulations or a Mayor's Decree concerning integrating DRR into school curricula (BNPB, 2009).

DRR Curriculum Development

As part of the SC-DRR project (p.24), the Curriculum Center (PUSKUR) of the Ministry of National Education led the process of developing a series of DRR teaching modules on five hazards (tsunami, floods, earthquakes, landslides and fire). A total of 15 modules were developed with one hazard per module being tailored for each of primary, junior high and senior high school levels (ARBON, 2011; HILLMAN & SAGALA, 2012). A teacher guidance module was also developed targeting facilitators and teachers on how to integrate DRR into main school subjects (such as science, social studies, Indonesian language, physical education) and into the local content curriculum as well as into extra-curricular provision. The modules are understood to be a standard reference to enrich school curriculum (ARBON, 2011; interviewee 8).

In addition to the pilot implementation of the modules at three SC-DRR project locations (ARBON, 2011), several provinces and districts and a number of schools have voluntarily implemented the DRR modules. However, there has as yet been no systematic implementation and reinforcement mechanism supported by the Curriculum Centre (interviewee 9). Actual take-up of the modules remains a challenge due to their highly technical content and the very limited range of suggestions for classroom practice. Teachers especially at the primary school level need training to understand the content of the hazard-specific modules and need to be supported in translating the technical information into lesson plans and classroom activities (ARBON, 2011; HILLMAN & SAGALA, 2012).

Another notable DRR formal curriculum integration example is the sample lesson plans developed by the Curriculum Centre of the Ministry of National Education in collaboration with Save the Children: *Samples of Lesson Plans on Integrating Disaster Preparedness into Elementary School Subjects*. This teaching material is organized according to each of the six elementary grade levels. Grades 1-3 are organized thematically. Learning in grade 1 addresses flood and earthquake hazards as well as clean and healthy environments. Grade 2 topics include endemic diarrhea, tsunami, and volcano eruptions. Grade 3 covers the Chikungunya epidemic, forest fires, and landslides. Grades 4-6 address different types of natural hazards, human-induced hazards (such as war, conflict within the community) and the healing of trauma utilizing existing school subjects such as Islamic religion, civic education, mathematics, Indonesian language, science, social science, arts, physical and health education. Teaching activities, syllabuses and teaching implementation plans are also included (MINISTRY OF NATIONAL EDUCATION, 2009).

At the local level, some provinces and districts have advanced DRR curriculum development further than others. For instance, according to the 2013 HFA Indonesian *Local Progress Report* by the Provincial Government of the Special Region of Yogyakarta, 'Many schools have integrated DRR into core subjects as well as extra-curricular subjects.'³⁶ Sleman District Government reports that 'DRR education has been integrated in the school curriculum by making it part of various subjects, such as social sciences, history, and physics.'³⁷

³⁶ [http://www.preventionweb.net/files/31758_LGSAT_5HFA-Yogyakarta-Java-\(2011-2013\).pdf](http://www.preventionweb.net/files/31758_LGSAT_5HFA-Yogyakarta-Java-(2011-2013).pdf) [Accessed 17 February 2014]

³⁷ [http://www.preventionweb.net/files/31756_LGSAT_5HFA-Sleman\(2011-2013\).pdf](http://www.preventionweb.net/files/31756_LGSAT_5HFA-Sleman(2011-2013).pdf) [Accessed 17 February 2014]

In Indonesia, extracurricular activities are semi-mandatory at school. DRR learning, consciously or not, has been widely included in activities such as scouting (from the elementary to the senior high school level) and Youth Red Cross (at the junior high and senior high school levels) (interviewee10). The Minister of Education and Culture has recently emphasized the importance of integrating disaster mitigation into extracurricular activities.³⁸

Learning and Teaching Approaches

There are examples of supplementary teaching and learning materials developed by development agencies. Focusing on six of the most common hazards in Indonesia, UNESCO Jakarta Office developed the *Folding Picture Kit* (12 pictures explaining what to do before, during and after a natural disaster to be used for small group discussion) and *the Disaster Master*, a board game helping junior and senior high school students to understand disaster concepts as well as what actions to take to reduce disaster risk (UNESCO, 2007). The 2010 UNESCO education package under the title of *Earthquake Preparedness Program for School* consists of two booklets for teachers and one booklet for students at the primary school level. The package is primarily oriented towards earthquake preparedness but also addresses multi-hazard preparedness. It employs a 'fun, attractive and dynamic' methodology using exercises, experiments and simulations.³⁹ Plan Indonesia has developed a primary school level booklet on school-based risk reduction (*Module on Integrating Disaster Risk Reduction for Teachers*) focusing on hazard information and actions to reduce disaster risks. It uses discussions, observations and mock drills among other activities. Plan has also developed a teacher booklet on disaster preparedness for early childhood level (*Module on Disaster Preparedness for Early Childhood: A Guide for Early Childhood Teachers*). It employs games, storytelling and traditional songs. Endorsed by the Ministry of Education and Culture, this early childhood DRR teaching material is to be widely distributed across the country by the Ministry.⁴⁰

Curriculum Localization Issues

A main challenge for DRR curriculum integration efforts in Indonesia is to translate the comprehensive national strategy into something manifestly concrete at the local level and to ensure school level implementation. The 2011-2013 HFA *National Progress Report* points to: 'the lack of coordination among concerned agencies from the national down to the local levels'. It highlights the importance of renewed government commitment in advocating further DRR integration into school education and also the capacity building of district governments as the actual service providers (BNPB, 2013b, 19).

An autonomous Indonesian education system enables each school to develop their own DRR curriculum creatively by taking locally specific natural disaster challenges into consideration. However, in reality, a majority of schools largely lack the human, financial and technical capacities to take advantage of such an opportunity (interviewee 9; MPBI, 2008). A survey respondent highlights the implementation challenges: 'DRR curriculum is complicated.... Since the Indian Ocean Tsunami in Aceh in 2004, many INGOs mainstreamed the DRR curriculum in the existing regular curriculum and failed. It requires a lot of resources which the government is not ready yet to provide, e.g. additional costs, additional human resources,

³⁸ The national newspaper (KOMPAS), 4 February 2014. Information supplied by interviewee 9.

³⁹ http://portal.unesco.org/geography/en/ev.php-URL_ID=9588&URL_DO=DO_TOPIC&URL_SECTION=201.html [Accessed 17 February 2014]

⁴⁰ Information supplied by interviewee 9.

trainings for teachers and schools for structured DRR learning, evaluation.... Indonesia has about 500 districts, 75,000 villages (primary schools are mostly available at the sub-village level) thus training for teachers is never easy' (Survey respondent, NGO personnel, Indonesia).

In order to close the implementation gap, agencies such as Save the Children and Plan Indonesia have been supporting DRR module development at the local district level but they are working with only a small number of districts. Effective mechanisms for scaling-up and dissemination need to be developed. In provinces where there is a greater concentration of development agencies operating and where local governments are more aware of disaster risks (e.g. Yogyakarta and West Sumatra Provinces), DRR curriculum integration has progressed more vigorously (interviewee 9).

The sustainability of DRR curriculum development support afforded by development agencies is also an issue. For instance, one survey respondent wrote: 'Because of limited project duration, most development agencies do not have long project activities to support DRR curriculum development activities and advocacy'.

Linking Curriculum to 'Whole School in Community' DRR Initiatives

In Indonesia, safe school and DRR curriculum integration initiatives are closely linked at the national guideline/strategy level and advocacy efforts have been complementary. The safe school/madrasah movement has rapidly gathered momentum since the One Million Safe Schools and Hospitals campaign launched in 2010 in Jakarta as part of a UNISDR global advocacy initiative. The campaign was led by the Ministry of National Education, the Ministry of Health, the Ministry of Public Welfare and BNPB and was supported by a number of other governmental agencies, private sector entities, UN agencies, CDE and the Indonesian National Platform for Disaster Risk Reduction. A range of good practices and policies on DRR school activities in Indonesia were then synthesized into *Regulation No.4/2012 on Implementation Guidelines of Safer School/Madrasah from Disaster*, which was enacted by the Head of BNPB in 2012. A significant number of stakeholders from governmental, non-governmental and the general public (including children) were involved in the development of the guidelines through multiple consultative forums, arenas and approaches (KAGAWA & SELBY, 2013). The guidelines embrace both structural components (i.e. safe location, safe construction, safe classroom set up and design, safe facilities and infrastructure) and non-structural components (i.e. improving knowledge, attitudes, taking action, safe school/madrasah policy, preparedness planning and mobilization of resources). CDE's school-based DRR framework was integrated into the non-structural section of the *Guidelines*. Values and principles which CDE has been advocating – empowerment, a participatory and action orientation, a rights-based approach, partnerships (including with children) have also become an integral part of the *Guidelines*. There is an emphasis on the importance of fulfilling child rights and ensuring active child participation in their implementation. The safe school/madrasah initiative is a part of a national *Strategy for Mainstreaming Disaster Risk Reduction in Schools* (BNPB, 2013a).

There is little evidence of actual comprehensive implementation of DRR in Indonesian schools linking children's classroom experience and their engagement with safe school initiatives and community efforts to adapt to and mitigate risk. DRR learning is 'still not comprehensive' (interviewee 10) as it only emphasizes classroom activities or extracurricular activities. The connections made between the extra-curricular DRR involvement of students and what they learn in the school curricula is left up to schools. Schools, assisted by CDE's NGO members, however, use the more comprehensive approach predicated on CDE frameworks (p.24) (interviewee 10).

Something of an exception is provided by Plan International's *Strengthening Children's Voices in Promoting Safe Schools* project (2011-2013). Based on Plan's concept of Child Centred Disaster Risk Reduction (a participatory rights-based approach to safe schools), the project involved 30 target schools where grade 3, 4 and 5 students worked in groups on hazard, vulnerability and capacity surveys and developing hazard maps identifying vulnerabilities and evacuation routes (KAGAWA & SELBY, 2013, 130-2). Children's surveys and maps were shared with adult members of the community who conducted their own surveys and drew their own maps. Surveys and maps were compared and contrasted. Children were also actively engaged in assessing hazard threats, vulnerabilities and capacities at school, including determining evacuation routes and rallying points for classes as part of school action plans (PARDEDE, 2013, 110-13). What is not clear is the degree of overlap, if any, with the formal curriculum.

Teacher Capacity

The low capacity of teachers who are often poorly trained and have a very limited range of pedagogical approaches in their repertoire is significant issue for DRR curriculum implementation (UNISDR 2007; HILLMAN & SAGALA, 2012) when they are expected to facilitate DRR learning in 'an effective, fun and contextual manner' and also to 'support and encourage students to develop their own potentials optimally by providing life skills on disaster risk reduction' (MINISTRY OF NATIONAL EDUCATION, 2010, 28). The use of active and child-centered pedagogies for DRR learning in the classroom is very much limited. DRR teaching in Indonesia generally remains teacher-centered (interviewee 8).

Box 4. DRR Curriculum Development in Indonesia: Synthesis

- ✓ The decentralized and autonomous education system in Indonesia means that DRR education initiatives are diverse and implementation is left up to each school.
- ✓ The national DRR education strategy and safe school guidelines are mutually reinforcing milestones but systematic implementation and reinforcement remains a challenge.
- ✓ There are active national platforms for DRR education and safe school involving development agencies.
- ✓ It is up to schools to make a link between DRR classroom learning and extra-curricular and community-based DRR learning and the links are not generally being made
- ✓ Schools and teachers have so far not taken full advantage of DRR curriculum opportunities to address locally specific hazards and vulnerabilities
- ✓ While small-scale and time-bound school-based DRR curriculum development initiatives exist, the scaling up and sustainability of initiatives remains a challenge
- ✓ There is no systematic pre-service and in-service DRR training provision

Pakistan

Pakistan is a physically diverse country and prone to a wide range of natural and human-induced hazards. Northern mountainous areas face snowstorms, avalanches and glacial lake outburst floods (GLOF). The southern and western parts of the country often suffer acute

droughts. The coastal areas are prone to cyclones and tsunamis. Floods and earthquakes affect all parts of the country. Floods are seasonal and occur annually. In recent years, major floods have occurred with increasing frequency. More than 50 percent of the population lives in a seismically active area. Pakistan is also affected by civil unrest and violent conflict.⁴¹ Climate change threatens to alter monsoon and rainfall patterns further and more severe and less predictable floods and droughts are expected. The devastating 2005 earthquake in Azad Jammu, Kashmir and the North-West Frontier Province became a wake-up call for the Government to move from an emergency response paradigm to devoting more attention to prevention, mitigation and preparedness (GOVERNMENT OF PAKISTAN, 2013).

Governance and Policy Context

Further to the 2006 *National Disaster Management Ordinance*, the National Disaster Management Commission (NDMC), a policy-making forum, was established in 2007 as was its implementation, coordination and monitoring arm, the *National Disaster Management Authority* (NDMA). Provincial and district disaster management agencies (PDMAs and DDMA's respectively) were established in the same year.⁴² The *National Disaster Risk Management Framework* (NDRMF) of 2007 highlights 'training, education and awareness' as one of nine priority areas. NDRMF states that disaster risk management education is required in multiple sectors at all levels and 'enhancement of knowledge and skills of students would also be pertinent in order to enable future generations to deal with disaster risk reduction.'⁴³ One of the strategies is for the NDMA and the PDMAs to 'work with the Ministry of Education to integrate [a] disaster risk management component in school, college and university syllabus[es]'⁴⁴(National Disaster Management Authority, 2007). In 2013 the NDRMF evolved into the 2013 *National Disaster Risk Reduction Policy* (GOVERNMENT OF PAKISTAN, 2013). Covering both 'natural and man-made hazards', the policy provides an overall guiding framework for addressing disaster risks in Pakistan. 'Providing DRR education in schools and colleges' is one of the policy intervention areas. The policy elaborates this aspect as follows:

The integration of DRR into the education syllabus at all levels should focus upon creating awareness of priority hazards, mitigation or prevention options and building basic self-help and mutual-help capacities through school-based preparedness or safety plans (covering recovery of functionality in a post-disaster situation). School preparedness needs to be linked into wider community-based DRR plans and mechanisms as schools may serve as shelters and safe havens in disaster situations. For better coverage it is important that DRR education is also promoted in private and religious schools. Peer mechanisms are effective in reaching out of school children and youth.

⁴¹ http://unesco.org.pk/documents/2013/ndm_School-Safety-Action-Plan.pdf [Accessed 17 February 2014]
; <http://www.dec.org.uk/sites/default/files/files/Evaluations/Pakistan/DEC%20Pakistan%20DRR%20Report.pdf> [Accessed 17 February 2014]

⁴² <http://unportal.un.org.pk/sites/UNPakistan/OneUN/DRM%20Documents/NDRM%20Framework%20Pakistan.pdf>
[Accessed 17 February 2014]

⁴³ <http://unportal.un.org.pk/sites/UNPakistan/OneUN/DRM%20Documents/NDRM%20Framework%20Pakistan.pdf>
[Accessed 17 February 2014]

⁴⁴ <http://unportal.un.org.pk/sites/UNPakistan/OneUN/DRM%20Documents/NDRM%20Framework%20Pakistan.pdf>
[Accessed 17 February 2014]

Another national policy bearing upon DRR integration into school curricula is the 2009 *National Education Policy* (MINISTRY OF EDUCATION, 2009). Section 5.5 on 'Education in Emergencies' highlights actions such as: awareness raising among students regarding emergency situations, natural disasters and school safety; inclusion of themes on emergencies, natural disasters and trauma management in school curricula (social studies, geography, languages, literacy, in particular); enabling teachers to address education in emergencies through teacher education and training; maintaining a repository of all emergency related materials pertaining to education at teacher training institutions, schools, colleges and universities. As part of curriculum reform (section 6.2), the policy also underlines that a number of emerging trends and concepts such as 'School Safety' and 'Disaster Risk Management' 'shall be infused in the curricula and awareness and training materials shall be developed for students and teachers'.⁴⁵ The 2005 *National Environment Policy* that includes a section on DRR and natural disaster preparedness also has DRR curriculum development implications. It states that 'environmental education would be integrated into all levels of curricula and syllabi from primary to university levels' and that 'the concept of "participatory approaches and practices" would be included in the curriculum of environmental education and training programs' ⁴⁶(MINISTRY OF ENVIRONMENT, 2005).

DRR Curriculum Development

Emerging DRR curriculum integration efforts in Pakistan take place in the context of devolution of governmental institutions introduced by the 18th Amendment of the Constitution. As a result, since June 2011 the Federal Ministry of Education as well as its curriculum wing responsible for formulation and implementation of the national curriculum and syllabuses were dissolved and responsibilities for curriculum development and implementation transferred to the Curriculum Bureau of each provincial government. For the time being, provinces are still implementing the Pakistan National Curriculum introduced in 2006, but each Curriculum Bureau will start to modify the curriculum to address the education needs of the provinces.⁴⁷ According to the HFA *National Progress Report (2011-2013)*, the NDMA in coordination with the province is developing a comprehensive strategy to integrate DRR into education.⁴⁸

In terms of the state of DRR curriculum development in Pakistan, half of online survey respondents from the country think it is 'limited', while the other half holds it to be 'non-existent'. One research respondent (interviewee 11) explains that DRR learning for children and young people takes place in 'isolated pockets' meaning that DRR teaching is offered irregularly in informal education. According to another (interviewee 12), 'DRR integration at primary and secondary levels is very weak and just present in policies'. However, 'the impact of the earthquake in 2005 and successive floods in 2010-2012 raised serious concerns among development partners (donors, UN agencies, NGOs and civil society) about the need for DRR education. Many development agencies have come together to look for ways and take initiatives to promote education on DRR. The limited learning resources developed are mostly the result of initiatives of these development agencies' (survey respondent, UN officer, Pakistan).

UNESCO Islamabad working with its partner organizations plays a role in mainstreaming DRR into school curricula. Further to the 18th Constitutional Amendment, it is particularly focusing

⁴⁵ <http://unesco.org.pk/education/teachereducation/files/National%20Education%20Policy.pdf> [Accessed 17 February 2014]

⁴⁶ <http://www.environment.gov.pk/nep/policy.pdf> [Accessed 17 February 2014]

⁴⁷ <http://www.economic-review.com.pk/may-2013/decentralisation-of-education-under-the-18th-amendment> [Accessed 17 February 2014]

⁴⁸ http://www.preventionweb.net/files/28894_pak_NationalHFAprogress_2011-13.pdf [Accessed 17 February 2014]

on the capacity building of the Curriculum Bureau of Provincial Education Departments.⁴⁹ As one of UNESCO's initiatives, the 2006 National Curriculum, which includes student learning outcomes (SLOs) for all grades in every subject⁵⁰, has been analyzed by experts in order to identify possible entry points for DRR curriculum integration. There are windows of opportunities within SLOs of subjects such as social studies, general science, mathematics and English at different grade levels (BAZAI, 2013). For instance, in grades 9 and 10 of General Science DRR-relevant SLOs are identified under subject content themes such as 'chemistry and life', 'population and environment', 'energy sources', 'biotechnology', 'water resources', 'environmental problems and management'. Under 'environmental problems and management' some examples of SLOs relevant to DRR include:

- Identify the regional and global environmental problems such as ozone depletion, global warming, acid rain, greenhouse effects, desertification and climate change, solid and hazardous wastes
- Describe the natural disasters caused by earthquakes, storms including El Nino and La Nina
- Identify the legislation or law on environmental problems such as ozone depletion, global warming, air pollution, water pollution, drinking water quality and toxic substances.⁵¹

Learning and Teaching Approaches

There have been a number of initiatives to develop DRR teaching and learning resources on the part of development agencies especially during past three years (interviewee 11). For instance, UNESCO Islamabad Office developed the Pakistani version of *Disaster Master Game*, an education board game developed by UNESCO Bangkok Office. It aims to help children above age 7 to understand natural disasters and preparedness by covering six natural hazards as well as appropriate actions to be taken before during and after a disaster. 5000 copies were donated to Federal Government Education Institutions (FGEI) that has 350 schools across Pakistan.⁵² UNICEF has developed a Meena comic book series focusing on different issues children face in Pakistan. A recent addition is a storybook with important messages on flood preparedness.⁵³ Tearfund developed a comic book on community-based disaster preparedness for adults (including teachers) using simple pictorial language so that those who with low or no literacy can understand.⁵⁴

Curriculum Localization Issues

The devolution of the once centralized national curriculum opens up opportunities to develop contextually relevant DRR curricula at provincial and grassroots levels. However, Provincial Education Offices currently do not have the necessary expertise for curriculum development and lack human, material and financial resources. In general, 'translating excellent policies into actions is an issue' (interviewee 11). There are regional discrepancies in terms of capacity. For instance, Sind Province, with the largest metropolitan city of Karachi has more human and financial resources with a more active and prominent presence of NGOs and

⁴⁹ http://unesco.org.pk/documents/2013/PAKISTAN_CPD.pdf [Accessed 17 February 2014]

⁵⁰ In Pakistan, primary school education is for five years (grades 1 to 5), middle school is for three years (grades 6 to 8), secondary school for two years (grades 9 and 10) and higher secondary school (grades 11 and 12) (UNESCO IBE, 2011).

⁵¹ Information from interviewee 13.

⁵² <http://unesco.org.pk/ndm.html> [Accessed 17 February 2014]; http://unesco.org.pk/ndm_dmg_donation.html [Accessed 17 February 2014]; http://unesco.org.pk/documents/pressrelease/PR_DMGM.pdf [Accessed 17 February 2014]

⁵³ <http://reliefweb.int/sites/reliefweb.int/files/resources/Pakistan%20Education%20Bulletin40.pdf> [Accessed 17 February 2014]; http://www.unicef.org/pakistan/media_7573.htm [Accessed 17 February 2014]

⁵⁴ http://www.preventionweb.net/files/35780_35780cbdrriecmaterial1.pdf [Accessed 17 February 2014]

INGOs, while Balochistan Province is an underdeveloped province with lower capacities across the various stakeholders (interviewees 11, 13).

Linking Curriculum to 'Whole School in Community' DRR Initiatives

A number of development agencies working on DRR education programs in Pakistan are focusing on DRR education for youth and children using extracurricular or community spaces without necessarily creating a link to formal curriculum. Save the Children's work to improve DRR learning and practices in targeted schools includes setting up children's clubs and helping them develop emergency plans. Plan has been mobilizing communities, young people and children to take an active role in risk assessment in their own environment, helping them analyze the causes and come up with mitigation measures and preparedness plans. Plan has also helped to create and build capacity of children and youth groups and forums so that they initiate child-centered DRR media campaigns and implement school-based DRR initiatives. In order to reach out to isolated communities in high-risk areas and raise awareness of DRR, Christian Aid's partner, CWS-P/A has created a Mobile Knowledge Resource Centre (MKRC). This mobile unit carries trainers as well as educational materials and tools by truck from village to village for two-day periods. MKRC visits schools to train students, teachers and community members on disaster preparedness⁵⁵ (MURTAZA, et al, 2012).

Since the 2005 earthquake in Pakistan, the importance of safe school culture and safe school practice is more widely recognized (interviewees 11, 13). The need for safe schools is expressed in national policies such as the 2008 *National Assembly Resolution on Safe Schools*, the 2008 *NDMA Policy* and the 2009 *National Education Policy*. There are various ongoing safe school projects by NGOs and CSOs throughout the country. In terms of efforts to create a synergetic link between DRR curriculum development and safe school initiatives, a noteworthy example is the *School Safety Action Plan: Plan of Action for Safe School and Educational Buildings in Khyber Pakhtunkwa* developed by the Khyber Pakhtunkwa (KP) Provincial Government supported by NDMA and UNESCO in 2012. Extracting broad parameters of school safety and DRR from the Hyogo Framework for Action, the policy intends to address school safety holistically based on six inter-linked elements of school safety. One of the elements is 'integrating disaster risk reduction information in formal/informal education'. There is an intention to employ a more systematic approach to DRR curriculum integration: 'Issues relating to scope and sequence of disaster risk reduction education and life skills [are] to be developed from childhood through adulthood for preventive and applied knowledge in risk reduction are included.' 'Child focused initiatives' are also highlighted as an essential part of school safety.⁵⁶

Teacher Capacity

In translating DRR educational policies into practice, capacity building for teachers is critical. DRR is new to teachers and the terminologies used in DRR are often difficult for them to understand, especially for those working at the primary level. Interviewee 11 points out that DRR experts often fail to explain and contextualize DRR terminologies in a way that teachers and local people can easily understand.

The UNESCO Earthquake Response program (ERP) in 2006 supported the development of training materials and in-service teacher training in earthquake-affected regions of the North West Frontier. In 2004 the Church World Service Pakistan/Afghanistan launched a teacher-

⁵⁵ <http://www.dec.org.uk/sites/default/files/files/Evaluations/Pakistan/DEC%20Pakistan%20DRR%20Report.pdf> [Accessed 17 February 2014]

⁵⁶ http://unesco.org.pk/documents/2013/ndm_School-Safety-Action-Plan.pdf [Accessed 17 February 2014];

training program that included learning how to include disaster preparedness in school curriculum (BASTIDAS, 2011). As part of the Education in Emergencies and Post-Conflict Transition (EEPCT) Project (see p.13), UNICEF trained some 286 teachers from 143 government schools on DRR and basic first aid skills and emergency responses.⁵⁷ However, capacity building opportunities and resources for teachers seems to be limited. So far, no evidence has been found of institutionalized and systematic DRR pre-service and in-service teacher training.

Interviewee 12 summarizes the overall challenges in the Pakistani education system as follows: 'no practical pedagogy; lack of commitment from teachers; lack of trained teachers; no practical work or demonstration; no exposure of students'. The mismatch between the lecture-style pedagogy and action-oriented DRR learning aspirations is an issue as we have argued is the case in Bangladesh, Cambodia and Indonesia. 'Training of teachers on pedagogy in a DRR perspective needs greater attention' (interviewee 12).

Box 5. DRR Curriculum Development in Pakistan: Synthesis

- ✓ Pakistan curriculum development is currently in a transition state as the country moves away from a national curriculum and towards devolved provincial curricula; this has significant implications for the role of development agencies in DRR curriculum support
- ✓ DRR education is taking place in isolated pockets, and systematic, regular and sustained DRR teaching and learning opportunities are currently lacking
- ✓ To develop provincially framed DRR curriculum, key stakeholders and multipliers at provincial level require capacity development support especially in the more disadvantaged provinces within the country
- ✓ There are national policies that support DRR integration into curricula at all levels
- ✓ The action-oriented aspirations of DRR education are expressed in some policy documents but, generally speaking, are not manifest in practice
- ✓ After recent mega-disasters, many development agencies have started to collaborate to promote DRR education, although coordination mechanisms still need to be developed.
- ✓ While project-based and short-term teacher training opportunities exist, there is no systematic pre-service and in-service DRR training provision

The Curricular Role of Development Agencies

What do the four country reviews say about the current role of development agencies in DRR curriculum development and support? What do they suggest, explicitly and implicitly, with regard to possible adjustments and reorientations in their role over the next few years? What do research participants have to say about the role of agencies in DRR curriculum development? What are their perceptions of potential future roles? These questions are addressed within each of the six sub-sections that follow.

⁵⁷ http://www.educationandtransition.org/wp-content/uploads/2007/04/2011_Pakistan_EEPT_report.pdf [Accessed 17 February 2014]

The Need for Astute and Attuned Advocacy

The four country reviews reveal a significant advocacy role with government on the part of agencies. In the opinion of one Bangladeshi respondent development agencies have played a 'fantastic role' in helping develop disaster legislation and policy frameworks (interviewee 1). This is borne out by the prominent agency presence in the Bangladeshi Comprehensive Disaster Management Program, the Department of Disaster Management and the Disaster Management Training and the Public Awareness Building Task Force. In Cambodia agencies have had a formative role on the Safe School Guidelines Development Task Force, the outcome of which promises to have a decisive impact on DRR curriculum development (p.18). In Indonesia the Consortium for Disaster Education composed of some sixty organizations has fulfilled a pivotal advocacy function in the creation of the *National Strategy for Mainstreaming Disaster Risk Reduction* and the regulations on *Implementation Guidelines of Safe School/Madrasah from Disaster* with a section on DRR curriculum (pp.24-25, 28). In Pakistan, advocacy efforts are emerging after the recent mega-disasters in the country. 'Many development agencies have come together to look for ways and take initiatives to promote education on DRR. Development agencies have been working very closely with concerned government authorities, particularly the National and Provincial Disaster Management Authorities and Departments of Education' (survey respondent, UN officer, Pakistan).

This picture of energetic advocacy notwithstanding there is a clear vein of opinion shared by many research participants that agency advocacy with government for DRR curriculum development has not been as adept, astute and effective as it might have been. There is a view that agencies overall are too bent on advocating for their own project rather than for the comprehensive integration of DRR in the curriculum. 'NGOs are too project-fixated; they talk about "integration" without questioning how that goes through the whole system' (interviewee 7). 'Advocacy is project-driven and not good enough' (interviewee 5). 'Advocacy is not strong enough' (interviewee 9). There is a view, too, that agency representatives need to understand and appreciate the workings of and nuances within curriculum departments more clearly. Projects entertain scaling up ambitions but without optimal alignment with the national (and/or sub-national) curriculum development cycle and without a critical path analysis of what needs to happen earlier and later to be best placed to influence that cycle. 'Agencies do not fully understand the intricacies of specialist sectors of government; their approach to government is incoherent, not strategic enough' (interviewee 7). Respondents also refer to insufficient attention being paid to conflicting priorities within ministries, to the need to cultivate champions within ministries as a means of effecting greater leverage, and to negotiating the compartmentalized nature of departmental planning and internal power struggles that often characterize and beset how ministries work (interviewees 4, 7). In short, a 'very strategic approach is needed' (interviewee 7). In Pakistan, international politics and distrust of 'westernization' (seen by many as implicit in development work) can often negatively influence the relationship between government and INGOs/NGOs. In consequence, trust building becomes an especially important element in overall DRR curriculum development work including advocacy (interviewee 11).

A key element in astute and attuned advocacy revolves around 'creating and presenting evidence of what works' (interviewee 2) and what has failed (Delphi participant 7), namely evidence-based or research-informed advocacy. This speaks to deploying highly professional monitoring and evaluation and case study writing for advocacy purposes, with, preferably, an ICT clearinghouse of good practice (Delphi participant 5). More importantly, it speaks to opening ministries to first-hand experience of DRR curriculum development through

partnerships in projects and other initiatives. Examples of such partnerships in Cambodia include the Mainstreaming Disaster Risk Reduction Education Project that led to the introduction of DRR in the grade 8 curriculum (pp.16-17) and the 2012/13 Save the Children/MOEYS DRR/CCA curriculum development collaboration (pp.19-20). In Indonesia sixteen DRR modules were developed through the SC-DRR project involving the Ministry of National Education's Curriculum Centre, BNPB, CDE and UNDP among others (p.26). A second collaboration was between the Curriculum Centre and Save the Children in developing DRR elementary-level lesson plans (p.26). As one survey respondent from Pakistan puts it, development agencies should work with government so they 'plan together, analyze together, act together, evaluate together'. In this way government understanding grows and there is increasing confidence in both DRR curriculum proposals and proposers. Partnerships of this kind are also vital for building the practical capacities of national-level and local level government officers (interviewees 11, 12) amongst whom there can often be 'no clear ideas on how to put policies and plans into practice' (interviewee 4). 'Advocacy and intervention,' adds interviewee 4, 'must go together at the same time.'

During the Delphi forecasting process (p.6) a suggestion initially advanced by one participant – inviting key national level ministry of education personnel to attend global DRR gatherings as part of awareness raising and advocacy – was welcomed by others. A cautionary note concerned the need to identify responsible national and provincial government officers with the commitment on their return to sharing lessons learnt and to serving as multipliers.

Towards Deeper Curriculum Engagement

Across the reviews of the four countries, there is ample evidence of agencies taking forward curriculum development. It is instructive, however, to ask where the emphasis is within what has been developed. Our recent work has identified five key dimensions to DRR education, each of which can be embedded in the curriculum:

- Understanding the science and mechanisms of natural disasters
- Learning and practicing safety measures and procedures
- Understanding risk drivers and how hazards can become disasters
- Building community risk reduction capacity
- Building an institutional and community-wide culture of safety and resilience (SELBY & KAGAWA, 2013).

The weighting across much of the curriculum described in this report leans heavily towards understanding the mechanisms and effects of different kinds of hazard and protecting individuals and communities from them. There is much less curricular emphasis on exploring and redressing the physical, social, economic and environmental drivers and consequent vulnerabilities that increase the likelihood of hazard risk turning into disaster. Germane here is the tendency to locate DRR curriculum primarily within science and geography (see, for instance, the principal subject locations of DRR in Bangladeshi texts, p.9). The end-result can be that *disaster* rather than *disaster risk reduction* is often what is being studied. In each of the four country reviews we have also seen that hazard, vulnerability and capacity assessments and resilience building projects involving children remain largely delinked from the formal curriculum, as do child-involved safe-school initiatives. Path finding in this regard are the draft Cambodian safe school guidelines - significantly influenced by a group of key agencies working in tandem - that open the way to linking curriculum with school safety considerations and community risk preparedness and resilience building (pp.8-9). In similar spirit are the Indonesian safe school/madrasah guidelines of 2012 (p.28).

A more comprehensive and thoroughgoing approach to integrating DRR into the school curriculum on the part of agencies also has to involve ensuring vertical progression of learning and learning outcomes through the grade levels as well as building links between the treatment of DRR in different school subjects. Agencies need to map out and work from a coordinated understanding of the knowledge and understanding, skills and attitudinal competencies that make up effective DRR education.

There is also a very strong case for deepening the integration of DRR education and climate change education. Developments in this direction are already strongly underway in Cambodia (pp.15, 20). Given the intensifying nature of disasters as climate change sets in, learning for DRR only makes good sense if it is linked with learning for CCA. At an even deeper level, the learning needs to move beyond adapting to a changing climate to understanding what is needed to mitigate the future disastrous effects of runaway climate change. There is a strong case for agency initiatives to demonstrate what the conflation of DRR and CCA concretely looks like in terms of curriculum, teaching and learning. A 'selling point' is that the proper integration of the two initiatives reduces pressure on what is seen as an overcrowded school curriculum.

We have come across very little data in any of the four countries that DRR curriculum materials and learning activities are also looking at disaster-related issues through an inclusivity lens. Most respondents speak to the absence or paucity of such materials. No survey respondents in Bangladesh and Pakistan think that DRR curriculum content in their country has a strong focus on the social implications of disasters (e.g. gender implications, child protection, livelihood, socio-economic implications). Only a small percentage of the Cambodian and Indonesian survey respondents (16.6% and 11.8% respectively) think such social implications are strongly addressed in DRR curriculum content. A Cambodian participant comments that some parts of DRR training curricula focus on gender roles and responsibilities in DRR and family coping strategies before, during and after disasters (interviewee 6). According to the interviewees in Indonesia, SC-DRR modules (p.26) do not cover gender perspectives and inclusivity (interviewees 8, 10). A notable exception is a project called 'Building resilience for children with disabilities: Strengthening DRR information delivery in Indonesia' by a German NGO, ASB. It targeted some 900 children with disabilities who are out of school in Yogyakarta province, Indonesia.⁵⁸

A deepening of curriculum engagement by agencies also calls for the development and dissemination of learning materials that look at the impact of disaster on women and their role in disaster preparedness and risk reduction. Curriculum addressing the needs of the disabled ethnic minorities and other marginalized groups is also called for.

Ensuring Effective Coordination

The four country reviews reveal differing achievements and challenges in terms of cooperation and coordination of DRR curriculum development between government and development agencies. In Pakistan, there are emerging examples of close collaboration between development agencies as they coordinate with concerned government authorities, as seen in the development of the *School Safety Action Plan in the Khyber Pakhtunkwa Province* (p.33). However, systematic coordination between agencies vis-à-vis government authorities is still at a very early stage of development. A coordination role by development agencies is very much helpful in this context (interviewee 13).

⁵⁸ http://www.eenet.org.uk/resources/eenet_newsletter/ee1/page24.php [Accessed 17 February 2014]

In Bangladesh, there have been instances of project-based collaboration between agencies in pursuance of particular curriculum and materials development projects and initiatives. For example, an alliance of agencies in 2011 led to the animated cartoon, *Laily* (p.11). An Education Cluster involving UN bodies and NGOs is active and has conducted a stock taking of co-curricular activities (interviewee 1). In Cambodia, a Safe School Guidelines document has been developed through close collaboration between the government and a number of agencies working together (pp.18, 35).

In the case of Indonesia, there are active coordination bodies at the national level. The Consortium for Disaster Education has been playing a critical role in networking, coordinating, synthesizing, synergizing and institutionalizing numerous school-based DRR initiatives in the country. The National Secretary on Safe Schools, a flexible network for inter-ministerial coordination as well as public and private collaborations, became the Task Force for the Implementation of Safer Schools/Madrasas in 2012 (KAGAWA & SELBY, 2013). Further efforts to extend active coordination and support mechanisms to the provincial and district levels remain critical in translating national policy and strategy into practice. 'At the local provincial and district levels, a limited number of organizations pay attention to DRR curricula. They just implement project after project. When the project ends there is no continuity of the efforts. No follow-up' (interviewee 9). 'In a country as complex as Indonesia, development agencies should continue to work at different levels: with the National Department of Education, especially in monitoring and evaluating how DRR has been mainstreamed; at the local level continue to support the capacity of the local government to assess the materials. At the school level continue to support capacity building in school disaster preparedness' (survey respondent, UN officer, Indonesia).

There are, therefore gradations of coordination. At one level there are collaborative partnerships between agencies in pursuance of a particular project and particular project outcomes. These may or may not involve government. At another level there are alliances of a range of agencies to influence different national policy and frame working initiatives. At both levels there is an end to partnership. What is so far missing in Bangladesh, Cambodia and Pakistan is an enduring grand coalition of agencies in which joined-up thinking is applied to the whole DRR curricular landscape and from which collective, mutually supportive action follows on an ongoing basis. Such a coalition might maintain a clearinghouse of initiatives to avoid duplication of effort (the 'reinvention of the wheel'); it might undertake a collective stocktaking of progress; members might agree to undertake a compensatory role (i.e. members agreeing to respond to and close gaps or weaknesses in DRR curriculum provision as they appear); it might involve a more thorough synchronization of programs; it might involve staging an annual conference gathering of agency and ministry personnel.

A suggestion to establish a 'DRR Content Development Forum' - with national, provincial and local chapters and equipped with the required human and materials resources by donor agencies - as a platform where all the stakeholders and partners meet to plan the integration of DRR in the school curriculum (Delphi participant 5) was welcomed by a number of Delphi participants. Another idea that took off in the Delphi discussions was that of creating coordination guidelines for stakeholders entering into partnership.

Building the Capacity of Teachers and Other Stakeholders

While there are examples of disaster-related teacher professional development across the four countries, those examples are in every case linked to agency led or in some cases ministry led projects. Teachers are trained up to implement pilot curriculum development projects, to employ a particular pedagogy favored by a project or to facilitate children in school-based initiatives such as hazard, vulnerability and capacity assessments. The training

is time-constrained. It is not given to all teachers. In terms of DRR curriculum it tends to focus first and foremost on imparting disaster-related knowledge to teachers and only secondarily on DRR pedagogy. Those who receive the training receive little or no aftercare with only rare opportunities to put questions, concerns and issues arising from their teaching experiences to the original trainers. Teachers not trained often receive the handbook arising from the project and are expected to teach from it without training or support.

There are calls throughout the survey returns and interviews for the systematization and institutionalization of DRR-related teacher education. 'We need a national-level DRR teacher training curriculum' urges a respondent from Bangladesh (interviewee 1). A fellow-countryman bemoans the lack of DRR content in both primary and secondary teacher training programs, also the DRR-lite nature of national supervisory, monitoring and leadership training (interviewee 2). A Cambodian colleague notes that 'DRR/CCA materials are finding their way into teacher training colleges' but wonders if trainers are using them (interviewee 4). Another notes that any teacher training in risk reduction happens through non-governmental organizations because 'governmental officials do not have enough capacity now and depend on NGOs working on DRR/CCA to provide teacher training, awareness raising for teachers, principals and provincial department officials' (interviewee 5). An Indonesian respondent makes the valid point that the level of school autonomy within the country's education system makes it particularly imperative to develop the capacities of teachers, schools and local education authorities for DRR curriculum development and implementation (interviewee 9). 'Teachers are not well trained,' declares a Pakistani respondent. 'DRR is new to teachers' (interviewee 13).

The active learning and action-oriented emphasis within DRR education only serves to highlight the need for systematic pre-service and in-service teacher education. Across the four countries reviewed here, it appears that resort to 'lecture-style' didactic teaching with an accent on memorization is the norm. Projects on DRR and CCA curriculum are successful in creating islands of interactivity and participation within a sea of didacticism. The 'islands' themselves may not bear to close a scrutiny. As interviewee 7 puts it: 'While there is a variety of teaching aids developed in Cambodia, mostly these are posters and a few games. This area needs to be explored as traditional teaching methodologies, which make students passive recipients are still prevalent. This is an area that pre-service and in-service teacher trainings need to focus on'.

Agencies could play a catalytic role here by focusing on partnership initiatives along with government and teacher-training institutions to develop and implement core DRR/CCA programs within pre-service provision and to develop a network of systematized and duly reinforced outreach provision of in-service training to districts. Teacher training institutions could also be supported in the delivery of a training-the-trainers cascade model. The training would need to develop knowledge and conceptual understanding of DRR but should give primacy to developing skills enabling teachers to facilitate (and develop their own) participatory, child-centered learning approaches so reducing textbook dependency. In the words of Delphi participant 3, development agencies should help 'enable teachers to build DRR/CCA into everyday learning-teaching processes using investigation learning approaches,' a suggestion very much in line with the Save the Children/MOEYS curriculum development project in Koh Kong Province, Cambodia (pp.19-20).

Fulfilling a Key Role in Localization

The countries making up this study each face a localization challenge. In Bangladesh with its highly centralized curriculum and localized combinations of hazards there are significant barriers in the way of context-bespoke curriculum. In Cambodia, there is a centralized

curriculum but the door is open for curriculum that is responsive to local disaster priorities and risk reduction needs save that capacity to develop local curriculum is underdeveloped. In Indonesia, autonomy has been given to schools to determine their curriculum taking into account the local context but schools lack the financial, human and technical capacities to take up the implementation challenge. In Pakistan, the national education structure has been dissolved and curriculum authority transferred to provincial government who are continuing with the old curriculum until a replacement curriculum is developed. Each situation speaks to a different localization role for development agencies.

While national level advocacy in Bangladesh for the progressive de-linking of curriculum from the textbook - so opening the way for context-relevant DRR learning - might be a good strategy, in the interim agencies have a compensatory role to fulfill. According to interviewee 1, 'localization could happen' with agencies conceivably working through the Ministry of Primary Education office in each upazila (district) or at divisional level (composed of 7 to 10 districts). Agencies could work on developing and piloting low-cost supplementary materials to the textbook in which local hazards and priorities in disaster preparedness and resilience building are profiled. Alternatively or in addition, they could work on ideas for vivifying what is in the text by developing locally focused active learning packages. To balance out the knowledge orientation of the text, activities developing and practicing skills and exploring and challenging attitudes would be paramount. Both suggested approaches would involve programs of teacher training at district and/or divisional level.

Where curriculum decentralization has happened – or where there is the potential for it to happen – a different role for agencies is called for. Here the accent needs to be on filling the implementation gap and closing the capacity gap. In Indonesia there is a responsibility to develop school-based curriculum overall on top of which there is a 20% space for 'local content curriculum'. The problem is the lack of human, material and technical resources. As is already happening on a small scale, agencies can continue to assist by facilitating low-cost local curriculum development processes at district level that could be documented and made available as models for others to emulate. They might involve teachers in DRR curriculum and materials development out of which some might emerge as local trainers and curriculum development process facilitators. Similar approaches would be appropriate for the Cambodian context. In Pakistan, a country in fluid transitional state away from a national curriculum and towards a provincially framed curriculum, there are real opportunities for agencies to grasp in terms of supporting provincial curriculum bureaus in DRR curriculum development. As has already begun, curriculum writers and others in significant multiplier positions can be trained, partnerships forged with bureaus for curriculum development, and cascade models of teacher training put in place.

Building and Democratizing the Knowledge Base of DRR Education

An under-recognized and under-developed role for development agencies is that of widening the current knowledge base of DRR education. In all four countries, there are specialized courses, majors, programs and research centers focusing on DRR in higher education institutions.⁵⁹ In Bangladesh, for example, there are a significant number of universities, higher education research units and professional training institutions with a DRR dimension to their work such as BRAC University, Dhaka. Islam (2010, 2-4) counts sixteen in all. However DRR curriculum development initiatives do not seem to be using the national DRR expertise and wisdom already existing in higher education and research institutions and now growing exponentially. Development agencies could play a conduit role here. For instance,

⁵⁹ See BNPB (2011) *Indonesia: National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011)*; NDMA (2013). *Pakistan National Progress Report on the Implementation of the Hyogo Framework for Action (2011-2013)*.

they could help make the latest research-based knowledge available for DRR education practitioners (e.g. through teaching and learning resource development, teacher capacity building training) by translating expert knowledge into the immediately accessible. They could also help democratize knowledge by working on accessible terminology and culturally appropriate imagery and metaphors for explaining abstruse concepts for local practitioners. As discussed earlier (p.36) development agencies can contribute to widening DRR educational knowledge through evidenced-based and research-informed advocacy and by critically analyzing field-based experiences. Validating community-based and indigenous disaster mitigation knowledge and practice, and interfacing it with the scientific, can be part of this (interviewee 11).

Delphi participant 7 suggested that development agencies should fulfill the function of bringing new knowledge and skill sets from outside of a country to add value to the existing DRR knowledge system. This elicited a cautionary note from a colleague (Delphi participant 2) concerned about cross-cultural relevance. Another pointed out the importance of synergizing local and foreign knowledge (Delphi participant 5).

Implications for the Successor to the Hyogo Framework for Action

For the most part, research respondents felt that the text of the Hyogo Framework for Action Priority 3 had provided important leverage for national DRR developments in education in their country. A range of ideas was advanced for the successor document that would help close gaps and support future desired developments. In synthesis these are as follows:

- The need for greater emphasis on *systematization* and *coordination* of DRR learning – across the curriculum, through the curriculum, between schools and teacher education institutions, between school and community
- The need to underpin the importance of government sector and agency sector working partnerships to embed DRR in education
- The importance of promoting low cost provision and initiatives
- The need for higher education institutions to embed DRR in their own curricula and to contribute to curriculum development generally, including through teacher education
- The need to bring together DRR and CCA in curriculum and general educational developments
- The need to promote DRR competencies amongst public officials and to provide technical training to the curriculum arm of ministries of education
- The need for greater clarity about how formal and informal DRR learning can be complementary
- The need for concrete indicators, benchmarks and milestones so that practitioners can be clear about what they need to achieve and in what order and progression and to make achievement measurable.

One respondent cast serious doubt on the usefulness of the HFA country self-reporting mechanism as being 'very subjective' (interviewee 7). There was a need for some kind of independent validation to make the exercise worthwhile. For consistency's sake, participating nations should be under obligation to report in every reporting round.

As researchers, we were requested to enumerate recommendations on 'how HFA Priority for Action, Core Indicator 12 (school curricula, education material and relevant trainings) could be more effectively represented, and measured, in the successor framework to the HFA'. Based upon what has gone before in this report we recommend:

Representation (i.e. Scope/Coverage)

- Less piecemeal and more systematic integration of DRR into school curricula with cross-curricular links being employed to extend learning and with through-the-grades progression in terms of level of learning complexity and sophistication and sphere of practical engagement (home and school through to wider community)
- Developing overlaps and synergies between learning through the formal curriculum and co-curricular (or extra-curricular) learning taking place as part of safe school initiatives or community resilience building initiatives
- Fusing together DRR and climate change education in policy and practice – not only is this very good sense in that disasters and climate change are inextricably linked together but it is a time-effective and energy-effective way forward that will appeal to ministries with multiple demands being placed upon them
- As part of bringing DRR and climate change education together, set about extending the range of hazards covered in the curriculum to cover natural and human-caused hazards, the line between which is increasingly blurred (climate change being a case in point)
- Adopting and promoting a much broader and deeper understanding of what an effective DRR pedagogy entails going beyond 'just group work' and 'posters and a few games' to include: forms of interactive learning such as brainstorming, pair, small group and whole class discussion; emotional learning (the threat of disaster and recalling disaster are deeply emotional matters); inquiry learning (case study research, project work, Internet enquiries); surrogate experiential learning through board games, role plays, drama (sketches, mime, puppetry), simulations; experiential learning 'in the field' and action learning through community participation and campaigns (SELBY & KAGAWA, 2012, 29)
- Institutionalizing and systematizing DRR/CCA teacher training and professional development at both pre-service and in-service levels directed at building DRR/CCA conceptual understanding and knowledge but also, crucially, directed towards developing teachers' skills in participatory learning facilitation and being 'DRR reflective practitioner' able to create their own learning activities and make reflection-informed adjustments to how and what they teach
- Creating opportunities and releasing energies for locally-relevant, culturally-relevant and contextualized curriculum development so what is taught attunes with local DRR and CCA needs and experiences; in this regard, enlist the help and advice of the community in curriculum development; in this regard, too, marry latest scientific thinking with indigenous community DRR perspectives in curriculum materials and learning processes
- Working on overcoming the DRR inclusivity curriculum blind spots regarding, first, the impact of hazards and disasters on girls and women and the special role that females can play in DRR and climate change adaption and, second, the special needs and contribution of those with disability, ethnic minorities and other marginalized groups

Measurement

- Extending HFA reporting requirements under Core Indicator 12 to include: degree of vertical progression of DRR learning within the school curriculum; extent of cross-curricular reinforcement; strength and quality of links between curricular and co-

curricular learning; degree of enablement of and support for localized DRR curricular provision; degree of institutionalization and systematization of DRR pre-service and in-service teacher training; scope and depth of curriculum-oriented national planning for DRR; presence, representativeness, quality and level of activity of any national coordinating body for DRR curriculum, teaching and learning

- Developing indicators covering the following aspects: curriculum content, curriculum progression, learning outcome progression, competency progression, balance of pedagogical approaches, student assessment, course and program evaluation, teacher professional development, teacher performance and learning resource development
- As DRR/CCA curriculum provision becomes more systematic, measure the longitudinal impact of DRR/CCA learning on school students, graduands and graduates in terms of knowledge, skills level, pro-social attitudes and dispositions, and behaviors
- Enabling students to self-evaluate and peer evaluate their DRR learning performance and teachers to self-evaluate and peer evaluate their DRR learning facilitation
- Including criteria-based indicators for budget resource allocation by national and provincial government for DRR/CCA curriculum development

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