



World Conference on Disaster Reduction

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Thematic Discussion Paper Cluster 3.

“KNOWLEDGE, INNOVATION AND EDUCATION: BUILDING A CULTURE OF SAFETY AND RESILIENCE”

Discussion papers have been prepared for the five thematic clusters of the WCDR. The papers have been developed by the Lead Agencies for each cluster with the support of the Inter-Agency Task Force for Disaster Reduction (IATF) and the ISDR secretariat.

The objective of these papers is to orient and guide the discussions in the five clusters toward the goals of the Conference. The papers provide a vehicle for coordinating the interests of the key stakeholders and will form the basis for the subsequent summarising of the thematic clusters.

Session organizers and participants in the thematic discussion are invited to draw on the papers to ensure the output of the sessions and panels at Hyogo-Kobe provide the technical assessment and guidance to complement and support the priorities identified at the intergovernmental level and to advance the International Strategy for Disaster Reduction (ISDR).

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1. Introduction

The purpose of this discussion paper is to provide a basic framework for the proceedings and discussions of Thematic Cluster 3 of the World Conference on Disaster Reduction (WCDR): "Knowledge, Innovation and Education: Building a culture of safety and resilience." It will highlight the pertinent issues to be discussed under the theme and contribute to the outcomes of the conference.

People and communities of the world are at increasing risk from natural and related hazards. All have the right to have access to the best possible knowledge, innovation and education to protect themselves and their habitats, livelihoods and cultural heritage from the disastrous impacts of hazards. A culture of safety and resilience requires people’s awareness and understanding that in turn leads to actions for reducing risk and vulnerability to disasters.

Education for disaster risk reduction is an interactive process of mutual learning among people and institutions. It encompasses far more than formal education at schools and universities, and affects all aspects of life through the concerted efforts to overcome universal barriers of ignorance, apathy, individual interests and lack of political will present in communities. It also involves the recognition and use of traditional wisdom and local

knowledge for protection from natural hazards. Education is conveyed through experience, established learning arrangements, information technology, staff training, electronic and print media and other means that facilitate the sharing of information and knowledge to citizens, professionals, organizations and policymakers, among a range of other community stakeholders.

While abundant knowledge about risk and vulnerability to hazards exists, its access and utilization at community, national, regional and international levels to empower or protect is yet to reach full potential. Many people families are not fully aware of hazard risks faced nor of the safety measures and risk reduction measures required; conversely, often the special knowledge and experience which families have to offer has been insufficiently built upon. The special role of children, youth and women in more effectively promoting safety and risk reduction have not been given the attention deserved. The exchange and effective use of information among academia, practitioners and decision makers remain a challenge. There is also an urgent need to collectively focus on changing knowledge and behaviour through educational practices in order to minimize the impacts of hazards and maximize disaster resilience.

Knowledge, innovation and education are inter-related issues that are at their most effective when linked to community needs. Knowledge and behavioural changes for implementing risk reduction activities should be the ultimate target, keeping in mind that building a culture of safety and resilience requires time, effort, resources and continued cooperation and understanding amongst all actors. This calls for the application of the following principles:

- Engage all potentially at risk as partners in the process of enhancing safety and reducing risk
- Increase information about disaster risk and safety actions and encourage its more effective dissemination;
- Empower capacity building of vulnerable communities;
- Design information, training and educational initiatives with a gender perspective, with consideration of the needs and contribution of children/youth, and with special consideration to cultural diversity; and
- Reinforce partnerships and cooperation on disaster risk reduction policy and strategy.

These principles will be addressed at the WCDR under Thematic Cluster 3, focusing on four subject areas, which will each provide a focus on a selection of related interests:

1.1 Education

- Advocating formal and informal learning.
- Including disaster risk reduction subjects in curricula of all educational processes.
- Incorporating disaster and risk education in local and national level policies.
- Facilitating civil society participation in learning about disaster reduction.

1.2 Increased knowledge base

- Expanding information management and exchange.
- Enhancing multi-dimensional and cross-sectoral cooperation.

- Developing field-based knowledge and implementing applied research policies.
- Relating the work of the research, academic and scientific community to disaster reduction practitioners.
- Enhancing science policies for research and development on disaster reduction so that implementation strategies are incorporated in research planning and execution stages.

1.3 Information and public awareness

- Managing strategies and developing joint safety messages with professional, public and private resources and abilities.
- Engaging media, civil society, and cultural heritage interests with the disaster reduction community.
- Accessing, disseminating and using disaster reduction information and knowledge.
- Using specific data and tools to promote awareness and action on risk reduction.
- Sharing and applying the lessons of disaster experiences across different sectors and professional interests.

1.4 Community empowerment

- Building capacities.
- Implementing activities at community levels that provide opportunities to reflect on lessons learned from past experience.
- Increasing community resilience by applying existing knowledge, enriching the skills and resources present in the community.
- Understanding and spreading knowledge about coping mechanisms, leading to wider application.
- Raising awareness through formal and informal means, institutions and programmes.

Thematic Cluster 3 is clearly linked to other WCDR clusters and themes, and therefore its subject areas cannot be regarded as isolated events or initiatives.

2. Findings of the Yokohama Review

This section draws from the pertinent sections of the Yokohama Review, and in particular those conclusions relevant to knowledge, innovation and education. It presents a selection of recommended approaches, describes illustrative practices, and includes some examples and lessons that can be drawn from these actions.

The following approaches are recommended for improving knowledge, innovation and education:

- Introduce the subject of disaster reduction into curricula for use in all levels of education, maintaining the customary focus on schools and other educational institutions, but also expanding to include staff and professional training.

- Develop and support institutional capabilities for the collection, synthesis, wider dissemination and use of disaster reduction information and experience, tailored specifically to meet communities' interests and needs.
- Formulate multifaceted and continuous public awareness strategies managed with professional, public and private sector resources and abilities.
- Enhance existing community resources, assessing and supporting local strengths and priorities.

Findings from the International Federation of Red Cross and Red Crescent Societies' *World Disaster Report* (WDR) of 2004 indicate that top-down approaches to information exchange need to be informed by bottom-up learning experiences. Disaster and risk management organizations can become more effective by understanding how people perceive, cope, and recover from disasters; they can then build on that base of knowledge and experience. At a practical level, this means that the assessment and mapping of hazards, vulnerability and risk are not enough, as there is equally a need to identify and map capacities, knowledge and resources. This awareness of inherent capabilities can lead to the wider use of local knowledge in addressing priority needs through more appropriate community approaches.

Knowledge should not be limited to the technical aspects of risk reduction issues alone. It is equally important for people to know how to access local government resources for disaster preparedness and risk reduction before a disaster strikes, in addition to being aware of recovery and relief services available to them in the aftermath of a disaster. This includes familiarity with those people and institutions with whom they can coordinate before, during and following a disaster.

While schools and other institutions play important roles as traditional resource centres for education and spreading information on risk reduction, additional and complementary resources are needed. The knowledge necessary to reduce disaster risks should permeate every level of government as well as community-based institutions, ranging from local development planners to national policymakers.

Religious networks also can provide opportunities for education on disaster risk, as illustrated in Kenya where imams use morning prayers to convey information about disaster risk. In Bam, Iran, local religious leaders formed the backbone of disaster response.

Community cohesion – whether in rural villages, urban slums or among people of similar livelihoods – is also a crucial factor in maximising the use of risk reduction knowledge for strengthening disaster resilience. As resilience often depends on access to and the application of information and knowledge, it is vital that the related issues of discrimination, class and power also need to be addressed.

Often people most at risk are also the most poor, leading them to place greater importance on immediate needs such as their livelihoods, rather than taking specific measure to reduce their vulnerability to disasters. People whose daily concern is survival do not have the energy to worry about the possibility of a disaster occurring, a factor that disaster risk information programmes need to take into consideration for successful community recovery.

Cultural heritage is a treasure of humanity, so its preservation carries a responsibility from generation to generation. Education plays a key role in generating public appreciation for cultural heritage and the importance of protecting historical landmarks for the benefit of

future generations. Accordingly, there is a need for cultural heritage risk management to be integrated into information, knowledge and public awareness programmes. An example is the participation of cultural heritage specialists in the development of “cultural heritage risk maps”.

Regional interaction is an invaluable means to improve knowledge management and education for risk reduction at the regional and sub-regional levels. Such interaction encompasses strategic cooperation, communication, coordination and collaboration in endeavours to transfer ownership of knowledge, best practices, and technology in a step-by-step process to build political and technical capacities.

3. Guidance for the future action and implementation of the “Global Agenda 2005-2015: Building the resilience of nations and communities to disasters”

This section presents information on means to support the implementation of the recommended priorities for action related to each of the primary sections of Thematic Cluster 3 emanating from the document, "*Global Agenda 2005-2015: Building the resilience of nations and communities to disasters*". It also provides examples of risk reduction targets that can be set in the areas of education, increasing the knowledge base, information and public awareness and community empowerment.

3.1 Education

- Ensure that appropriate safety and risk reduction is integrated into the learning programmes of all children at risk to natural hazards.
- Country policies should promote the creation of inter-sectoral and inter-institutional platforms and action plans to include disaster reduction subject matter into the educational systems at regional, national and local levels.
- Traditional and local knowledge about natural and related hazards and risk should be marshalled and integrated in curricula for applications at regional, national and local levels.
- Facilitate civil society participation and opportunities for education that include a full range of risk reduction options, building on existing knowledge, educational arrangements and accomplishments.
- The UN Decade on Education for Sustainable Development (2005-2014) should promote and stimulate international cooperation of education for disaster reduction at regional, national and local levels.

3.2 Increased knowledge base

- Search for a better understanding of what safety and risk reduction information is most helpful to vulnerable populations, including to children and women, and how such information can be most effectively communicated.

- Common and consistent understanding of the core issues of hazards, disasters and disaster risk reduction are needed to ensure that resources are supplied where they are needed most.
- Create open dialogue and information exchange between scientific and technical communities, decision makers and disaster risk practitioners, ensuring broad access across all sectors.
- Link higher education and research to practical application to reduce existing gaps between knowledge and practice.
- Incorporate higher education, research and training about disaster reduction in science and educational policies at the national level.
- Establish networks of researchers and technical professionals to promote the use of indigenous technology and advances in new science and technologies, developing area- and community-specific solutions that can be integrated into political strategies.
- Cross-sectoral coalitions are a valuable means for expanding scientific research and technical agendas and transferring practical knowledge with political, humanitarian and community initiatives.

3.3 Information and public awareness

- Promote action to enable widespread and equitable access and use of technologies, information and communication to the public, in addition to increased media involvement and coverage on risk reduction issues.
- Create and strengthen national or regional information centres and services for risk reduction.
- Use cost benefit analysis as a potential tool to promote investment in disaster risk management and to raise people's awareness.
- Transfer lessons from past disasters to future generations.
- Promote the development of joint safety messages and the wider adoption of communication strategies between key stakeholders and policy makers.

3.4 Community empowerment

- Advocate that communities have the right to knowledge and education on risk reduction issues.
- Launch proactive, structured and systematic initiatives to enhance community participation in education and training programmes.
- Develop and support institutional capabilities for the collection, synthesis, dissemination and use of disaster reduction information and expertise.
- Engage communities in the process of identifying and understanding risk, building on the knowledge and experience of disaster-affected communities.
- Recognize the importance and seek means to engage the roles of community-based organizations and civil society in knowledge and behavioural change for disaster risk.

Specific initiatives

The following examples indicate how these issues can be supported for implementation during the coming 10 years:

- The newly established Global Open Learning Forum on Risk Education (GOLFRE) is one of several existing models of education for field practitioners, offering distance-learning services in addition to providing a direct link between centres of learning and people in the field. It unites universities and civil societies through an open dialogue of information and knowledge, transferring academic knowledge to practitioners through updated analysis on field practices and interaction with people in the field. The initiative has three focus areas: Asia, Africa and Latin America. Sustainable Environment and Ecological Development Society (SEEDS) is working with different universities and NGOs in these three regions to develop this network.
- In May 2004 the ProVention Consortium and IFRC held a workshop on social vulnerability and capacity analysis that promoted the development of tools for community risk, capacity assessment and action planning. Activities resulting from the workshop include: production of a web-based register of community risk assessment methodologies; development of a compendium of community risk assessment applications/case studies; and creation of an active virtual network of community risk assessment practitioners and academics. The project is benefiting from broad participation with much valuable contribution of methodologies, case studies and resources from IFRC, non-governmental organizations and regional academic centres.
- Three international initiatives to further support for research, training and capacity building will be launched and consolidated at the WCDR through the joint efforts of UNESCO, the World Meteorological Organization (WMO), United Nations University (UNU) and the ISDR secretariat:
 - An International Flood Initiative/Programme, aimed at promoting research, training and capacity building, information networking and technical assistance against flood-related disasters. An international centre for water hazard and risk management will be established under the auspices of UNESCO in Tsukuba, Japan in late 2005 to serve as a global facility for the initiative.
 - The International Programme on Landslides will aim to advance the study of landslides and the mitigation of their effects, guided by the International Consortium on Landslides, under the coordination of the Research Centre on Landslides at Kyoto University.
 - A new extended Memorandum of Understanding (Earth System Risk Analysis and Sustainable Disaster Management) will be signed among different parties as an infrastructure for research cooperation and network in the next decade.
- Since its inception in 1989, the United Nations Disaster Management Training Programme (DMTP) has supported governments in building their national systems and capacity for disasters, covering the full spectrum of risk issues. In 2004 DMTP underwent an in-depth review to ensure the programme is consistent with the objectives and outcomes of the WCDR. The review resulted in refining the programme to serve as a UN global learning resource centre for disaster management and reduction, working in close partnership with UN and external agencies. Specifically, the DMTP will undertake and support a wide range of learning and development activities to develop, expand and retain a global knowledge base for disaster risk. Illustrative areas for DMTP's future focus include: support for the creation and/or refinement of learning communities and networks; production, transfer and exchange of learning tools and aids; support for the definition of qualification frameworks and standards for risk management personnel; and support for building regional and national self-sufficiency for disaster risk management

training. Emphasis will also be given to documenting and transferring best practices and lessons learned for building and sustaining national disaster risk training systems.

- Development of the Riskland game for children is an example of efforts to develop age appropriate learning materials on safety and risk reduction.

In addition, there are illustrative and more generic approaches that demonstrate how networks of researchers, engineers and social scientists are being developed to promote the integration of indigenous technology with advances in science, engineering, and technology and for the development of area- and community-specific applications. Social and cultural considerations including the safety of vital infrastructures (for example, schools and hospitals), community infrastructure, and the use and preservation of cultural heritage are as much a part of an enduring and equitable solution as science and technology. Above all, scientific and technological solutions to the complex problems of disaster reduction must be rooted in social realities, in the fullest sense of the term; their integration into traditional modes of protection is essential.

Strategic activities should be balanced at the regional, national and community levels in order to empower and engage more professionals and policymakers in forming policies and creating programmes for their benefit. For example, global and regional forums should be used for sharing information and technology and community forums providing useful information for building a culture of disaster resilience. Actions on these scales should be designed to enable developing and developed countries' participation in the implementation of a common agenda of formal and informal education at schools, universities and other environments. Initiatives should include activities such as: community-to-community and professional-to-professional mentoring; basic, applied, and action research; capacity building and technology transfer; data acquisition, integration, and analysis; training, use of disaster scenarios and related exercises.

Transferring lessons of disasters from generation to generation is an essential element of minimizing future victims and mitigating community vulnerability. Various methods for transferring lessons exist such as museum facilities, story telling, films, cartoons, music, cultural events and many other educational activities that can prove effective in both reducing community risk and enhancing feeling of human security. In a similar vein, the Disaster Reduction Alliance of Kobe, Hyogo, Japan proposes to establish a "Transfer Live Lessons Network" to share the experiences and lessons learned from past disasters on a citizen-to-citizen basis at the global scale.

In August and September 2004, two preparatory meeting for the WCDR for Latin America and the Caribbean were held on education and communication and public information, in Guatemala and El Salvador, respectively. Each meeting made recommendations for the next ten years, which can be used to set specific targets for countries of the region.

The meeting on education made recommendations that included the identification of specific targets (to be achieved by 2015), such as the inclusion of risk management issues in teachers' academic preparation programmes and training; transparency of discussions on the vulnerability of educational infrastructure; and integration of risk management programmes and projects that reflect indigenous experience and realities.

Indicative targets:

Recommendations arising from the meeting on communication and public information for disaster reduction include the following targets for achievement by 2015:

- incorporation of risk reduction in educational curricula at all levels (primary, secondary, University pre- and post grades);
- development of a general public awareness policy, information and communication plan;
- resources and indicators for measuring the impact of risk management communications and public awareness;
- launch and operation of national information reference centres specialised in disasters in conjunction with regional and international organizations;
- integration of risk reduction elements in national scientific and technical agendas, with specific financial guidelines;
- capability to use new technologies, digital communication and early warning systems for community risk management;
- development of public and private media networks in support of risk reduction information and communication processes; and
- effective management of resources to implement information and communication processes on risk reduction.

These targets can serve to guide other countries and regions in the consideration of their own achievable goals and targets.

4. Conclusions

Knowledge, innovation and education practices that target and empower local action and regional cooperation represent the means for ensuring that people have access and the use of knowledge and information that enables them to live in disaster resilient communities. Age appropriate basic safety and risk reduction information is essential in learning activities. However, an interactive process of mutual learning and education more generally encompasses far more than formal education at schools and educational institutions. Indigenous information and experience, training and the use of technology and media all contribute means to manage valuable knowledge on disaster risk for the benefit of citizens, professionals, organizations, community stakeholders and policymakers.

Educational activities should be balanced between the regional, national and community levels in order to empower and engage as many professionals and policymakers as possible. Together they can form policies and create programmes to protect people, habitat, livelihoods, and cultural heritage. Global and regional forums, networks and alliances in addition to community meetings should be used for the sharing of information- and technology-sharing for reducing risk. Communities in high-risk areas should be assigned the highest priority for external resources and support for improving community knowledge and empowerment in their efforts to build a culture of disaster resilience.

Resources, delivery mechanisms, targets of opportunity, and means for measuring change are key areas for action to reduce risk and vulnerability to disasters. Urgent attention is needed to improve information and educational programmes for the protection of people and their habitat, livelihoods and cultural heritage.

4.1 Resources: Professionals, technologies, institutions and networks

Professionals and practitioners are vital resources that must be cultivated, engaged and sustained during the United Nations Decade on Education for Sustainable Development and beyond. Special emphasis should be given to developing the abilities of professionals at the local and national levels. Regional forums, networks and alliances will provide opportunities to share experiences and expertise across borders.

Intellectual resources and technologies are available across countries and regions to develop new curricula, technologies and update existing ones. They should integrate theory and best practices, while taking care to balance the social, technical, administrative, political, legal, and economic factors of each community that can overcome universal barriers of ignorance, apathy, professional boundaries, and lack of political will. These in turn can be transformed into community enlightenment, empowerment enrichment.

Many different institutions and networks are available as global resources today, and it is important to promote cooperation, communication, coordination and collaboration among them. Examples include:

- 181 National Societies of the International Federation of Red Cross & Red Crescent Societies
- UNICEF
- UNESCO
- Professional-based associations and interactions
- University-based networks
- Regional and country-specific information centres
- E-networks and managed internet-based list-servs on disaster reduction
- National and local non-governmental organizations
- Community groups and networks

Networks and association in different geographic locations can marshal those intellectual and financial resources needed for advancing knowledge, innovation and education to protect people and property. Local and regional organizations are the foundation of the social, technical, educational, economic and political groups that set the spirit and tone towards building a culture of disaster resilience, influencing policymakers and stakeholders. These in turn influence national and regional entities that are key to institutionalizing knowledge management and education on a larger scale.

4.2 Delivery mechanisms: Proactive, field-based training, research and education

Education is the base of knowledge, and it generates understanding and training to develop capabilities to apply knowledge to a wide range of specific tasks such as analysis of disaster threats and vulnerabilities, planning and management for disaster reduction and environmental management. Both elementary and sophisticated techniques must be integrated and tailored for specific community applications, bearing in mind the compromise between information quality and costs.

Such applications should facilitate linking "top-down" and "bottom-up" initiatives, ranging from one-on-one mentoring and skill enrichment endeavours to specific community initiatives such as organization-to-organization and public-private partnerships. An infinite range of possibilities is available, including joint initiatives with the media, community staff training, workshops for community policy makers and stakeholders, community exercises, websites and ongoing awareness-raising and professional enlightenment programmes.

Distance-learning is one example of how knowledge can be created among a wider audience. An important aspect of the distance learning mechanism is its close link to field experiences. This is of particular importance and relevance to field practitioners and local government managers in distant locations as it provides linkages between "on-site testing" and "on-line learning".

4.3 Targets of opportunity: post-disaster learning

The aftermath of a disaster can be a turning point for changing education and research policies and practices. The experience of the Great Hanshin-Awaji earthquake of 1995 in Japan prompted a significant shift in education and research policies at the local and national levels. The most notable change was the integration of technical issues with socio-economic aspects of disaster reduction, fully recognizing the roles of civil society in the learning process. Similar changes were observed after the Marmara earthquake of Turkey (1999) and Bhuj earthquake of India (2001) which showed that the post-disaster environment provides an invaluable opportunity to raise public awareness while simultaneously taking action to improve community safety. This provides particular value in taking measures to protect its vital infrastructures, for example, schools and hospitals, and increasing their reliability. The right of access to education should not be compromised by an unsafe physical learning environment; for example, the youngest citizens who spend their days in school buildings should not be placed at high risk.

4.4 Measuring change

To improve effectiveness, there is a need to measure changes or accomplishments that have occurred in communities towards the achievement of specific challenges and objectives. It is essential to know whether awareness of risk is changing, whether safety and risk education initiatives through schools are effective, whether the information being provided is generating the needed risk reduction actions. For example, the number of professionals engaged in education and information exchange programmes for risk reduction reveals an increasing commitment and broader cooperation for risk reduction. An inventory of information tools and awareness-raising initiatives available, those under development and those needed in the future is another way of determining progress. Finally, a review of educational policies and programmes for their integration of the subject of disaster reduction in national and local curricula can indicate the extent of dissemination of knowledge and risk reduction information.