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Working Document

**Progress report on the review of implementation of the
Yokohama Strategy and Plan of Action for a Safer World of
1994**

**INTER-AGENCY TASK FORCE ON DISASTER REDUCTION
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Progress report on the review of implementation of the Yokohama Strategy and Plan of Action for a Safer World of 1994

UN General Assembly resolution A/RES/56/195 (para. 18) and A/RES/57/256 (paras. 4 and 5), requested the ISDR Secretariat to undertake the review of the Yokohama Strategy and Plan of Action with participation of stakeholders. This is a summary report of the current status of the emerging findings and it proceeds from the Annotated Outline of the Yokohama Review (WCDR/PC1/2004/2). Following, a draft working document is presented for members of the IATF-9 Meeting.

Task Force members are asked to comment on the broad assumption, examples and tentative conclusions outlined in this draft, which could be taken into account for the further development of the review.

The Yokohama Review is being conducted concurrent with planning for the World Conference on Disaster Reduction.

The current draft also suggests representative examples of reference material that will be cited and the tentative conclusions emerging from material currently available to the ISDR Secretariat. Information is supplemented by an information document prepared by the ISDR secretariat of Extracts on Disaster Risk Reduction from International Agendas.

The content and resulting conclusions will become more refined and elaborated during the course of 2004 based on additional material provided to the ISDR secretariat by national information expected by 15 June. In addition regional, thematic and partner organization are also contributing important information. The views of IATF members will provide further guidance about accomplishments, current challenges and important matters of emphasis for the future in disaster risk reduction.

Please send any comments to the ISDR Secretariat, to Terry Jeggle,
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Contents

- 1. Background**
- 2. Methodology**
- 3. Global context of disaster risk reduction (1994-2004)**
Hazards and Disaster Consequences: Impacting change
Growing Conditions of Vulnerability
Case for Risk Reduction Strategies
- 4. Review of accomplishments related to principles and policies**
- 5. Review of accomplishments related to activities**
- 6. Levels of Activity**
Local Community/National
Regional/Sub regional
International Level, including bilateral arrangements and
Multilateral Cooperation
- 7. Conclusions related to themes of the Policy Framework for Guiding and Monitoring Disaster Risk Reduction**
 - 7.1.** Political commitment and organizational aspects
Integral disaster risk reduction policies
Public participation and community engagement
 - 7.2.** Risk awareness and identification
Identification and assessment of risk
Early Warning Systems
 - 7.3.** Knowledge management
Public awareness practices
Building capacities and education, training and research
Exchange and use of information
 - 7.4.** Managing risks through multisectoral and specific areas of interest
environmental and natural resources management;
social and economic development,
poverty alleviation,
financial instruments or mechanisms,
traditional knowledge and experience,
technical programmes of infrastructure protection and physical measures,
land use and planning practices,
advanced technologies
 - 7.5.** Preparedness and emergency management
- 8. Future support to national and local efforts to reduce risk and reporting on accomplishments**

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1. Background

At its 57th session (A/RES/57/256), the United Nations General Assembly requested that a review of the Yokohama Strategy and Plan of Action be conducted (the “Yokohama Review”), in particular by its request to the Secretary-General, with the assistance of the secretariat for the ISDR to plan and coordinate such a study of accomplishment. Member States reiterated the request for such a global review at the 58th session (A/RES/58/214) and decided to convene a World Conference on Disaster Reduction in January 2005 in Kobe Hyogo, Japan, to conclude the review, with a view to updating the guiding global framework on disaster reduction for the 21st century.

The Yokohama Review currently is proceeding as an analytical process that reflects the current state of awareness and accomplishments, limitations and constraints, and expresses major conclusions in global disaster risk reduction from 1994 to the present. The Review proceeds from the adoption of the Yokohama Strategy and Plan of Action for a Safer World at the World Conference on Disaster Reduction held in Yokohama, Japan in May 1994, and later endorsed by the 49th session of the UN General Assembly in December 1994.

Subsequent documentation will be taken into account from the remaining years of the IDNDR (e.g. Conclusions of the IDNDR Programme Forum, the Proceedings of the Sub-Forum on Science and Technology in support of Natural Disaster Reduction, the Final Report of the IDNDR Scientific and Technical Committee, all from 1999).

The recommendations that led to the launching of the ISDR equally are taken as indications of Member States’ expressions of evolving concern, particularly pertaining to fostering improved intersectoral collaboration and coordination of disaster risk reduction commitments within and beyond the United Nations system (e.g. ISDR resolution UN Res: 54/219, synthesis of IATF Meetings 1 – 8 (2000-2003), and consolidated reporting of its Working Groups.

The growing understanding and acceptance of the importance of disaster reduction is dependent on the subject’s embodiment in commitments to sustainable development most recently and best expressed in the Johannesburg Plan of Implementation adopted at the World Summit on Sustainable Development in September 2002, and therefore also integral to the realization of the Millennium Development Goals leading to accomplishments by 2015.

With a view to increase commitments for more widespread protection of people and their livelihoods from natural hazards and related technological, environmental and biological risks, the Yokohama Review will provide the basis to update and emphasize effective disaster risk reduction strategies appropriate for the 21st century.

This progress report provides an initial indication of those emerging conclusions based on the continuing review of existing information. It invites IATF members’

views regarding altered emphasis, additional information and further professional guidance that may lead to improved effectiveness in disaster reduction as may be expressed through the forthcoming World Conference on Disaster Reduction in Kobe Hyogo in January 2005.

2. Methodology

The ISDR secretariat has been engaged since 2001 in the systematic collection of information on policy, technical and awareness raising activities to reduce disaster risks around the world; the identification of the many organizations involved with different dimensions of the subject; and documentation about accomplishments in many related sectors associated with humanitarian, environment and development endeavours. It has coordinated this on-going collaboration with partner organizations, government authorities, regional and specialist institutions, various entities of the United Nations system, public interest and civil society groups among others.

The most relevant experience in disaster risk reduction from 2000-2004 is in the process of being consolidated and reviewed by the ISDR secretariat working in consultation with Governments and relevant organizations of the United Nations system, and by drawing on the experience and knowledge of regional, academic, technical and professional organizations, international financial institutions, NGOs and other ISDR partner organizations.

Supporting documentation is available from global development agendas or areas of interest that command widespread international commitment. Crucial related areas of global responsibility include international humanitarian commitments, poverty alleviation, sustainable development, climate variation and change, gender, global equity issues, good governance public participation, as well as development sectors.

See the information document Extracts on Disaster Risk Reduction from International Agendas for supplemental reference material from selected initiatives, including the Barbados Plan of Action for Small Island Developing States (1994) considered under a ten year review (2004); the UN Millennium Declaration and Development Goals (2000); the Programme of Action for Least Developed Countries 2001-2010; the Declaration on Cities and Other Human Settlements in the New Millennium (2001); the International Conference on Freshwater (2001) and Third World Water Forum (2003), the UNFCCC COP7 Session (2001), the UNCCD COP 6 Session (2003), etc.

This accumulated experience has been compiled in a global review of disaster reduction initiatives that also serves as an institutional directory and sourcebook of entities associated with disaster reduction in practice. *Living with Risk: A global review of disaster reduction initiatives* was first circulated in a preliminary version in 2002 for widespread professional comment and institutional review for improvement and to enhance both awareness and public participation in the exercise. It is now currently being published in its expanded and updated 2004 version as a United Nations publication. (It is this 2004 version that is referred to throughout the present background paper).

During this process, specialists and regional organizations within and beyond the UN system have conducted both thematic and subregional/regional reviews. These

contributions were augmented by commentary provided by 55 national governments through an ISDR questionnaire inviting their informal self-assessment of progress being pursued in disaster reduction policies and activities.

Additional materials about current efforts and perceived constraints to disaster reduction continue to be compiled during 2004. These include summarized information from a series of thematic and regional meetings in which the ISDR secretariat, IATF Members, and other partner organizations are participating. Documentation and reporting processes are underway to obtain updated information from individual countries and additional subregions focusing on accomplishments, limitations and expressions of future priority areas for disaster risk reduction.

The conclusions of the Yokohama Review are being distilled from a methodical consideration of pertinent activities and related global endeavors, which identify and are working to reduce disaster risks. In accordance with UN Res. 57/256, these conclusions will become increasingly refined during the course of 2004 by continuing dialogue and consultations with relevant organizations.

Different formats will be used to disseminate the information gained by the Yokohama Review process to accommodate the various requirements of different constituencies. Current thinking is for the ISDR secretariat to produce a succinct official report (16 pages, all UN languages); a book for wider public and professional dissemination of good practice and current experience (ca. 350 pages, initially in English); Guidelines in disaster risk reduction for policymakers (20 pages, all UN languages). Later, in 2005 a joint global report of UNDP and ISDR secretariat about Disaster Risk Reduction and Sustainable Development is planned. A final working draft of these publications will be presented to the IATF-10 Session in October 2004.

3. Global context of disaster risk reduction (1994-2004)

During the early stages of the International Decade for Natural Disaster Reduction (IDNDR), representatives of 155 countries and territories attended the World Conference on Disaster Reduction in Yokohama in May 1994, where they expressed the importance to make natural disaster reduction part of their development plans; otherwise progress in social and economic development would continue to be eroded by recurring disasters. This was the essence of the Yokohama Strategy and Plan of Action for a Safer World.

CONCLUSION

The emphasis given to reducing the physical, social, economic and environmental vulnerability through the enhancement of national and local capabilities remains the bedrock foundation of successful disaster risk reduction.

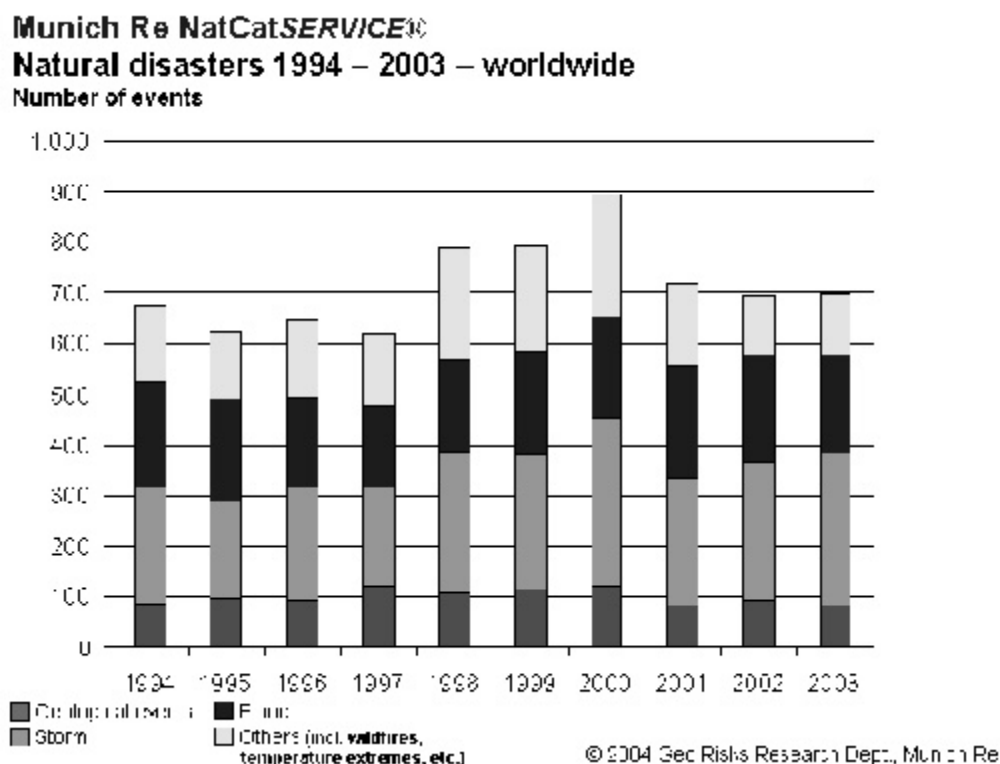
3.1. Hazards and Disaster Consequences: Impacting change

In the ten years between 1994 and the end of 2003, there have been about 7,100 'natural' disasters that have occurred around the world, killing more than 300,000

people, and causing more than US\$ 800 billion in losses.¹ The number of “great natural catastrophes” recorded by Munich Reinsurance during the past 10 years has averaged 60 per year, 2.2 times more than during the 1960s. The fact that the US\$ 515 billion in economic losses associated with them is almost seven times greater than the losses incurred during the 1960s (calculated in constant 2003 values), is even more dramatic.

Figure 1 indicates the primary types of disasters and annual numbers of these disasters that occurred during the period. On highlight of the period was that it witnessed one of the most intense El Niño / ENSO phenomena of the century during 1997-98. Important for future prospects of reducing related risks, this period was also one of the best documented of these irregularly occurring episodes of changed ocean and weather patterns that are often associated with serious hazardous impacts in many parts of the world.

Figure 1.



The period also witnessed intense interest in global warming with 1998, 2002 and 2003 being the warmest years ever recorded. This has fuelled heated discussions about the potentially adverse conditions associated with climate variation and change. Some commentators see such climatic conditions as indications of more and similarly disastrous risk consequences of global warming in coming years.

¹ This data and following chart are provided by Munich Reinsurance NatCat Database, compiled for the ISDR secretariat in April, 2004. Additional data for 2003 is from MunichRe’s *TopicsGeo Annual Review of Natural Catastrophes, 2003*.

The IPCC has noted that "... regional changes in climate have already affected hydrological systems and terrestrial and marine ecosystems", and "that the rising socio-economic costs related to weather damage and to these regional variations suggest increasing vulnerability to climate change". This in turn is projected to "increase threats to human health particularly among lower income populations and within tropical and subtropical countries".

Inhabitants of small islands and low-lying coastal areas are placed at particular risk of severe social and economic effects from sea-level rise and storm surges. Overall, an increase in climate variability and some extreme events is projected with modeling that suggests "... increasing concentrations of greenhouse gases resulting in changes in the frequency, intensity and duration of extreme events". (See IPCC Summary for Policymakers of the overall Synthesis Report, the findings of the World Water Agenda, MunichRe Topics Geo Annual Review 2003, 10 Year Review process of Barbados Plan of Action for SIDS, etc.)

Two-thirds of the recorded disasters during the period were floods and storms. These included several >1:100 year floods, record rainfall episodes and unprecedented storms (e.g. Bangladesh, China, India, Venezuela, Western and Central Europe, Southern Africa, Mexico, USA). Historically, the most costly, or serious hail/ice or winter storms also were recorded in Australia, Canada, Mongolia, and parts of Western Europe, while the USA suffered two of its most serious tornado seasons in 1998 and 2003.

It was equally a period of extremely severe and protracted drought conditions, at times accompanied by record-setting temperatures (Southern and Eastern Africa, Central America, Western Europe, USA). The UNDP global report *Reducing Disaster Risk* observed that African states have the highest vulnerability to drought even if there were methodological limitations to making any firm country-specific finds, but it added that field study reinforced the evidence that "... the translation of drought into famine is mediated by armed conflict, internal displacement, HIV/AIDS, poor governance and economic crisis."²

The combination of prolonged conditions of heat and dry conditions in many parts of the world contributed to some of the most severe fire seasons recorded in many different countries (e.g. in Australia, Canada, France, Spain, Portugal, Central American countries, Mexico, South-East Asian countries, Russia, and USA among others).

The reasons were varied but demonstrate several mediating circumstances. Extended droughts triggered by the El Niño – Southern Oscillation (ENSO) phenomenon in 1997-1998 favored excessive use of fire by people to make changes in land use, resulting in particularly large wildfires in the tropics. Both of these developments caused above-average emissions of greenhouse gases and near-ground smoke pollution affecting human health and security. Uncontrollable wildfires in the USA between 2000 and 2003 are considered to be a consequence of earlier fire exclusion policies and regional climate change. The CIS countries and other countries in transition suffered institutional shortcomings, which resulted in widespread wildfires.

² *Reducing Disaster Risk: A challenge for development*, UNDP, 2004, p. 3.

More abandonment of the rural space in Southern European countries involving less intensive utilization of vegetation, has contributed to increasing severities of fires there with subsequent land degradation and secondary disasters

Although geological disaster events accounted for about 15 % of the recorded events, they resulted in one-third of the 300,000 fatalities during the ten years. While the 1995 earthquake in Kobe, Hyogo Japan was by far the most costly single event during the period with more than US\$ 100 billion in losses and more than 5,000 people killed, the Northridge California earthquake in the preceding year became the most expensive disaster recorded in the USA at a cost of US\$ 44 billion and 51 fatalities.

The succession of highly destructive and deadly earthquakes that occurred between 1999-2004 successively in Izmit, Turkey; Taiwan, China; Gujarat, India; Tegucigalpa, Honduras; Molise, Italy; Algiers, Algeria; Bam, Iran; and Al Hoceima, Morocco raised a growing public outcry about the needlessly high number of fatalities because of unsuited land use, inadequate or ineffective code enforcement or poor construction practices. These events marked an important public display of the political liabilities of unmitigated vulnerability and disaster risks.

Severe debris- mud and/or landslides that demonstrate the compound effects of hydro meteorological, seismic, and environmental hazards accounted for another 40,000 deaths in countries that included Venezuela, Honduras, Nicaragua, Italy, Sri Lanka, China among others.

In 2003 alone, there were 700 recorded natural disasters, similar to the number of the previous year, with economic losses of more than US\$ 65 billion, an increase of 18 % over the previous year. Almost three-quarters of these events involved hydro meteorological hazards, mostly of wind, storm and floods, but it was earthquakes and other geological events that were responsible for fully two-thirds of the 78,000 human fatalities during the year.

Strikingly the two most deadly events during 2003 were characterized by contrasting traditional means of loss and damage, and others, which may signal concerns for more severe emerging disaster risks in the future. In the first instance, more than 28,000 people perished in frequently typical and unfortunate recurring events of deadly and destructive earthquakes, the 6.5 magnitude event centred on Bam, Iran. An almost equal number of fatalities (est. 27,000) and US\$ 13 billion in losses resulted from the anomaly of climatic conditions that created an extraordinarily untypical and extended summer heat wave that spawned additional severe drought and fire consequences across much of Europe.

As conditions of vulnerability have been more widely taken into account in considering exposure to risk, there has been correspondingly more attention paid to additional environmental, technological and biological hazards. Growing sensitivity has developed in understanding the relationships between careful land use, sustainable environmental practices and the management of natural resources and the relative exposure of populations to disaster risks. Such knowledge can be further applied more explicitly to protect people from avoidable disasters.

Short-term economic motivations, uncontrolled exploitation of natural resources or over-reliance on structural efforts which attempt to “manage” natural forces have each contributed to increasing risk and the relative severity of disasters that later occur. Proactive efforts drawn from the cultivation and considered use of natural resources to manage risks is a greatly under-exploited opportunity for applied and “win-win” solutions to disaster reduction.

There is considerable opportunity to develop enhanced relationships and more active cross-cutting interests among the disaster-focused elements of the disaster risk management community and environmental organizations or NGOs (e.g. World Conservation Union, World-wide Fund for Nature, International Institute for Sustainable Development) and among the various related international conventions (e.g. RAMSAR Convention on Wetlands, Convention on Biological Diversity (CBD), UN Convention to Combat Desertification (UNCCD), UN Framework Convention on Climate Change (UNFCCC), etc.).

The disastrous social and economic effects of HIV/AIDS infection most immediately evident in parts of Africa and threatening equally severe disaster consequences in many other countries with particular concern in parts of Asia demonstrate the futility of identifying risk reduction with “natural” hazards alone. The World Food Programme has done an important service for public and policy awareness in raising the visibility of how this biological hazard strikes at the fundamental human needs of food production, the economic viability of education, training and other skilled professions, and the consequential severe social demands that can further weaken a society.

The global experience in only the past few years of additional and highly visible international epidemics, such as those associated with SARS, “mad cow” disease, Avian flu, Ebola and other haemorrhagic fevers, underlines the transnational nature of their severe economic consequences and potential political risks to national and local communities, and even individual livelihoods. The global importance of these emerging risks for the public health emanating from animals, and the huge related social and economic consequences for all countries is underlined by an international conference organized in Geneva by WHO on the transmission of animal diseases to humans (May, 2004).

TENTATIVE CONCLUSION

By 2004, the use of the term “natural disasters” has advanced in understanding more widely the disaster risks, the increasing exposure and vulnerability and interfaces among natural, technological, environmental and biological threats to societies. This is necessary because of their inter-related and often compound effects on sustainable development contexts, especially on developing small island States, least developed countries and other highly vulnerable societies or groups.

Figure 2. Disaster losses, total and % of GDP, in the richest and poorest nations, 1985-1999³

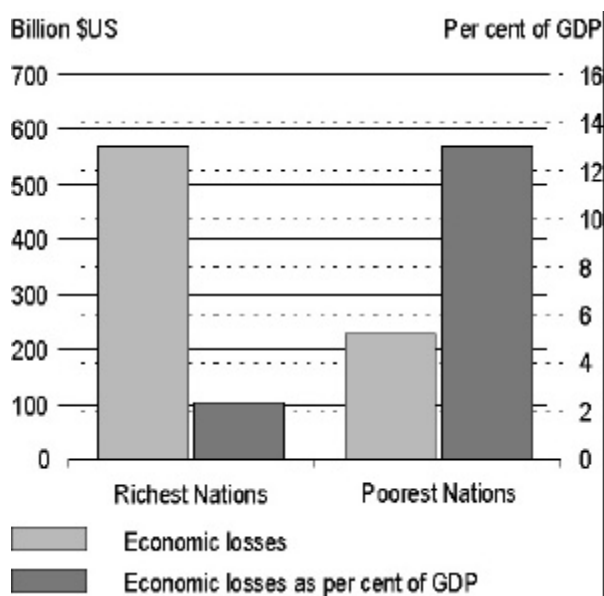


Figure 2 indicates that while overall losses from disasters are greater in the richest countries, when the relative losses are considered as a percentage of national gross domestic product, they are significantly greater among the poorest nations.

Annual losses in the range of US\$ 60 to 80 billion from disasters provide a striking contrast with development investment during a similar time period, as international assistance expenditures have hardly offset such annual losses from disasters. The total official development assistance provided annually by the 22 industrialized countries which are members of the Organization for Economic Cooperation and Development's Development Assistance Committee (OECD's DAC) has averaged between US\$ 50–55 billion per year during the same period.

Emergency relief assistance allocated specifically for crisis situations by the same DAC donors during the 1990's has declined from the 1990s decade high of 'only' US\$ 4.4 billion in 1999. The amount of US\$ 3.6 billion allocated in 2000 was still the second highest amount of the preceding decade.⁴ The explicit investment in disaster reduction as a portion of such humanitarian assistance is much smaller. A striking example of this is the re-establishment of the European Union Solidarity Fund of 1 billion Euros following the severe floods in 2002, but with any expenditure reserved for recovery actions only *after* valued public assets and infrastructure are lost to disaster.

TENTATIVE CONCLUSION

In the face of such growing and more diverse risks to societies, inconsistencies remain in the unbalanced allocation of short-term expenditures for emergency relief assistance for all types of humanitarian emergencies or immediate recovery

³ Source: Adapted from Munich Re, 1999. Quoted in *Living with Risk* (2004), p. 25.

⁴ World Disasters Report: Focus on reducing risk, International Federation of Red Cross and Red Crescent Societies, Geneva, 2002. p. 175-76.

following a disaster, in contrast to longer-termed investments in development initiatives to reduce vulnerability beforehand to minimize known, and often recurrent risks.

The conditions of war, conflict or other potential threats of violence, which greatly affect matters of national security that currently dominate the media and demand the public's attention. As they become more numerous or protracted, such conditions exert more potential political impacts, as the growing acceptance of the concept of "failed states" has come to denote since the early 1990s.

In this respect, the UN Under-Secretary General for Humanitarian Affairs has stressed that "... reducing the human, economic and environmental losses from natural disasters, remains one of our key global and collective challenges...", further noting that "... on average, with well over 200 million people every year affected by 'natural' disasters since 1991, this is seven times more than the average of 30 million people affected annually by conflict."⁵

While the matters of war, conflict and national security clearly are beyond the mandate of the ISDR, considering the extent of social and economic costs, and potential political consequences, proactive approaches dedicated to the reduction of disaster risks in the context of *human security* is no less important. Current attention given to risk and crisis issues globally may provide a previously unforeseen opportunity to stimulate public attention generally and to advance official policies specifically to identify, monitor and manage locally determined risks.

TENTATIVE CONCLUSION

Wide differences of relative emphasis and even likely contradictions (e.g. in funding modalities, criteria, etc.) between humanitarian relief or recovery, risk reduction and development commitments continue to exist as cumulative vulnerabilities deepen, especially among the poorest countries, weakest governments or among the least accessible and disadvantaged members of any society.

3.2. *Growing Conditions of Vulnerability*

There is much evidence from the past ten years of rapidly expanding vulnerable populations, with growing concentrations of people living in urban environments exposed to natural, environmental, technological and biological hazards. In both industrialized and developing countries, and often motivated by a desire for economic betterment, more people have migrated to coastal and seismically hazardous areas. (e.g. *MunichRe Topics 2000; Natural Catastrophes – the current position, 2000*).

By the year 2000, one-half of the world's population lived in urban areas, occupying only 3 % of the earth's land. Over three-quarters of the 100 largest cities in the world

⁵ Jan Egeland, UN Under-Secretary General for Humanitarian Affairs, and Chair, UN Inter-Agency Task Force for Disaster Reduction, Introductory Comments, IATF-8 Meeting, 5-6 November 2003, Geneva.

are situated in a location exposed to the potential of serious natural hazards, and one out of every two large cities in the developing world is vulnerable to natural disasters such as floods, severe storms and earthquakes. All of the 50 fastest growing cities of the world are located in developing countries, and 80 % of the entire world's population will reside in developing countries by 2025.

Growing disaster consequences further demonstrate a similar increase of exposure to natural and related environmental and/or technological risks often motivated by the pursuit of economic objectives, livelihood requirements or enhanced social lifestyles. Human habitats, behaviour, infrastructure and often-adverse consequences encroach on former wildland or previously undeveloped periurban areas. (e.g. urban-wildland fire interface in California, USA (2004), Canberra and Sydney Australia (2003), Portugal, Spain and France (2003); urban sprawl and growth of informal settlements surrounding mega-cities in Asia, Latin America, Africa; or reduced water availability for residential and personal use through expanding settlements into previously uninhabited or ill-suited landscapes in many parts of the world, etc.)

Social and economic pressures that impact segments of populations with growing inequity exacerbate these conditions of physical vulnerability. Studies and experience demonstrate that both the exposure to risks and the resulting consequences for a society or community are compounded. (e.g. D. Mileti's *Disasters by Design: A reassessment of hazards in the United States* (1999), Wisner, et al, *At Risk* (2004), UNDP's *Reducing Disaster Risk: A challenge for development* (2004), plus media and NGO commentaries of community experiences in Izmit, Turkey earthquake (1999), Venezuelan mudslides (1999), Gujarat, India earthquake (2001), etc.)

3.3. Case for Risk Reduction Strategies

Conditions existing ten years after the Yokohama Strategy argue forcefully that a methodical approach to disaster risk reduction by a society is likely to be a more cost-beneficial strategy than the prior reliance on largely contingent and emergency response capabilities whose capabilities are best appreciated only after assets have been lost or seriously damaged. Comprehensive strategies geared to reducing exposure to risk and minimizing vulnerability (or increasing community resilience) have been embarked upon in China (from 1995-continuing), South Africa (1999-2004 continuing), Mozambique (1999- continuing), Mongolia (2002-2004 continuing, New Zealand (since 1994 – continuing), South Pacific island states (1993-continuing), Australia (1994 - continuing), Andean countries especially Colombia and Bolivia (1998 – continuing), and Central American countries (1998 – continuing, etc.).

One astute analysis of emerging risk management requirements has described how an unintended consequence of the rapid and profound scientific and technological changes in the modern global economy and environment may be an exponential rise in human exposure to emergencies and disasters. It notes, that “such humanitarian crises may, in no small part, be due to planners’ inability to anticipate potential hazards and to appreciate their significance, and to decision-makers’ inability to reconcile competing demands for resources”. (R. Kent, “Humanitarian Futures and Adaptive Failures”, in *Conflict, Security and Development* 2:3, 2002.).

TENTATIVE CONCLUSION

There is evidence to suggest that now in more general terms societies' abilities to increase their exposure to risk has significantly exceeded their institutional capacities to perceive, and much less to act on addressing those risks – *unless or until* a serious change of approach comes from within the guiding values of the organization and society, and their respective policies of governance.

4. Review of accomplishments related to principles and policies

The Yokohama Strategy and Plan of Action for a Safer World (1994) is widely recognized for having set the stage internationally for building a viable range of commitments and identifying specific activities to carry them out. The development of policy formulation and the official endorsement of disaster risk reduction is increasingly recognized as an essential element in achieving sustainable development. Accomplishment also is indicated by a wider acceptance of disaster risk reduction concepts, among a growing number of specialists in the field and associated international endeavors dealing with national and human development practices.

The guidance provided initially through the Yokohama Message and the far-sighted Principles of the Yokohama Strategy has served well to identify and outline the crucial areas of expected commitment to a strategic Plan of Action. The Principles must be considered particularly insightful as they all remain as valid, and even more important today as cardinal principles to be re-emphasized in the 21st century.

They continue to provide an important point of reference to regard the more recent and pressing developments that underline the needs for a more cogent and coherent global strategy. A Vice President of the World Bank cites natural disaster prevention and mitigation as a crucial future challenge, as too many of the present means of solving them in an interconnected world are tied to the past (J-F. Rischard's *High Noon: 20 Global problems and 20 years to solve them*, 2003).

The Organization of Economic Cooperation and Development's International Futures Programme has similarly highlighted the changing nature and altered contexts of major risks in the modern world and for which societies' capacities to meet them may be severely challenged (*Emerging Systemic Risks in the 21st Century*, 2003). The Final Report of the IDNDR Scientific and Technical Committee made similar observations in 1999, when it noted that among other emerging hazards, "... with an increasing interdependency between information, complex technological facilities, human systems and hazards there is now the potential for catastrophic failures on a global basis".⁶

In only one month in 2003, there were four occasions of major electricity system failures, plunging major parts of US and Canada, London, parts of Sweden and

⁶ Final Report of the Scientific and Technical Committee of the IDNDR, UN document A/54/132/Add.1 – E/1999/80/Add.1, 18 June 1999. p. 10.

Denmark, and half of Italy and parts of Switzerland and France into darkness. In each case, these events caused untold economic losses and major social disruption, over the better part of a week for as many as 55 million people at a time. As one and perhaps two of these events initially may have been triggered by trees coming into contact with transmission lines, they may give an entirely new meaning to the perception of “natural” disasters.

TENTATIVE CONCLUSIONS

The Principle that **“environmental protection as a component of sustainable development consistent with poverty alleviation is imperative in disaster reduction”** is fundamental to addressing the risks of the 21st century.

The related Principle that **disaster reduction be integral to development policy and planning at national, regional, bi- or multilateral, and international levels of responsibility** is essential for activities to be planned and implemented in a sustained manner.

The recognized importance of these two related principles has grown significantly since they were outlined in 1994. Besides forming the basis of the ISDR and receiving its most recent explicit endorsement in the Johannesburg Plan of Implementation of the World Summit on Sustainable in 2002. They have been reinforced continuously in a growing list of declarations and global agendas. Most recently the case has been made by UNDP’s *Reducing Disaster Risk: A challenge for development* (2004), and was previously outlined in articles such as J. Abramovitz’s “Unnatural Disasters”, published by the Worldwatch Institute, Washington D.C. (2001).

The doctrine linking risk – social and economic development – environmental management can only be intensified and deepened by the increasing knowledge of the effects and potential consequences of climate variation and change on hazard occurrence and the social, economic and political interests of societies and the future threats or prospects for individuals’ livelihoods.

These points are expressed in numerous other references. (see ISDR’s Information document of extracts on Disaster Risk Reduction from International Agendas). Additional support for the principle is evident in IFRC’s World Disaster Report for 2002 on Reducing Risk; UNEP’s GEO-3 publication; ADPC/SIDA’s *Report on Environmental Degradation and Disaster Risk; Risk Management in Water and Climate: The role for insurance and other financial services*, edited by Hoff and Bower (the Dialogue on Water and Climate) and Berz, Kron, Loster (Munich Re), documentation from the 12th Session of the Commission on Sustainable Development and the Preparatory Committee for 10 year Review of the Barbados Plan of Action for SIDS, etc.).

The Principle that **primary importance be accorded to risk assessment**, remains a crucial starting point for reconstitution of national strategies for disaster risk reduction, and most importantly for action in managing risks. Experience demonstrates that the extent to which risk reduction is focused on local conditions and vulnerability, it can become a powerful instrument to inform and progressively

engage people in active participation to identify and then manage the risks to which they are exposed.

The consideration of multiple perceptions of risk among different segments of the population equally leads to dialogue within a society as well as with an expanding range of interests and abilities. The encouragement of such a collective effort also demonstrates the essential need for systematic availability and use of information, which is otherwise often scattered or lacking. Fortunately the exercise simultaneously brings together the essential sectoral resources that are motivated to address this common need from the pooling of various abilities and resources.

TENTATIVE CONCLUSION

Beyond the identification and priority determination of disaster risks, the process of risk assessment is a productive motivation to increase public, political and professional awareness and participation in disaster risk reduction activities, particularly at local community levels.

Principles from the Yokohama Strategy relating to the **importance of developing and strengthening human and institutional capacities, education, training and sharing knowledge** have become standard tenets of sustainable development endeavors over the past ten years. Similarly, the associated Principle of **increasing public participation in risk reduction particularly at local levels of decision-making and activity** can only be realized through concerted efforts that expand public awareness, education and training of the whole community – both in terms of policy and actions.

Each of these subjects are embodied in all four stated objectives of the ISDR Framework for Action adopted by the Inter-Agency Task Force on Disaster Reduction in 2000. Notably, they are also made even more economical and achievable in the future with the opportunities provided by modern information and communications technologies, if harnessed together through education in many fields working to reduce risks. Many examples of each are reviewed throughout *Living With Risk* (2004), and particularly in Chapters 3.4., 4.1., 4.2., 4.3., 4.4. and 4.5. Future global commitments to the Decade on Education for Sustainable Development (2005-2015) being coordinated by UNESCO equally will include the inherent relationships among education, risk and sustainable development.

TENTATIVE CONCLUSION

Taken together, features that educate and create human capital need to become a strategic priority of disaster reduction. They constitute the most valued and lasting of resources, and serve as the mainspring of sustainability.

The Principle that **each country bears the primary responsibility for protecting its people, infrastructure and other national assets from the impact of natural, and**

all other, hazards to forestall disasters may be accurate in the broadest sense, but it also leaves considerable room for inadequate attention to the subject.

Most countries and many governments demonstrate a variety of individual measures, regulations, programmes and functional responsibilities that can be related to protecting citizens from natural and other types of hazards. While such measures can be construed as expressing the fulfillment of a responsibility, examples of unnecessary loss or damage from disasters continue to be far too common to attribute formalistic approaches to actual risk reduction in practice.

As the perceptions about the relative merits of globalization vary widely among individual countries, there is a growing need to take account of the interdependence of countries, the impacts of global policies on national economies and the larger social and economic consequences of structural adjustments imposed by financial institutions on developing countries. (e.g. Christie and Hanlon's book, *Mozambique and the Great Flood of 2000*, pub. 2001), and the International Monetary Fund's study on low-income country susceptibility to disaster risks (2004).

These implications, as well as other constraining elements of political ecology need to be taken into account when assessing growing vulnerability and emerging risk factors in developing countries. Debilitating conditions arising from such examples as economic migration, prejudicial immigration policies, reduced availability of social benefits, restricted access to global markets, protective commercial subsidies and the constraints of accumulated debt can contribute to increasing stress within countries, worsening conditions of vulnerability, or otherwise limit the resources or capabilities needed to pursue risk reduction strategies.

The sense of individual personal, family, community, corporate, professional, or even human responsibility should neither be overlooked nor disregarded in the belief that it is solely the obligation of "the government" to protect one's own self-interest, life, livelihood, property and well-being. Public awareness about hazards and disaster risks is important to inform the citizenry and vulnerable residents of a community, but it is also important that it equally be able to motivate a widespread recognition of people's own responsibilities and direct participation in reducing their own exposure to risk, individually and collectively.

While recognizing the differing demands that each country must take into account for its respective political, economic and development policies, the realization of this Principle in action has continued to be challenging, and despite individual exceptions, often problematic. Many countries continue to fix the responsibilities of disaster management predominantly on the occurrence of disasters as singular events where much attention is focused on the preparation or provision of emergency services.

Given a concentration on disaster events, in contrast to hazards, vulnerability and resulting risk factors it is less likely that disaster management programmes routinely additionally also encompass professional capabilities as those drawn, for example from environmental, climatic, technological, sociological, educational or economic dimensions more readily associated with sustainable development aspirations.

Equally the Principle continues to reflect reliance on the responsibility of the **international community to demonstrate strong political determination to mobilize adequate and efficient use of existing resources**, including financial, scientific and technological means for disaster reduction.

Throughout the period following the Yokohama Strategy there has been continuous expectation and reliance on the international community through the United Nations, international organizations and financial institutions, bilateral and multilateral agencies to mobilize resources for disaster reduction. In particular, efforts have encouraged the integration of risk reduction approaches and measures in current development and sectoral investments. However, the relative extent to which this principle has been fulfilled remains very difficult to assess. Commitments clearly have been made through various initiatives and of different means, but there is a lack of explicit data or clearly determined reference material to quantify either total expended on the subject or means to measure relative change over ten years.

As in the case of responsibilities cited above, an under appreciated key to successful disaster risk management may be the re-allocation of already existing resources or capacities for the protection of personal resources or public assets. This is unlikely to be possible without a full understanding of the feasibility and the expected benefits of doing so.

International funding practices continue to be allocated and expressed under quite distinctive procedures that relate to conditions of either emergency or humanitarian events, or commitments to sustainable development programmes. Other resources such as those identified with trade and commercial practices outside of the international technical and development assistance context are additionally described as investments in national development, but there is no reliable way to assess how much risk reduction is included or taken into account in those programmes and practices.

There have been additional allocations of resources for the subject in material, financial, technical and material terms, but the overall expression among policymakers and practitioners alike has been that there is much less actual allocation of resources in all domains to match the expressions of need for disaster reduction. To some extent the problem of resource commitment stems for the absence of clear earmarking of resources for disaster reduction, which would certainly benefit from explicit designation. The previous IDNDR, and current ISDR secretariats' budgets are a case in point, as the activity continues to be regarded as an extra-budgetary activity of the UN to be supported solely by voluntary contributions of Member States.

There are some recent examples of efforts to overcome this at least on a country basis, as the South Africa law on disaster management adopted in 2003 requires all of the country's 53 municipalities to establish a local budget line for the assessment and management of local risks. The specific designation of the subject for budgetary or explicit allocation purposes is yet to become evident in most international organizations or agencies. Fortunately, UNDP has benefited since 1998 from an annual budgetary allocation for disaster reduction activities inherited from the previous disaster mitigation programme of the former Department for Humanitarian Affairs.

TENTATIVE CONCLUSIONS

Despite the growing expressions of perceived importance and intentions, the demonstration of sustained commitments of political will, and related resource allocations for tangible disaster risk management practices planned and conducted within a strategic framework remain difficult to gauge, or are unevenly realized.

The explicit designation of risk reduction activities in relation to operational responsibilities and expected results expressed in national planning exercises, as well as equally explicit budgetary lines for the subject at any level of responsibility could begin to provide greater visibility to the efforts and resources contributed to the subject.

5. Review of accomplishments related to activities

The Yokohama Strategy's Plan of Action for a Safer World advanced many recommendations for action derived from the Principles, expressed as activities to be pursued at the community/national, regional/sub regional, and international levels (in the latter case, particularly through bilateral arrangements and multilateral cooperation). A simplified summary of observations about accomplishments in such activities follows, with particularly relevant limitations or constraints also noted.

Initial, and tentative conclusions are cited [in boxes]. It is expected that as they become finalized during the course of 2004 with the benefit of additional inputs received from ISDR partners, they will provide useful guidance for the future. Specifically, they may be instrumental in determining the crucial perspectives and identifying the most important emphasis for priority activities to elevate the effectiveness of disaster risk reduction globally in the 21st century.

Supporting examples are abbreviated here, but attention is drawn to the fact that each of the designated headings is supported by numerous examples and initiatives contained in the ISDR publication, *Living with Risk*, (2004 revised and updated version), with the relevant chapters noted for each subject.

It is anticipated that additional country, regional, and thematic reporting may sharpen the focus of critical areas, as well as suggest possibly different degrees of importance or preferred approaches more suited to one set of geographical or national conditions in contrast to others.

TENTATIVE CONCLUSION

It is important to be cautious about expressing clear purposes, priorities and the consequent assumption of leadership responsibilities to promote and ensure implementation of disaster risk reduction at each of the levels of activity.

The following components listed below are identified in the Yokohama Strategy and Plan of Action emanating from the Principles or expressed as specific actions to be pursued. They are presented here in accordance with the broad themes indicated and the specific subheadings cited in the Policy Framework for Guiding and Monitoring Disaster Risk Reduction that has been developed jointly by the ISDR secretariat and UNDP during 2003. Additional professional dialogue among specialists, regional and individual government officials' commentary, and a specific virtual forum conducted during 2003 have helped to gauge the appropriateness, utility and refinement of the mechanism as a useful way of consistently addressing the essential components of disaster risk reduction.

The Policy Framework also represents the areas of activities discussed in Living with Risk, and was presented at the IATF Sessions 7 and 8, in April and November, 2003, respectively. This provides two advantages of providing consistency in subject matter, and working to advance a common conceptual clarity and nomenclature suited to international dimensions of disaster risk reduction. These themes and subjects outlined in the Policy Framework also are consistent with the elements being employed in the planning process leading to the World Conference on Disaster Reduction in January 2005.

6. Levels of Activity

6.1. Local Community/National

Refer to Living with Risk, (2004), Chapters 3.1., 3.4.

As an uninformed, uninvolved or marginalized community is unlikely to be a safe community the effectiveness of a national programme of disaster risk management ultimately has to be addressed by, and measured at local levels of activity. However, as required direction, technical or specialized abilities and resources are likely to exceed local capabilities alone, appropriate and larger scale planning and perspectives also are required. While the Yokohama Strategy and Plan of Action called for national commitment and the development of comprehensive programmes, this cannot be realized without the mobilization and full participation of people at the local level. This depends on genuine community involvement, including the empowerment of women and socially disadvantaged groups at all stages of decision-making and activity. As evident as these ideas are in sustainable development thinking, they continue to be novel in much of disaster risk management in practice.

The rehabilitation programmes throughout rural Gujarat following the earthquake in 1999 were important as they represented an important demonstration of collective local community endeavours. To an important extent these were motivated by and later reported on by many NGOs and CBOs using both international and local resources. The benefits of such "micro-experience" derived from the Disaster Mitigation Institute, SEEDS, Swayam Shiksam Prayong however remain largely local successes with less likelihood of extending their knowledge and experience further. It is much harder to identify a body of community interests in terms of engagement with disaster reduction, although there are NGOs like LA RED in Latin America, Peri Peri in Southern Africa, Duryog Navaran in South Asia, Citizens Disaster Response Network in the Philippines that champion their individual and often isolated work that takes place beyond, or below the visibility of national programme strategies. With

only a few exceptions, their roles have been even less visible at the international level failing to have the recognized success of a Grameen Bank in the micro-investment world.

Throughout reviews of activity and accomplishment of national approaches to risk reduction there is common reference to local community engagement, but considerably less evidence or retained experience in the larger ramifications of policy that is really grounded in local communities. Much of the theory of successful disaster reduction rests on the creation of resilient communities and local participation, but widespread practice and acknowledged capacities is much less common.

There is also a tendency particularly among international NGOs to concentrate their organizational emphasis, or to be financially supported by bilateral assistance agencies to undertake activities predominantly involved with emergency assistance or rehabilitation activities associated with the acute phases of a disaster in contrast to extended operational commitments to building local capabilities in risk management through development projects. (See J. Twigg et al, NGO Natural Disaster Mitigation and Preparedness Projects: A study of international development and relief NGOs based in the UK, a study conducted for UK/DFiD and the British Red Cross Society, 2000; and J. Twigg and D. Steiner, "Mainstreaming disaster mitigation: challenges to organizational learning in NGOs" in *Development in Practice*, 2002). More recently there have been some NGOs that have demonstrated a growing sensitivity to addressing risk and vulnerability issues are widely recognized though as having more direct involvement in an advocacy role, local training and in some public awareness activities. (e.g. Save The Children Fund projects in Ethiopia in 2003-2004, CARE in Bangladesh, 2000-2002, etc.)

TENTATIVE CONCLUSION

With public participation and the involvement of local communities identified as crucial factors for successful disaster risk reduction, there is a seeming need to realize means that engage their local and traditional knowledge, developed experience, and important training and public awareness capacities in the broader aspects of determining national strategies and being supported on a continuous basis for realizing safer communities in order to achieve sustainable development.

6.2. *Regional/Subregional* Refer to *Living with Risk*, (2004), Chapter 3.3.

A review of those circumstances in which disaster risk reduction is more clearly evident and tending towards a more systematic approach to strategic planning and coordinated activities highlights the presence of strong regional and overarching institutional commitments. There is also evidence to suggest that the regional (or as appropriate, subregional) scale has distinct advantages to motivate and sustain interest among countries that often share a combination of similar cultural, historical, geographical and possibly political, affinities.

For example over many years PAHO and OAS, along with USAID Office of Foreign Disaster Assistance have demonstrated the effectiveness of capitalizing on regional

interests for Latin America and the Caribbean. Elsewhere, ADPC and more recently ADRC have done likewise in the Asian context.

The progressive development of a methodical regional approach to disaster risk issues is evident in the success among the Pacific Island States over the past ten years. A measure of their success has been the increasing coordination of national political decisions endorsed on a regional basis, a succession of UN agency and international donor support provided to the strategic programmes (e.g. DHA, OCHA, UNDP, Pacific Forum, SOPAC, USAID, UK/DFiD, AusAid, New Zealand, Japan, China, etc.)

IDNDR and later ISDR equally have been active regionally through an office in Costa Rica which success led to the opening of a similar office in Kenya in 2002. In the past two years, the UNDP Bureau of Crisis Prevention and Recovery has appointed regional disaster reduction advisors with a particular intention to more fully engage regional capacities. UN-OCHA has expanded its own presence through the placement of regional advisors dedicated to disaster and risk management responsibilities.

The UN Regional Economic Commissions have addressed regional dimensions of risk particularly in Latin America and the Caribbean (ECLAC) and Asia and the Pacific (ESCAP). Regional delegations of the International Federation of Red Cross and Red Crescent Societies also increased the number of staff specifically designated to address disaster preparedness and community level vulnerability activities.

Because of similar geographical and climatic conditions, predominant types of hazards and some types of physical exposure equally are shared among neighbouring countries. As economic and trading relationships, transportation and communications links, and often political associations are integrated to various degrees within a region or subregion, there are multiple points of entry that countries can take advantage of to reduce disaster risks. In this respect, additional regional developments are happening with increasing attention being drawn to the economic and developmental responsibilities of governance.

The Andean Regional Programme for Risk Prevention and Reduction PREANDINO has been working to encourage and support the formulation of national and integrated sectoral policies for risk reduction among Andean countries. By advocating and financially supporting more strategic approaches to disaster reduction in national development and related investment policies. The Inter-American Development Bank has become committed to using its considerable influence and resources to institutionalize capabilities dedicated to risk management issues throughout the Americas since 2000.

Regional organizations or agencies can encourage additional initiatives within regions/subregions to broaden the engagement of more traditional outlooks of disaster management agencies or humanitarian authorities with the wider perspectives are encompassing disaster prevention and mitigation sensibilities. This is indicated by examples of regional approaches that can link the broader interests of disaster risks represented by environmental, development, health or education bodies and programmes (e.g. CEDPREDENAC in Central American countries; PREANDINO in Andean countries; ASEAN, ADRC, ADPC in some South-East Asian countries:

Vietnam, Cambodia, Thailand, Indonesia; and among European countries: around the Mediterranean basin, Russia in the Commonwealth of Independent States, Spain and Portugal with the Ibero-American Association of disaster management, etc.)

Regional capacitation also serves important roles in acting as a bridge in facilitating communications or consolidating various perspectives about disaster risk matters by associating with both individual countries and the many aspects of international interest or influence within a region. This is reflected for example by a number of recent regionally focused meetings on the subject which drew together both international and national interests for a common purpose of regional benefits. (e.g. annual ADRC and ADPC Regional Meetings for Asia, (respectively in Siem Riep, Cambodia, and Dhaka, Bangladesh, both 2004); the Pacific Regional Meeting and the Pacific Forum (2003); the Hurricane Mitch + 5 Years Meeting in Costa Rica, (2003); the Inter-American Strategic Plan for Policy on Vulnerability Reduction, Risk Management and Disaster (2003); the Regional Conference on Disaster Reduction of the Euro-Mediterranean Forum on Disaster Reduction (2003), and the forthcoming Beijing consultation, and the African Union NEPAD regional meeting on preparations for the World Conference on Disaster Reduction, (June, 2004), among many others.)

Additional information is awaited to reflect current practice in and from the perspectives of regional participants more widely in the “Yokohama Review”. (e.g. to the extent available and suitable for such regions and subregions as may apply, in Africa, Asia, Europe, Latin America and Caribbean, Mediterranean or Middle East, North America, Pacific)

TENTATIVE CONCLUSIONS

The regional/subregional level of activity seems to represent several success factors. This should be a model for the progressive engagement and commitment to disaster risk reduction not yet fully engaged in some regions/subregions. Institutionalized regional mechanisms encourage wider dialogue around common problems and issues, provides opportunities for information exchange and training resources and greater coherence and benefits of opportunities to share resources.

Regional roles can be highly useful in facilitating international and national levels of dialogue or negotiation, as well as being instrumental in maintaining a momentum throughout the region as a whole despite temporary difficulties or delays being encountered within any individual country. Regional institutions guiding disaster risk reduction can be effective historical forces or acting to maintain momentum to build sustainability in both disaster reduction and developmental terms.

6.3. *International Level*, Refer to Living with Risk, (2004), Annexes 3, 4, and 5. *including bilateral arrangements and multilateral cooperation*

As represented by the very existence of the International Decade’s adoption of the International Strategy for Disaster Reduction, there are essential roles to be fulfilled in advancing disaster reduction at the international levels of activity and cooperation. During the past ten years there has been considerable engagement in various global

agendas which impact on disaster risk issues, and there is evidence of increasing references to the closer integration of disaster risk reduction with sustainable development strategies within individual sectors, and across institutional, governmental, regional, and civil society domains. The growing influence and recognition of the IATF as an international coordinating mechanism within and beyond the United Nations testify to this progress. The transition of earlier IATF working group activities into external or freely standing initiatives convey further indications of this growing influence, which has been the case for early warning and wildland fire management.

To the extent that this can be conveyed by developments within UN bodies, there are many important initiatives that can be cited. Starting from 1998 in the course of the UN reform process, responsibility for the implementation of disaster mitigation programmes was transferred from UN-OCHA to UNDP. This has encouraged a closer affinity between national level commitments to both disaster reduction and development. With the later creation within UNDP of the Bureau for Crisis Prevention and Recovery from the prior Emergency Response Division in 2001 the subject was given greater relevance. Regular tripartite meetings, joint assessments, and planning have proceeded between UNDP, ISDR and OCHA since 2001 for improved operational relationships in their respective mandates of sustainable development and crisis prevention and recovery; risk assessment, management and reduction; and preparedness and response.

It was only in 2003 that ISDR was invited to participate in a task force on natural disasters of the Inter Agency Standing Committee demonstrating an increasing relevance to inter-agency dialogue pertaining to coordination of humanitarian concerns, risk reduction, response and recovery regarding crises. UNDP/BCPR also chairs the IATF Working Group on Risk, Vulnerability and Disaster Impact Assessment.

Joint presentations of disaster risk management and developmental concerns have been made by the three organizations in a show of improved coordination of related concerns, a feature that has been extended further to include other key partners such as the ProVention Consortium and the Federation of Red Cross and Red Crescent Societies. (e.g. ECOSOC, 2003, Wilton Park Conference on Humanitarian Coordination, 2004, coordinated subject presentation responsibilities planned for the WCDR, in 2005, etc.)

The subject of disaster reduction has become more explicitly evident and related to the activities of several other United Nations entities. In May 2003, the 14th World Meteorological Congress expressed its policy guidance to WMO to be guided by the Sixth Long Term Plan programme (2004-2011) and budget (2004-2007) to “provide world leadership in expertise and international cooperation in weather, climate, hydrology and water resources, and related environmental issues, and thereby to contribute to the safety and well-being of people throughout the world and the economic benefit of all nations”. Programmatically this has been translated into an organizational commitment to create a new Natural Disaster Prevention and Mitigation Programme.

Following another indication of elevated importance given to global risk factors, and attendant to the serious SARS outbreak in Asia in 2003, the World Health Organization moved rapidly to establish a new programme for the surveillance of global health risks before they become a disaster. The initiative of “reducing the impact of crisis on people health” is directed to enhance the vital capacities of national and local governments, civil society, and the international community in support of the UN system’s efforts to support humanitarian action and recovery. The programme explicitly includes a commitment to preparing for and mitigating crises and is geared to efforts that can realize the Millennium Development Goals.

Beyond hosting ISDR’s office in Africa since 2002, UNEP has long been attentive to anticipating risks in such activities as its Division for Environmental Policy Implementation (DEPI) and the Division for Early Warning and Assessment (DEWA) and the programme for the Awareness and Preparedness for Emergencies at the Local Level (APELL).

More recently UNEP has worked closely with ISDR among other ways, by chairing the IATF Working Group on Early Warning. In the increasingly important area of investment justification and rationale for disaster reduction, UNEP’s Finance Initiatives of Climate Change is engaged in developing risk management tools and sponsoring much anticipated research into the financial implications of climate change, and related disaster risks with particular attention being given to the global banking and insurance perspectives.

UNEP-GRID’s Risk Evaluation, Information, and Early Warning Programme (PREVIEW) and related information management system was an important collaborator with UNDP between 2002-2004 in developing the Disaster Risk Index and other related data management presentations for the global report Reducing Disaster Risk. UNEP-GRID is additionally engaged currently with the ISDR secretariat in expanding the availability of global vulnerability and risk exposure information in support of ISDR’s information compilation and dissemination functions.

While there are other initiatives, these examples demonstrate a trend within the United Nations agencies that complement other subject matters and international collaborative agendas that pertain to the many aspects of sustainable development, environment and natural resources and disaster risks. The growing recognition of the subject is noted elsewhere in this paper. (See the ISDR Information Paper of Extracts on Disaster Risk Reduction from International Agendas.)

However as the subject gains wider currency and provides impetus for organizations to anticipate crises, important issues remain to be resolved for actually increasing their commitments to the identification and management of risks in practice, and the actual reduction of vulnerability through development. These requirements are being expressed in a revised sense of relevance to both “humanitarian futures”, as well as for the developmental imperatives necessary for human and livelihood security.

Programming approaches and resource allocation practices currently are being reconsidered within individual countries, among the entities of the United Nations

system and international organizations, in some technical and development assistance agencies, and NGOs, alike. One important example of such a shift in emphasis with considerable impact was the decision taken by the International Conference of the International Federation of Red Cross and Red Crescent Societies in 2003 to institute a core programme commitment to disaster preparedness. This theme of disaster preparedness has been highlighted for National Societies' programming in order to direct more attention to assessing community-level vulnerability and disaster risk management activities.

Other examples include national adoption and targeted monitoring of the Millennium Development Goals (2000); UN IASC Study Four on "Changes in Humanitarian Financing: Implications for the United Nations" (2003); Sweden/SIDA and ADPC's study on Environmental Degradation and Disaster Risk (2004); UK/DFiD study on development financing for risk reduction (2004); UNDP's *Reducing Disaster Risk: A challenge for development* (2004); Wilton Park Conference on Humanitarian Coordination: How does it work? How can it be improved? , Montreux, Switzerland (April 2004); and a Tear Fund-sponsored study and dialogue on Supporting Natural Disaster Risk Reduction (2003-2004).

TENTATIVE CONCLUSIONS

There is growing appreciation of disaster risk issues within the international community, with numerous expressions of importance associated with numerous aspects of sustainable development. The expected benefits of coordination mechanisms and demonstrated cooperation in the actual reduction of disaster risks through programme activities and resource commitments remain a continuing challenge.

To succeed, organizational and official policy commitments must judiciously assess and balance a variety of competing political concerns and economic interests guided by a more astute appreciation of modern risk factors. An essential prerequisite for successful disaster reduction understands the cumulative social, economic, environmental and increasingly political consequences of disaster risks on society overall, as well as on the various segments of the population, and the corresponding livelihoods affected.

The salient issues of disaster risk reduction cannot be interpreted solely as a response to, or recovery from, individual crisis events. Even while many known hazards are recurrent and periodic within identifiable locations, the determinate vulnerable conditions and therefore disaster risks are current and dynamic. This requires continuous attention, so successful disaster risk management cannot be addressed successfully as composite time-bound projects.

Successful disaster risk reduction can proceed only as a continuous strategic commitment of coordinated and interrelated actions.

7. Conclusions related to themes of the Policy Framework for Guiding and Monitoring Disaster Risk Reduction

7.1. Political commitment and organizational aspects (governance):

Integral disaster risk reduction policies Living with Risk, (2004), Chapters 3.1., 3.2. including matters of national policy, legislation, resource commitments, structured programmes for disaster risk management, multisectoral committees or platforms, and programmes of cooperation and coordination.

Circumstances in which either country authorities or programming pursued in practice within the international domain have embraced disaster risk reduction within the context of sustainable development and comprehensive planning strategies still remain the exception rather than the rule. It is clear that disaster management responsibilities and civil defense/protection functions are an important component to the larger aspects of disaster risk management, especially in terms of preparedness activities, contingency planning, specialized skills, public mobilization, public information. However, experience so far indicates that such a point of departure has not been conducive either to planning for, nor fully directing the management of a more comprehensive approach to disaster risk reduction in the context of sustainable development

Despite the common expression that the aftermath of disasters present a window of opportunity to instill more holistic approaches to disaster risk reduction, it is not untypical on such occasions that political enthusiasm can focus on what becomes isolated attention directed towards earlier or unsuited mechanisms largely defined by emergency management outlooks. (e.g. Southern African regional considerations following the serious floods in 2000, South East Asian responses following serious fire, smoke and haze conditions in 1997-98, conditions attendant of flood or earthquake emergencies in some South American locations, and European approaches following extraordinary flooding in 1998 and 2002.)

Too many people continue to be killed and properties lost by limited or inadequate application of known risk management practices. This is often the case despite widespread foreknowledge of hazard risks, the use of existing technologies for safer facilities, the legislation of building, land use or flood prevention codes, and the professional regard for national availability of technical expertise, (e.g. seen in the case of earthquakes in India, Taiwan China, Turkey, Italy, Iran, Morocco, or fire emergencies in Australia and USA in 2003, among other events).

There are some contrary examples motivated by the international donor community to encourage a wider consideration of disaster risk reduction principles during the rehabilitation process (e.g. international pledging conference for Mozambique rehabilitation following the floods (2001); World Bank rehabilitation funding to Turkey after the Izmit, earthquake (1999); the Hurricane Mitch Stockholm Conference (1998) and the later meeting in Costa Rica five years later (2003); current OCHA-led discussions about rehabilitation following the Bam, Iran earthquake in 2004, etc.)

While they contain encouragement for more preparedness and preventive measures and invoke the consequences for sustainable development, significant evidence that these initiatives have necessarily translated into radically altered commitments to disaster risk reduction rather beyond the adoption of single time bound-projects remains scant.

There may be other lessons as one looks at the conditions under which some countries have totally revised their previously long-standing approaches to ‘disasters’ in favour of expanded multidisciplinary approaches to risk reduction. In practically all cases, the necessity of doing so has been endorsed and guided by the highest levels of government. (e.g. Australia, China, India, Mexico, Mongolia, Mozambique, Bolivia, Colombia, Nicaragua, Pacific Island States, South Africa, Switzerland, among other examples).

The process often involves a widespread reconsideration of existing legislation, often from a politically non-partisan perspective. There is recognition from the outset that the subject must be addressed from a multidisciplinary and cross-sectoral range of interests. The determination of such expanded participation is defined less by disasters alone, but more forcefully by the desire to address risk factors that impinge on national social and economic development strategies. Significantly, the time frames for analyzing the consequences of risk on national development, as well as for planning eventual implementation stages are regularly understood to be much longer than ordinarily considered for disasters.

As these expanded ranges of interest are represented by including more line ministries in the process, the supervising authorities are placed at higher or more strategic levels of governance. India embarked on a total revision of national disaster and risk management policy by the appointment of a multi-party High Level Committee, chaired by the Prime Minister, and decided to shift national consideration of all disaster risk issues from the Ministry of Agriculture, to the Home Ministry that involves local government, public order, and revenue collection. China has proceeded to develop its more comprehensive approach to risk reduction under the authority of the Central Committee and located coordinating responsibility of the China National Committee for Disaster Reduction within the Ministry of Civil Affairs.

These examples and others demonstrate that there is a change of fundamental views in governmental perspectives necessary for disaster risk reduction to proceed in fact, and beyond suggestion or partial efforts. South Africa has tied its greatly revised national approach of disaster management to the core national objective of nation building, human security and equity for all, placing the implementation of the 2002 comprehensive law on disaster management under the authority of Local Government. Australia has shifted the subject from the former Ministry of Defense to the Office of the Attorney General. In Cambodia, the newly developed programme of national disaster risk management is placed under the authority of the Vice-President. In Switzerland the national disaster risk entity PLANET has been situated as a statutory inter-parliamentary committee.

Other encouraging possibilities continue to emerge. Recently the New Zealand Ministry of Civil Defence and Emergency Management has moved to establish an office overseeing a countrywide research programme on “Resilient New Zealand”

grounded in local communities. This has occurred after programmes have already been conducted first in the capital area of Wellington (from 1994-99) and then at the national level (since 1999) to develop a updated and comprehensive approach to disaster and risk management.

Generally, it still remains unusual to identify national offices or authorities specifically designated to manage a comprehensive programme for identifying, monitoring, or managing strategic approaches of reducing risks to the collective social, economic, political and environmental interests of a society. Such a concept is yet to find wider expression within the international development, NGOs and bilateral assistance community, although some individual agencies as noted above are proceeding in that direction (cf: international levels of cooperation).

TENTATIVE CONCLUSIONS

There are important accomplishments in some individual countries, and a growing involvement of supporting institutions for disaster risk reduction. There have been many public expressions of importance for disaster reduction and formal declarations. This is increasingly accompanied by a positive growth in the number of joint organizational initiatives or reforms. This represents a positive development of awareness.

The need for decentralized authority for addressing risk management to local or municipal governments is another dimension by which both responsibilities and participation may be extended to those people most immediately exposed to the risks, thereby increasing ownership and building potential for sustained commitments.

Hesitancies to undertake radical or more contemporary revision of policies related to disasters and development outlooks also exist in many international donor organizations and programming procedures, although these are beginning to be studied more carefully.

Considerable limitations remain in the incorporation of comprehensive risk reduction strategies within established administrative structures or institutional practices. There are important exceptions, but to a significant extent the demonstration of strategic and sustained commitments of political will, and resource allocations for tangible disaster risk management practices remain weak.

Concepts of disaster risk reduction are often unevenly understood, or utilized primarily within a specific sector of activity, or in a fragmented manner. The test remains to ensure that increasing awareness and beneficial intentions do not become eclipsed by other pressing governmental, organizational or public interest priorities.

Where positive change has occurred, it has been associated with strategic decisions taken by the highest levels of authority motivated by a consideration of fundamental national objectives related to growth and development, rather than the subject being more narrowly construed as an exercise in disaster management, alone.

A crucial success factor seems tied to considering a much longer time horizon for

analysis of risk implications and related investments in management of these risks, as well as in realistic time period for methodical and phased implementation.

With all such encouragement, the test remains to ensure that increased awareness and beneficial intentions do not become eclipsed by other pressing governmental, organizational or public interest priorities – until the next disaster strikes.

Public participation and community engagement

Refer to Living with Risk, (2004), Chapter 3.4.

The combined efforts of various disciplines, the private sector and commercial interests, and other elements of civil society provide an important dimension to mobilize sustained interest and to foster the efficient use of existing resources. The global “seismic safety community” is one such example, as was mobilized under the IDNDR RADIUS Project for “risk assessment tools for the diagnosis of urban areas against seismic disasters”. Composed of a close, well informed, and extensive network of engineers, geoscientists, construction interests, local authorities, technical and specialist institutions, along with international support for local community action/NGO/CBO groups, it was united by its members’ concerns for reducing disaster risks.

This type of successful collaboration increasingly involves the engagement of an often critical and provocative body of people concerned about public safety, and motivated by global issues. Personally, they believe that more *should* be done, and professionally they have the knowledge and experience to know that it *can* be done. (See H. Shah’s “The Last Mile”, circulated following the Bam earthquake on the RADIX listserv, 2003. http://online.northumbria.ac.uk/geography_research/radix).

This skepticism and public questioning about unmitigated risks and resulting political anxiety following disasters are themselves indications of the rising importance being accorded to societies’ exposure to disaster risks. This has been demonstrated especially since 2001 through global and national media coverage following earthquakes in India, Turkey, Algeria, and Iran; extraordinary floods, storms, heat extremes, and toxic pollution in European countries; urban wildfire and related smoke and haze effects in South-East Asia, Australia, Central American countries and the United States. More recently and especially during 2002-2004, the serious threats to the public posed by the transnational exposure to epidemic health risks on all continents have aroused intense political attention because of the extreme economic and social implications of HIV/AIDS, SARS, Avian flu, Mad Cow disease, Ebola and hemorrhagic fevers, as well as the public risks of food chain contamination by bacteriological or chemical agents, howsoever they may be transmitted.

Such professional and civil society networks are also committed to solutions. Beyond their advocacy values, they initiate programmes providing impetus to governments for adopting sustained risk management strategies, seeking broader international support in the process. Such a basis for the “public outcry” is a demonstration of the bottom-up approach so often called for to build commitment and sustainability. (e.g. World Seismic Safety Initiative (from 1992), Geo-Hazards International (1993-1994),

Earthquake and Megacities Initiative (from 1997), RADIUS Programme (1998-2001), Asian Urban Disaster Mitigation Programme (since 1995), CENAPRED in Mexico (since 1985), and the National Society for Earthquake Technology in Nepal (from 1993). The Disaster Mitigation Institute, and the NGO SEEDS, CARE-India and the Federation of Commerce and Industry in India worked closely together following the Gujarat earthquake (2001-2002.)

TENTATIVE CONCLUSION

Much professional, civil society, technical and organizational resources that exist within societies, could be engaged even further with a multiplying effect in motivating, and accomplishing disaster reduction. It would be a useful public policy to engage both with individual “ambassadors” as well as champion organizations in a pro-active effort to benefit from their knowledge and to increase public awareness on disaster reduction options and commitment for action.

7.2. Risk awareness and identification

Identification and assessment of risk

Refer to Living with Risk, (2004), Chapters 2.1., 2.2., 2.3.

Risk assessment has most frequently been seen previously as a largely technical activity identified with the historical occurrence, public exposure and consequences of hazards. This is now changing as newly emerging risks threaten the inter-related interests in a global environment, and the increasing complexity of societies everywhere. The stages of risk assessment from its grounding in risk awareness through the judgments of risk evaluation to its eventual practical realization in the expression of early warnings have become an important strategic component in comprehensive disaster risk management.

Increased awareness of the social and economic dimensions of vulnerability have elevated risk assessment practices to become more motivational in nature. Risk assessment has been fortified by the further application of development principles concerned with matters of equity, increased public participation, good governance and transparency as essential to realizing the sustainability for a broadened sense of community and global values. The increasing demands on resources of all kinds argue for the necessity of priority and more strategic decisions being made for greater efficiencies and effectiveness.

The growing awareness of the fundamental importance of risk identification and assessment is evident among various international initiatives. For example, IFRC has demonstrated its commitment to capacity and vulnerability assessment at local communities. WFP has promoted its Vulnerability Assessment Methodology, and UNICEF now conducts an annual country office risk assessment process in all of its country offices. There has also been a growing reliance by NGOs/CBOs on the use of participatory rapid appraisal techniques. Proceeding from the policy values demonstrated by the Human Development Report and the accepted measures of the Human Development Index, UNDP has undertaken the formative role in working

together with UNEP-GRID in refining a Disaster Risk Index associated with the global report on Reducing Disaster Risk. Hazard and vulnerability assessment is additionally reflected in other UNEP-GRID work and publications.

TENTATIVE CONCLUSIONS

A sustained commitment to the realization of disaster risk reduction strategies at any level of activity should begin with the acceptance of risk assessment processes as guiding principles. While it can be as basic or sophisticated as resources and time allow, to have any real impact risk assessment needs to be multidisciplinary and inter-sectoral in approach, involve a high degree of public participation drawn from across the various interests and population segments involved, and be taken seriously in both political and managerial terms by decision-making authorities.

Many practitioners become surprised how much the serious undertaking of risk assessment activities expands latent interests and support. Importantly, often-unintended benefits include the discovery of previously unknown or unconsidered information and powerful public or policy awareness mechanisms, which often combine into needed capacity building.

Early Warning Systems

Refer to Living with Risk, (2004), Chapter 5.5.

Early warning is established as a highly valued component of disaster risk reduction. Almost all countries maintain competent hydrological and meteorological services that monitor many types of hazards and provide public warnings of adverse conditions. The United States spends nearly US\$ 1.5 billion annually on weather warning and forecasting services. A study estimated that the economic benefits of a modernization programme in the Australian National Weather Service were about eight times greater than the costs involved, with annual benefits of US\$ 7 billion. Another Australian study stated that the cost-benefit ratio for urban flood warning systems at a factor of six times is extremely favourable. The continued development of observation and forecasting technologies through growing scientific understanding and modeling capabilities for weather events, the climate, rivers, landslides, volcanoes, together with greatly improved communications technologies, have led to progressive improvement in the technological basis for early warning since 1994.

Nevertheless, a number of fundamental issues limiting the effectiveness of current warning systems remain. Through the effective participatory mechanism of two international conferences on early warning held in Potsdam (1998) and Bonn (2003), Germany that brought together policymakers, technical specialists and practitioners, a lack of wider integration of early warning into public policies was emphasized. The requirements were noted to relate the early warning process more effectively in respect to economic policy, environmental management and social development. Additional attention is also required to ensure that the people at risk are able to receive understandable warnings and know how to react, and that there are sufficient local capacities to do so, especially in developing countries.

In effect, the social and policy components of early warning systems have not kept pace with the technological capabilities to detect, monitor and forecast hazards. At the same time, the demands on early warning systems are growing, owing to growing exposures and vulnerabilities, environmental degradation, and changing perceptions of risk. With this in mind, a substantive compilation of relevant information on early warning systems was recently produced based on documentation provided through the 2nd Early Warning Conference in Bonn (EWC-II) and available at www.unisdr.org.

TENTATIVE CONCLUSION

Considerable opportunity exists to address early warning globally through stronger policy-based, people-centered approaches. Providing emphasis to such strategies will substantially improve the effectiveness of early warning systems and the recognition of their wider application as essential features of disaster risk reduction.

7.3. Knowledge management

Public awareness practices

Refer to Living with Risk, (2004), Chapter 4.5.

As with the use of information more generally, public awareness is a core element of successful disaster risk reduction, as was recognized by its designation as one of the four main objectives when ISDR was established in 2000. Experience in the past ten years has demonstrated that it becomes even more crucial to the extent that the potentially affected population is increasingly being encouraged to become involved and to assume more responsibility for their own protection from risks. This can also create problems in the complexities of the current “information society” and the immediacy of global communications which bombard most people with an endless number of messages. This situation can overload the capacities of either an individual person’s attention, or the interest of a community to weight the relative perceptions of different risks, resulting in either avoidance of potentially serious issues, or a numb lack of commitment.

To offset this, some structure has been sought in the production and use of public awareness materials originally by the IDNDR, and later the ISDR secretariats. There have been repeated initiatives built around annual themes coordinated with encouragement for local adaptation. These campaigns have been marked by various UN agencies, national bodies concerned with disaster and risk management and have culminated with increasing national and global media coverage surrounding the Annual Day for Disaster Risk Reduction. The UN Sasakawa Award for Disaster Reduction has been presented annually to a laureate along with additional related certificates of meritorious recognition to people or organizations which have made distinguished contributions to advancing disaster reduction in practice.

Throughout the year, additional promotional and advocacy material has been produced either separately by the ISDR secretariat, or increasingly in association with other complementary interests to advance related sustainable development objectives. In the recent past, a number of public awareness activities were joined by ISDR and

other UN agencies in relation to the global Freshwater Agenda. World Water Day for 2004 was conducted jointly by ISDR and WMO around the subject of Water and Disasters. At the same time Guidelines for Reducing Flood Losses was produced under the coordination of UN/DESA with the cooperation of the US/NOAA, UN-ESCAP, WHO, ISDR, WMO and the Swiss Agency for Development and Cooperation. In 2003, the World Water Development Report was coordinated by the World Water Assessment Programme, based at UNESCO and included contributions from 23 UN entities with a specific chapter devoted to mitigating risk and coping with uncertainty in which ISDR collaborated with WMO, DESA, UNESCO, WHO, UNEP, the UN Economic Regional Commissions, and the secretariats for the UN Conventions on Climate Change and Biological Diversity.

Following a mutually beneficial collaboration during 2003-2004 on their respective publications, *Living with Risk* and *Reducing Disaster Risk: A challenge for development*, the ISDR secretariat and UNDP's Bureau for Crisis Prevention and Recovery have concluded an agreement to work jointly and share their resources on the global review to report on disaster risk factors and development in 2006.

In the larger context of gaining wider public exposure for the subject of exposure to hazards, the vulnerabilities of people and their livelihoods and efforts to reduce risk in contrast to extensive media coverage for emergency response or recovery from a disaster event, remains a challenge. There have been encouraging occasions, as following the publication of a Hazard Map of North America in (1998), the National Geographic magazine has produced a number of articles relating the impacts of natural phenomena on human well-being, as well as other examples of adverse human behaviour on environmental conditions.

Other major international media such as the BBC, CNN, Le Monde, The Observer (UK), The Guardian (UK), Singapore's Straits Times, and Reuters AlertNet news service increasingly are probing and reporting the "human causes" and related consequences of disasters. This was evident particularly following 1999 earthquake in Turkey and the more recent one centered on Bam, Iran at the end of 2003. The Economist also published a special Focus section about risk in 2004, emphasizing the financial considerations involved in risk factors.

At local levels of interest, there have been considerable interest evoked by weaving disaster risk reduction subject matter into other forms of popular culture. Several countries have used the occasion of the International Day of Disaster Reduction on the 2nd Wednesday of October to emphasize local celebrations or remembrances of community efforts recalling local hazards or disasters. Some have designated an additional special day or in some instances a week in their country for the subject.

Enthusiastic responses have greeted the radio drama "Tiempo de Huracanes", produced by ISDR with PAHO, IOM and CEPREDENAC throughout Central America, Mexico and some other South American and Caribbean countries. A sequel called "Réplicas del Corazón" addresses seismic risks in a similarly very popular manner.

In Kobe, Japan, the Disaster Reduction and Human Renovation Institution is an innovative museum and public educational facility that recalls the devastating

earthquake in 1995. It has proven to be a very popular and effective educational facility that reflects on the lessons of the event through multiple media and imaginative displays that both engage and educate members of the public, students and teachers of all ages, about their immediate disaster risks.

An education kit containing the imaginative board game “Riskland” that was produced by UNICEF and ISDR in 2002, has since been disseminated throughout Latin America and beyond, and is available in five languages including local ones such as Nepali and Haitian Creole. Picking up the current theme of “Water and Risk in Africa”, the ISDR Office in Africa produced and distributed two informative guides for public information targeted for community leaders and another for schools. Another series of educational booklets are being produced for African educational institutions in 2004 under the name of “Safari”.

TENTATIVE CONCLUSIONS

Much of the public awareness material and many initiatives advocating disaster risk reduction have been promoted by parties who are themselves directly interested or from their immediately collaborating institutional partners. A broadly determined conviction of public interest for the subject remains an unmet challenge in many areas. There is also evidence that progress in picking up, adapting, and imaginatively pursuing sustained programmes of public awareness for disaster reduction vary widely by geographical region and cultures, the number and type of active contributors and possibly competing local preoccupations for public attention.

A major impediment to wider routine media interest remains that risk reduction has minimal “newsworthiness” and media appeal in contrast to the drama of disasters. As disaster reduction becomes more widely understood and accepted as an integral element for sustainable development and associated with environmental and natural resource management issues there should become more opportunities to increase its public exposure.

Local, national and international interests working for disaster risk reduction therefore need to take every opportunity presented by a real disaster to promote the importance of risk reduction messages.

With the importance accorded to the subject, a more strategic, longer termed, and better resourced marketing strategy needs to be devised. Clarity of concepts and more broadly consistent expressions are also important.

National authorities particularly may have a crucial role to play in such developments, as a direct consequence of the extent of importance the subject of disaster risk reduction receives in national planning and development objectives.

Building capacities and education, training and research

Refer to Living with Risk, (2004), Chapter 4.3., 4.4.

Both the range of interests and achievements in education, training and research related to hazards and risk-related issues have grown tremendously in the past ten years. The number of recognized “Disaster (and Risk) Management” training centres remains important focal points for both regional and international attention in support of national endeavors (e.g. University of Wisconsin USA, ADPC and ADRC in Asia, University of the West Indies in the Caribbean, Emergency Management Australia Institute in Mt. Macedon, etc.) They have also expanded in some areas (the Africa Center for Disaster Studies at Northwest University, and the Sustainable Livelihoods Programme at the University of Cape Town, both in South Africa), but not yet all geographical regions, with Africa still remaining as particularly poorly served in this regard.

The enduring UNDP-managed inter-agency Disaster Management Training Programme (DMTP) has conducted disaster management training and programmes for UN staff and government partners in more than 70 countries, and has recently embarked on revising its emphasis to take greater account of the vulnerability and related risk factors that link disaster and sustainable developmental concerns.

The newly established UNU Institute on Human Security and the Environment in Bonn promises an innovative focus on disaster risk issues and the environment, with the prospect for wider opportunities for shared experiences between the “North” and the “South”. A review of the courses and academic departments listed on the websites maintained by the University of Colorado Natural Hazards Center (<http://www.colorado.edu/hazards/>) and the Asian Disaster Reduction Center (<http://www.adrc.or.jp/>) disclose more than a hundred different educational and training programmes. While more limited in number, there are also numerous academic course offerings throughout several Latin American countries.

The number of educational opportunities are even more numerous when one takes account of the many training programmes relating to local level action programmes offered by or through community-focused or NGO/CBO organizations (e.g. IFRC and the Red Cross and Red Crescent national societies globally; PAHO, CEDPRENAC, LA RED in Latin America and the Caribbean; the Disaster Mitigation Institute in India, the Bangladesh Disaster Preparedness Centre, the Institute for Disaster Risk Management in Philippines, Duryog Nivaran Network for Disaster Mitigation in South Asia, etc.).

Teachers everywhere, educational values and the social importance of related facilities have proven to be both highly regarded and influential in local communities around the world. Children are recognized as very effective communicators at a personal level. Teachers and students of any age contribute to the transmission of experience across generations, building sustainability in the process. These elements display the growing importance of protecting schools and utilizing them as resource centers for the community. These actions can become powerful demonstrations of simultaneously investing in disaster reduction and the future.

EDUPLAN Hemisferico demonstrates the effectiveness of such an approach since OAS working together with PAHO and local communities launched the programme in 1993. Elsewhere, the Kathmandu Valley Earthquake Risk Management Program in Nepal and the UNCRD-supported Earthquake Safety Initiative in India, Indonesia, Nepal and Uzbekistan similarly brings together community involvement in safe building practices of schools through local education and demonstration.

TENTATIVE CONCLUSIONS

As education and training bring together the exchange of information, growth of knowledge and therefore capacity through direct participation, are inherently interdisciplinary, and represent inbuilt generational sustainability crucial for changed attitudes and behaviour, they require priority attention and enhanced resource commitments as core values to achieve disaster risk reduction.

At higher or more advanced levels of education, and vocational or professional training in skills development, efforts would be beneficial to enhance the integrated nature of risk factors and cross-sectoral relevance or multidisciplinary relationships of subject matter that pertain to matters of risk, the environment and natural resources, and sustainable development.

School facilities, teachers and students each serve as powerful influences within communities and to motivate local participation. They should therefore become more central to the multiple aspects of applied disaster risk reduction at local levels of practical engagement in the awareness, identification, assessment and management of risk, both conceptually and in operational terms.

Ensuring the physical resilience of all educational facilities, complemented by the introduction and use of progressively comprehensive curricula about disaster risks suitable to local learning practices and integrated into various objects of standard courses of study and training opportunities should be principal points of emphasis.

As in other aspects of educational accomplishment, the range of research related to hazards and disaster risks has expanded greatly during the past ten years, often pursued by specialist research institutes built around a central interest in the subject (e.g. Center for Hazards and Risk Research, Columbia University, USA; Center for Disaster Management, Bogazici University, Turkey; the German Research Network for Natural Disasters headed by the GeoForschungsZentrum in Potsdam; Benfield Hazard Research Centre in UK; the World Institute for Disaster Risk Management in Switzerland and USA; the Russian Scientific and Research Institute on Civil Defence and Emergencies; the National Institute for Earth Science and Disaster Prevention in Japan; the Tyndall Centre for Study of Environmental Sciences, UK, etc.)

Particular significance has been given to the sociology of disasters and other human dimensions that highlight the relevance of vulnerability in conditioning people's exposure to risk. Advances also continue to be made in the previously more predominant studies of hazards and their related effects with considerable benefits derived for improved early warnings and practical methods that can be used to make communities more resilient to existing hazards. There is much more research that is

pending about emerging hazards and especially about the relationships that exist between the compound effects of natural, technological, environmental, and biological risks facing nearly all societies in the 21st century (e.g. *State of the Art in NaTechs*, a joint publication of ISDR and the Joint Research Centre of the European Union, forthcoming, May, 2004).

There is a pressing need driving a heightened global interest in demonstrated mitigation benefits and related costs, as well as the necessity of determining viable criteria and practical indicators to back up the conclusions. (e.g. Benson and Clay's *Understanding the Economic and Financial Impacts of Natural Disasters*, and other World Bank Disaster Risk Management Series publications). Similarly, successful case studies in risk reduction continuously are sought to bolster decision-making. This was a primary motivation in ISDR's decision to publish and then expand the concept of *Living with Risk: A global review of disaster reduction initiatives*, (2004).

TENTATIVE CONCLUSIONS

The current trend in research related to the human dimensions of vulnerability, risk awareness and widespread popular participation in risk management should continue to be encouraged, but with a full recognition that it equally needs to be complemented by hazards studies and the development of technical, scientific and specialist training.

A particularly timely concern of the research community driven by a widespread need throughout the disaster risk community is the quest for a more authoritative economic rationales and robust economic analysis to galvanize investments in disaster reduction.

Countries and regional institutions may consider the beneficial values of public and professional dialogue to determine priority research needs and relative emphasis for a broadly accepted "research agenda". This may act to increase wider community participation, aid public awareness and assist in concentrating resources efficiently for maximum outputs.

Exchange and use of information Refer to *Living with Risk*, (2004), Chapter 4.1.

The widespread availability and productive use of information is essential for disaster risk reduction. Experience demonstrates that information related to the many aspects of hazards, risks, disaster reduction and sustainable development is abundant throughout the world. With the benefits of modern communications and information management technologies the amount and availability of information relevant to disaster risk management continues to grow exponentially. The importance of professionally recognized information centres which facilitate the collection, synthesis, and wider dissemination of specific types of information pertinent to disaster reduction is a major accomplishment in the field during the past ten years.

There are many examples (e.g. Natural Hazards Research and Applications Information Center, University of Colorado, USA); specific hazard and risk

communities of interest (e.g. Global Wildfire Monitoring Center, Freiburg, Germany, or the Drought Monitoring Centers in Nairobi, Kenya and Harare, Zimbabwe serving Eastern and Southern Africa respectively); with a comprehensive view of regional information needs (e.g. the Regional Information Centre for Latin America and the Caribbean (CRID), the Caribbean Disaster Information Network), and the cumulative basis of disaster events (e.g. LA RED's local level emphasis in Latin America, The University of Louvain in Brussels' CRED's Emergency Events Database for global compilations, Munich Reinsurance and Swiss Reinsurance records of global occurrence and economic consequences of disasters, etc.)

Some efforts are currently underway in governmental jurisdictions to compile data and information related to the multiple dimensions of risk (e.g. China's National Disaster Center in the National Academy of Science, the city of Cape Town through the MANDISA programme and another country-wide effort of the National Disaster Management Office of South Africa, CEPREDENAC efforts with Central American countries), but a comprehensive approach to this basic requirement remains unmet in many countries and localities.

The biggest challenges in information management facing the risk reduction community, and immediately pressing priority concerns is to provide a more integrated and coherent support to information facilities and services within individual countries. This equally applies to information exchange among the many professional interests and developmental sectors involved with the subject throughout the rapidly growing world of the disaster risk reduction community. Matters of compiling risk-related data, abstracting, and synthesizing information to produce useful information products, more targeted dissemination, and the wider and easier access for intended users in locally suited media are all crucial dimensions for more effective use of information in disaster reduction.

TENTATIVE CONCLUSIONS

While not a complete solution in itself, the idea of "information clearing house" functions and supporting services for risk-related information represent a greatly under-realized but essential capacity that needs to be pursued forcefully in countries, within regions, and globally.

Priority attention should be given to enhance national capabilities to structure, compile, and use consolidated risk-related and disaster information with increasing awareness of data quality needs and procedural standards. Baseline information would be greatly improved with attention devoted to the various needs at community, national, regional, and international scales and the relative interests and modes of access for users at each of these levels.

Development and use of partnerships and organizational networks

Refer to Living with Risk, (2004), Chapter 4.2.

The growing community dedicated to disaster risk reduction embraces the many interests that relate to the social and economic dimensions of risk and the inherent range of other subjects pertinent to sustainable development, environment and natural resources management, humanitarian concerns, and good governance. The complexity of the issues involved and the numerous relationships necessary to address them can only proceed through a coherence provided by understanding and strengthening partnerships.

Such organizational networks are bound by their common values attached to risk reduction, even if some are more associated or tangential rather than being direct, but there is no other way to command the necessary commitment of resources and capabilities. The expression of this conclusion, as well as a call for a pro-active effort to devise new distributed but related ways of working among a growing body of interests also was cited in the final recommendations of the IDNDR (e.g. Conclusions of Programme Forum, Final STC Report, etc.)

At the international institutional level, the growing involvement and accomplishments of the IATF for Disaster Reduction itself testifies to the necessity and the benefits of such partnerships able to draw on official, subject-based or specialist institutional, public, academic, commercial interests and resources. At national levels this has taken the form of national committees within the ISDR (at times referred to as ‘national platforms’) that are suited to the particular areas of interest or needs of the individual countries. The experience of some countries suggests that there are other indigenous organizational approaches that can fulfill the same intention (e.g. PLANAT in Switzerland, expanded responsibilities of EMERCOM in Russia, Emergency Management Australia, the transformation of national agencies in Mongolia and South Africa, etc.)

In the operational domain, the concept of “private-public partnerships” has grown in the past ten years as a means to expand and relate a wider range of shared interests. Initially promoted with an enthusiastic response in the United States by the Federal Emergency Management Agency between 1996-2000, the concept excited the interest and considerable participation by commercial and financial organizations, public officials and governmental jurisdictions, technical specialists, and local communities.

A positive outgrowth of these sentiments internationally and expressed within the financial investment, insurance and development communities has been the creation of the ProVention Consortium by the Disaster Management Facility (recently renamed the Hazard Management Unit) of the World Bank in 1999. The fact that the International Federation of Red Cross and Red Crescent Societies now host the ProVention Consortium secretariat since 2002 represents a growing circle of relevance and accentuation of involvement with local experiences. Its relocation to Geneva will certainly contribute to working more closely with UNDP and the ISDR secretariat.

As the risk reduction community expands into the 21st century, similar conceptual and operational partnerships and organizational relationships are being built “a brick at a time” in such areas as climate change (e.g. through the IPCC Working Group 2, the UNFCCC Marrakech Accords, etc.), the Integrated Water Resources Management

(IWRM) of the global freshwater agenda efforts in which risk reduction is an important component of the achievement of the Millennium Development Goals. One would equally hope for similar partnerships that embody risk reduction in the forthcoming global UN Decade of Education for Sustainable Development initiative (2005-2015).

TENTATIVE CONCLUSIONS

Successful and sustained commitments to risk reduction will require innovative, and more widely distributed and ‘networked’ relationships. While efforts show important expansion in this area, there is a remaining challenge to establish the means and organizational structures for better sharing of respective resources for common purposes to reduce risks, bound by wider and more systematic forms of data exchange and information access.

Similar forms of extended organizational relationships and multidisciplinary partnerships at national levels, tailored to specific needs and socio-cultural and political attributes can be instrumental to focus and sustain commitments for comprehensive disaster reduction strategies.

At the international level it is essential that partnership is strengthened among key organizations with a view to provide more effective support to governments and other organizations responsible for risk reduction.

7.4. Managing risks through multisectoral and specific areas of interest

Refer to Living with Risk, (2004), Chapters 5.1., 5.2., 5.3., 5.4.

There are many known skills, abilities and techniques available and widely practiced that have the potential to reduce people’s exposure to risk and to minimize various aspects of their vulnerability to disaster risks. Unfortunately, since the time of the beginning discussions in 1984 that eventually led to the International Decade for Natural Disaster Reduction there was widespread understanding that professional knowledge was being insufficiently accessed to reduce disasters and efforts to share the relevant existing technology and abilities with developing countries was quite inadequate in respect to the obvious needs.

With the growing awareness of the feasibility to reduce people’s vulnerability to risk and to increase various aspects of the resilience in the intervening years, there has been considerable encouragement to apply appropriate measures in practice. However, it is also widely believed that the actions are still far short of the potential for doing so. As risk reduction becomes more widely associated with development and environmental management, spurred by the continuously rising costs of disasters, more opportunities for practical initiatives to manage risk are becoming possible. Some of those important areas are outlined below.

TENTATIVE CONCLUSION

The potential for applying known and established techniques and abilities for

disaster risk management in practice remains greatly underutilized. A challenge remains to motivate wider visibility and the means of engagement within multiple professional disciplines and areas of interest.

Environmental and natural resources management

Living with Risk, (2004), Chapter 5.1.

With the close association of environmental issues and natural resource management to both risk exposure and development practices, there is a huge scope of unrealized potential to direct existing resources and established practices for greater disaster reduction. Careful forest, vegetation, water, and land management with consideration of inhibiting rather than creating additional risks should become a cardinal principle for effective and “no regrets” disaster reduction. Widely practiced Environmental Impact Assessments can easily lend both their economic justification and their existing techniques to the conceptualization and parallel activities in Hazards and disaster risks impact assessments.

In the development community, such estimation and evaluation of consequences of planned development projects could be more widely promoted to encourage public participation, wider multidisciplinary and intersectoral dialogue, and the opportunity for more pre-emptive reduction in vulnerability. Retention and restoration of wetlands as advocated by the RAMSAR Convention, the reintroduction of tidal mangrove plantations as being done by the national Red Cross Society in Vietnam and NGOs in Bangladesh, and emphasis given to the beneficial methods of vegetation use for land stabilization, reduced water runoff, and reversing desertification are examples that could become more widely utilized following such astute planning of activities that benefit both developmental and risk reduction objectives.

TENTATIVE CONCLUSIONS

Further consideration of the economic valuation of environmental actions for risk reduction and related techniques for “green accounting” should demonstrate a wealth of previously unutilized resources available for disaster risk management with the additional values of developmental returns and sustainability attached.

As many such applications have been shown to have added economic value through multiple uses and support for a variety of informal economic sectors and livelihoods, they can also represent means to enhance public engagement and support for disaster reduction by people in local communities.

Social and economic development, including poverty alleviation

Living with Risk, (2004), Chapter 5.1.

With disaster risk reduction inseparable from the accomplishment of sustainable development, the alleviation of poverty is widely recognized as crucial to reducing vulnerability and building community resistance. This receives its most emphatic expression in the Johannesburg Plan of Implementation. It also forms the basis of the analysis in the UNDP global report, *Reducing Disaster Risk: A challenge for*

development when it points out that each of the Millennium Development Goals interacts with disaster risks and that the achievement of those goals will potentially contribute to a reduction of human vulnerability to natural hazards and related risks.

As most industrialized countries have various forms of social safety nets, or other provisions to give added protection to a society's means of production or individual's livelihood security. Social funds can double in providing disaster reduction at the same time that they make investments in social infrastructure, health, education, water supply, and livelihood opportunities. There is much greater opportunity to tailor similar protective measures and benefits to emerging economies and developing countries.

Historically some of these benefits were provided by traditional values, mutual aid mechanisms in times of need and extended human relationships, although many developmental aspirations have diminished rather than reinforced such latent human disaster risk reduction potentials.

TENTATIVE CONCLUSIONS

Expanded use of the social dimensions of development and efforts to revitalize traditional forms of experience and social supporting networks offer promise for expanded commitments to disaster reduction.

Development programming and related earmarked resources should be encouraged to develop and apply appropriate variations of social and physical security practices in developing countries that have been employed routinely in industrialized countries.

Financial instruments or mechanisms

Living with Risk, (2004), Chapter 5.4.

As the costs of disasters continue to rise, the rationale to invoke financial instruments and financial measures to protect social assets and personal capital also increase. It is widely recognized that insurance and similar efforts to spread risk are much more widely utilized among the richer industrialized countries than in the developing world. This despite the recognition that additional means to share the risk is more acute among impoverished populations who by definition have fewer options or alternate resources by which to recover from disaster losses. The recurrent nature of localized disaster losses in the more isolated and distant parts of many countries and among the poorest segments of the population also argues for wider use of financial mechanisms for risk reduction.

At the macro level, instruments such as crop or flood insurance schemes, or the use of catastrophe bonds offer promise for wider application if they are able to be scaled to smaller units of scale. "Micro-protection schemes" have yet to be fully explored for wider utility in local or village environments, despite the well-regarded success of micro financing in stimulating vital opportunities for livelihood creation and more sustainable basis for earlier subsistence and informal family economies.

Early in the 1990s the Asian Development Bank identified and advocated the value of disaster risk reduction on the principles of beneficial investment with development

dividends. (*Disaster Mitigation in Asian and the Pacific*, 1991). While, despite some localized project activities such an initial involvement generally has been slow to coalesce over the years in Asia where national economies have been driven by other priorities. However, and to some extent motivated by the tremendous losses in infrastructure and social assets from Hurricane Georges and Mitch in 1999, in Latin America and the Caribbean the Inter-American Development Bank, the Andean Development Corporation, the Central American Bank for Economic Integration, and the Caribbean Development Bank and have all embraced the potential for investing in development through disaster reduction initiatives. The South African Development has also recently expressed an interest in pursuing investment in a field that “had not really been presented to them before”.

These examples, coupled with earlier investment practices advocated since the 1990s identified with public-private partnership initiatives suggest that possibilities remain for innovative approaches to access both technical and financial resources for disaster reduction from those already committed for development.

TENTATIVE CONCLUSIONS

Considering the values at stake and the demonstrated viability with a well-considered rationale, there is considerable scope to explore alternate or innovative means to devise financial instruments and investment mechanisms that enable wider access to already existing resources for disaster reduction endeavors.

More research grounded in “imaginative economics” coupled with pro-active policy motivations for investing in disaster reduction can contribute to the dual benefits of asset protection and the growth of development capital.

Micro-financial schemes tied to sharing the risks posed to essentially household assets; perhaps education or health ‘security’ or livelihood productivity following on experience of micro-credit programmes may be a particularly rewarding opportunity if seriously pursued.

Technical programmes of infrastructure protection and other physical measures

Living with Risk, (2004), Chapter 5.3.

The adage that “earthquakes don’t kill people, buildings do” (attributed to Charles Richter), underline the knowledge that there are well known, tested, and widely available technical means to provide greater degrees of safety in the built environment and the protection of infrastructure than is currently availed of. Although perhaps not as forthrightly acted upon yet, a similar observation can be made with respect to known technical interventions that can be employed to reduce the consequences of hydrometeorological hazards, wildfires, debris-and landslides, etc, if only they were to be more widely deployed. Only now, are some societies beginning to turn already existing technical abilities onto the projected consequences of risks associated with the consequences of climate variability and change. In all of these examples, there is existing knowledge and even experience demonstrated in specific locations which are not utilized to nearly the extent possible.

A particularly widespread concern is the lack of use or failure to enforce existing safety regulations, land-use and building codes. Many countries have, and even update, technically proficient building codes which then are circumvented or overlooked by the exigencies of economics or the “otherwise predisposed” attentions of implementing authorities. Efforts to broaden the use of land-use regulations and building codes could prove to be one of the more cost-beneficial measures of realizing additional, but already existing material resources for disaster reduction. It does however require a very heavy investment of political will, and equally public acceptance of the benefits of disaster reduction as a public value.

TENTATIVE CONCLUSIONS

Safe construction practices are rooted in risk assessment and professional integrity of all participants in the creation, management and use of the built environment. It fundamentally must rest with the public though in fulfilling their roles as citizens, owners, users and inhabitants of a community whose inattention to building safety may potentially affect their own well-being . Much greater advocacy about the common interests of regulation, bolstered by the considered application of attractive incentives, can be more aggressively pursued.

Land use and planning practices

Living with Risk, (2004), Chapter 5.2.

The wise and careful use of land for disaster reduction is linked equally closely with risk assessment, environmental management practices, productive livelihoods and the realization of development objectives. As it is also associated closely with planning whether identified with urban or rural landscapes, and perhaps most critically the interface between the two where natural resources are under greatest threat from growth and development, it does lend attention to anticipatory considerations. There are however, other powerful economic influences that too easily override longer termed perspectives of protection with the attractions of short-term gain and exploitation.

As in the case of technical measures for construction and infrastructure protection, there is a critical role for the public interest to drive a more robust programme of land-use regulation and control for wider values to the community as a whole. Effective land use can be most effectively realized through the widespread availability of information and an extended process of dialogue among all people concerned. Hazard mapping which can be a community exercise has been instrumental in some communities to awaken interest in the subject at the same time it expands a wider extent of public participation.

TENTATIVE CONCLUSIONS

Ultimately a crucial element for land use and related planning priorities needs to be accorded in weighing private, individual or singular uses of land against a wider concern for public values and the more broadly applicable considerations of public safety and socially determined access. The determination of how that balance is struck

and where it is actually displayed in physical terms remains an obligation for public expressions of interest and concern.

As in most other areas of managing risks, many of the necessary technical abilities and at least some of the material resources are already available within a society, if efforts are made to identify and then engage them.

Advanced technologies

Living with Risk, (2004), Chapters 2.3., 4.1.

With the significant advances made in recent years with respect to technology generally and information management, telecommunications, and remote sensing capabilities specifically, there is now an abundance of highly useful technology available globally for improved applications of disaster reduction. As many of these techniques become more common they also become more economical, with some previously unanticipated opportunities for developing countries that enable them to benefit for “leapfrog technology” (e.g. growth of cellular telephone systems in many rural locations which never had land line access to telephones previously).

The areas of information access and remote sensing technologies have provided numerous resources of considerable value to hazard and risk assessment at various scales of coverage and sophistication. When combined with geographic information systems now in use in most countries, a wide range of information materials can be made available to community interests involved with risk assessment, public awareness programmes, education and training. Other inexpensive means of telecommunications have likewise provided significant advances in extending the potential for more timely and effective early warning practices, even to previously distant or remote locations.

A responsibility still remains though for the more technologically sophisticated countries to take the initiative to relate advanced technical solutions to the needs of developing countries, within an economic framework that can be both productive and sustained. Technical assistance becomes essential, as does on-going investment in human resource development to fully make use of the potential provided by advanced technologies for disaster risk reduction.

TENTATIVE CONCLUSIONS

While advanced technologies are not a panacea for improved disaster reduction, they can provide many opportunities and technical resources that have not been so easily available previously.

There is a need for technologically sophisticated countries and organizations to encourage the wider application of these resources to developing countries and the most disaster affected communities, but also to provide the continuing support in human and technical terms so that the opportunities may be realized economically and in a sustainable manner.

Remote sensing, space technology, GIS applications, and information management

programmes for decision-making at local levels of responsibility are areas in which advanced technologies may be particularly valued for enhancing disaster risk reduction in practice.

7.5. Preparedness and emergency management

As preparedness is rooted in prior considerations of potential conditions and measures taken, periodically assessed, and revised in the light of experience it is a crucial function shared by both disaster risk reduction and emergency management practitioners. It equally involves the fullest knowledge and participation of both members of the public, skilled professionals the authority of decision makers and a number of supporting organizations at several levels of responsibility.

There are a number of such characteristics shared between disaster reduction and the humanitarian work of emergency management. Despite their constituencies being varied, and their time frame of commitments often very different, they nonetheless must complement each other. As disasters relate to or impede the potential for development accomplishment, so the working relationships between risk reduction in a society and crisis management outlooks need to mesh, for the productive fulfillment of each of their respective functions. Each is equally dependent on an assured provision of necessary material, financial and human resources if the societies and communities they serve are to be both protected and productive, ensuring the well-being and development opportunities for all inhabitants.

TENTATIVE CONCLUSION

Existing opportunities to establish a closer and more mutually productive set of relationships between the disaster reduction and emergency management communities should be utilized through a wider and more inclusive dialogue about their respective roles, responsibilities and requirements. Ideally, such an exchange in further refining their respective perspectives, developing the capabilities and ensuring their viability will be supported strongly by all organizations that have vested interests in fewer losses from disasters and greater development accomplishments

8. Future support to national and local efforts to reduce risk and reporting on accomplishments

Refer to Living with Risk, (2004), Chapter 6

The determination of success indicators is an essential tool in results-based management practices that drive national economies and therefore policy decisions. However, to succeed, there needs to be a common acceptance of objectives, even as priorities and the chosen means to their accomplishment reflect the particularities of individual national, cultural, political or economic conditions. A number of experts, scholars and agencies have called for the determination and application of specific disaster risk reduction baselines, targets and indicators during the last decade.

Currently there are several valuable global or regional initiatives underway. (e.g. ProVention Consortium's study "Measuring Mitigation: Methodologies for assessing natural hazard risks and the net benefits of mitigation"; the UNDP and UNEP-GRID Disaster Risk Index; Inter-American Development Bank's technical cooperation on "Information and Indicators Program for Disaster Risk Management"; conclusions from the ISDR Inter-Agency Task Force Working Group on Risk, Vulnerability and Disaster Impact Assessment", etc.).

TENTATIVE CONCLUSIONS

Measure progress. The fundamental challenge is to achieve a reduction in fatalities and property loss from disasters in a growing number of communities and countries. In order to do this it is essential to show evidence that disaster risk reduction is understood, that benchmarks and indicators are developed and that measures are being put into practice. Self-assessment within a national or institutional context is a first step, which should be guided by a commonly agreed framework for disaster risk reduction.

Develop indicators for disaster risk and risk reduction measures. Monitoring and evaluation of the impact of disaster reduction initiatives increases understanding of the long-term benefits of such programmes. Establishing indicators is a complex issue that needs a qualitative approach to assess progress.

National responsibility, regional and international cooperation. While the motivation and the responsibility to carry out risk reduction and monitor its progress towards more effective implementation rest within individual countries and local communities, there is a requirement that extends throughout the international disaster risk reduction community to support and increase knowledge about available methodologies.

For coordination purposes at the global level and in line with the recommendations of the Johannesburg Plan of Implementation the ISDR Secretariat, with the policy guidance of Inter-Agency Task Force on Disaster Reduction, stands ready to facilitate reporting of progress on implementation with necessary support from relevant partners, in particular with UNDP in developing countries, technical, regional and other international organizations involved. Additionally it will strengthen its capacity as clearing house to keep track of ongoing and emerging global initiatives and partnerships to support the disaster risk reduction goals and targets

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