

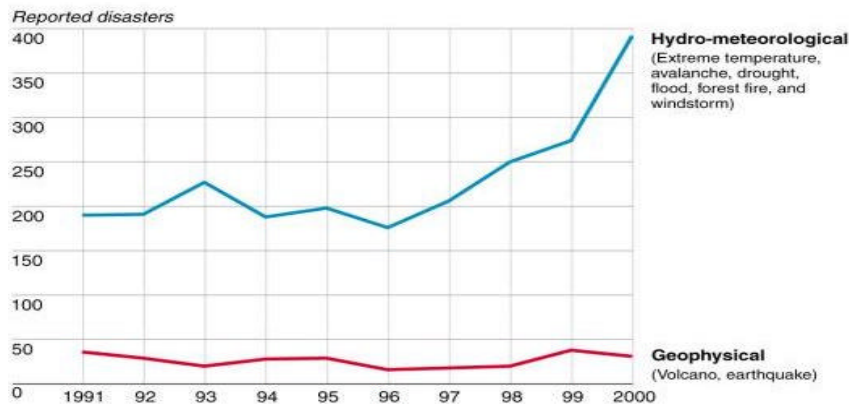
# UNDP Expert Group Meeting on Integrating Disaster Reduction with Adaptation to Climate Change, Havana, June 19-21, 2002

## DRAFT SUMMARY

### *A Climate Risk Management Approach to Disaster Reduction and Adaptation to Climate Change*

#### Disaster Loss and Unsustainable Development

Disaster occurrence and loss associated with extreme and increasingly not so extreme climatic events has increased dramatically in recent years and particularly since 1996. While the number of reported disasters associated with geophysical events such as volcanic eruptions and earthquakes remained remarkably constant, those associated with hydro-meteorological events such as floods, drought, forest fires and storms have demonstrated a curve of exponential growth. The number of reported hydro-meteorological disasters in 2001 was approximately double the figure reported in 1996.



Note: Includes all natural disasters declared by national authorities in OECD and non-OECD countries, regardless of their severity.

Source: Center for Research on the Epidemiology of Disasters.

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At the same time economic loss, due to increased exposition and vulnerability of population, infrastructure and production, was six times higher in the 1990s than in the 1970s, in constant monetary costs. Apart from loss associated with events normally classified as “disasters” social and economic loss also occurs through gradual changes in climate, environment and morphology, for example through coastal erosion, groundwater depletion and salt water intrusion and desertification.

Skewed processes of social and territorial development are generating increasingly complex and intractable patterns of disaster risk, particularly in developing countries. While many of these patterns are associated with natural hazards that show no tendency to increases in magnitude and recurrence, human interventions in the natural

environment, and which characterise these development processes, are generating new socio-natural hazards, mainly associated with climatic events.

In many incidences of new flooding, landslide, drought, forest fire and coastal erosion, environmental degradation has transformed natural resources into new hazards. This type of intervention is also increasing the hazardous character of truly natural hazards and extending their impact to new areas. At the same time, the social, economic, territorial, physical and political vulnerability of large sectors of the population in many developing countries continues to worsen weakening their capacity to absorb the impact of, and recover from extreme climate events.

These burgeoning levels of social and economic disaster loss are beginning to outweigh development gains in a number of countries and as such are fast becoming unsustainable. This is particularly the case in the small island developing states-SIDS. On the other side of the equation, it is now very clear that flawed development and environmental practices are at the root of much new disaster risk. The achievement of the UN Millennium Goals, in areas such as poverty reduction, health and education will be impossible unless concerted efforts are made to manage and reduce the disaster risks associated with potentially damaging climatic events.

## **Global Change, Complexity and Uncertainty**

Processes of global change are adding new and even more intractable dimensions to the problems of risk accumulation and disaster occurrence and loss, associated with climatic events. Global change encompasses both socio-economic and environmental processes, and the links between them.

The globalization of local, national, sub-regional and regional economies over recent decades has increased the complexity of risk in spatial, temporal and semantic terms, continuously forging and reproducing new and as yet unpredictable patterns of risk at the social and territorial levels.

Due to global change rapid and turbulent changes in risk patterns in a given region are rarely autonomously generated and may, in numerous cases, be caused by economic decisions taken on the other side of the globe. This territorial complexity and concatenation of causal factors extends down to include the impacts of national sectorial and territorial development policies on regions and localities.

The impacts of globalization are being felt in both rural and urban areas. Urban areas often concentrate a complex interplay of multiple hazards and vulnerabilities with synergic effects and a very heterogeneous social and locational distribution. Rural areas in the developing world suffer diverse processes of incorporation and exclusion with differential impacts in terms of vulnerability and risk.

The accumulation of greenhouse gases in the atmosphere and resulting changes in the world's climate is a second global process that is increasing the complexity of risk. The scientific evidence that climate is changing due to greenhouse gas emissions is now incontestable. At the same time, it is equally well accepted that climate change will

alter the severity, frequency and spatial distribution of climate related hazards. However, even while modelling of the linkages between global climate change and particular climate events becomes increasingly sophisticated, it is still not possible to predict with any degree of confidence how particular climate events, in specific locations will behave in the future. Even with regular climatic variability associated with phenomenon like ENSO, important changes in types and areas of impact occur from event to event leading to imprecision in alert systems and preventive actions.

Humans have been adapting to changing climatic conditions and to the impact of extreme climate events ever since their appearance on the planet. Much of this adaptation occurred gradually and spontaneously and the economies of many traditional societies to this day still depend on sophisticated production and social systems adapted to manage climate risk and variability. Much natural resource based development over centuries has depended on constant adaptation to changing environmental conditions.

The rapid accumulation of climate related risk in recent decades and the resulting patterns of loss, however, point to a loss of effectiveness and even breakdown in spontaneous adaptation and coping. As the range of hazards and vulnerabilities faced by any given community increases, it often becomes possible only to play one kind of risk off against another in search of a “less worse” scenario. Many highly vulnerable communities may deliberately choose to inhabit a hazard prone environment if this reduces other risks, related to income generation for example. Or, should they find themselves in hazard prone zones due to exclusion from formal land markets or for other reasons, they will many times opt to stay in order to maintain those conditions that provide them with the means to face up to daily life risk and vulnerability. On the other hand, factors such as poverty, limits to migration, land tenure systems, migration between ecologically distinct areas and a continuous reduction in terms of knowledge of ecosystems, inevitably place barriers to spontaneous adaptation

The processes of global change mentioned above, have stacked the odds even higher against successful adaptation. As the causal processes of risk become increasingly global, the options available to local communities and other local stakeholders to influence risk generation processes becomes restricted, if not non-existent. At the same time, the growing complexity of risk, due to both economic globalisation as well as to global climate change, greatly reduces the predictability and increases the uncertainty surrounding the occurrence of particular climate related disaster events: be they the rapid impact of floods, landslides, forest fires or hurricanes in given locations or the obsolescence of productive systems through changing climatic or market conditions.

In other words, the evidence from patterns of disaster occurrence and loss shows that climate related risks are rapidly increasing, which in turn indicates the growing failure of and breakdown of adaptation at all levels. The growing complexity and globalisation of climate related risk, translates at the national and local levels into impotence to affect the causal processes of risk and increasing uncertainty regarding the nature of risk itself and what could be viable strategies to manage and reduce risk. Moreover, disaster risk becomes for the poor an unheeded notion faced with more pervasive every day risk conditions associated with ill health, malnutrition, illiteracy, unemployment, drug addiction and family and social violence.

## **Risk management strategies**

Faced with this bleak scenario, different approaches to manage and reduce climate related risks have been attempted by the humanitarian, development, environmental and climate change communities.

Since the 1970's the national and international organizations responsible for responding to disaster events and for providing humanitarian assistance, have been gradually expanding their approach to address first hazards, then vulnerabilities and eventually risks themselves. From their beginnings in response, many disaster related organizations have moved on to: strengthen capacities in preparedness and early warning (enabling the conjunctural mitigation of losses associated with extreme climate events); reduce hazard levels, through structural measures such as flood control embankments, soil conservation measures and others; reduce vulnerabilities through strengthening community and national level capacities and resilience and eventually to address integrated disaster risk management, in which a range of measures are designed to address the full range of hazards and vulnerabilities present in a given location.

The risk conscious development community has attempted to promote more integrated schemes where risk considerations are factored into development change. And, the environmental community has increasingly seen the relevance of environmental management and good resource use for hazard control and reduction. Win-win and no regret policies are part of this packet. Equilibrium and resilience of ecosystems offers natural protection from natural hazards and reduces the likelihood of new hazards generated by processes of environmental degradation.

However, despite the UN International Decade of Natural Disaster Reduction (IDNDR) in the 1990's, in which member states with the support of international organizations were supposed to make a concerted effort to reduce disaster risk, risks have continued to accumulate and increase, while most national and international efforts continue to be fundamentally preparedness and response focused. A large number of successful experiences, however, in Asia, Latin America, the Caribbean and Africa, in which different risk management approaches were piloted, have built up a substantial body of knowledge on the theory and practice of risk management. These successful pilot approaches provide a glimpse into the future of risk management, if they were to be mainstreamed and applied as part of a concerted and integrated programme.

An important part of the problem of the Decade was that insufficient gains were made in integrating diverse specialist groups and caucuses all with a clear importance for risk reduction and related to sectorial and territorial development, environmental management, poverty reduction etc. The tendency was still for these groups to work apart and not as an articulated whole.

In parallel, the scientists and organizations examining the problem of global climate change have gradually expanded their approach from an initial concern with the causes of climate change, through a concern with modelling the potential its effects, for example in terms of sea level rise and desertification, towards a concern with how societies and economies can adapt to changing climatic conditions. In programme terms, this has lead, on the one hand, to international efforts, through the UNFCCC, to

mitigate climate change through international agreements to reduce greenhouse gas emissions and on the other hand to the assessment of countries' vulnerabilities to climate change and the design of strategies to adapt to a changed climate. In recent years, there has been an increasing commitment to and emphasis on adaptation rather than just mitigation, as the climate community has accepted that even current levels of greenhouse gas accumulation will lead to inevitable and drastic climate changes.

In the same way, however, as the risk and disaster community has failed in practice to substantially move beyond response to extreme disaster events, the climate change community has not yet been able to move beyond fairly theoretical formulations of vulnerability and adaptation, towards concrete plans and programmes of action. Such notions as planned and spontaneous adaptation, and even the concepts of vulnerability and risk, are far more easily used and talked about than understood in practical and applied terms. The problems of uncertainty surrounding the modelling of the impact of climate change in particular locations, together with the difficulties of mobilising political will and support to adapt to uncertain future events are factors which conspire against the development and implementation of adaptation strategies.

In particular, national and international efforts to design strategies to adapt societies and their economies to the effects of climate change and national and international efforts to manage the disaster risks associated with extreme climate events remain fundamentally divorced. In many, if not most, developing countries totally separate and parallel institutional systems and programming mechanisms exist for promoting adaptation to climate change on the one hand and disaster risk management on the other hand. On another related front, it is only recently that a search for synergy between objectives and institutional frameworks has been sought with regard to the UN Environmental Conventions on wetlands, biodiversity, global climatic change and desertification. These are all clearly related one to the other but have been dealt with until recently as if they were separate and discrete problems.

This divorce between the adaptation to global climate change and the disaster risk management communities is unproductive and even absurd if it is accepted that both are addressing the same issue of climate related risks, but from apparently different viewpoints. This includes supposed differences related to the time period under consideration. Risk managers are seen to deal with current and short term risk and climate adaptation specialists with longer-term changes and risk. But this is essentially a false separation. Risk, by definition, refers to the probability of certain events occurring in the future. The uncertainty surrounding the specific impacts of future climate change in particular space-time coordinates is therefore an intrinsic characteristic of current existing risk, and which has to be dealt with by risk management in the here and now.

The lack of capacity to manage and adapt to climate related risks is already a central development issue in many developing countries, particularly but not exclusively in SIDS. From this perspective the lack of capacity to manage the risks associated with current climate variability and with already occurring extreme climate events is the same lack of capacity that will inhibit countries from addressing the future increases in the complexity and uncertainty of risk due to global climate change. In the sense that the entire potential of the future already exists like a seed in the present moment, strengthening national and local capacities to manage climate related risks, as they can

currently be assessed, is the best strategy to be able manage more complex climate risk in the future. At the same time, it is more feasible to mobilise national and international political and financial resources to manage an existing risk scenario than to address a hypothetical future scenario. Medium and long-term adaptation must begin today with efforts to improve current risk management and adaptation initiatives and contexts. And, lessons from current practices along with the notion that learning comes from doing are of critical importance.

There is an urgent need, therefore, to build on the successful approaches piloted by the disaster risk management community over recent decades, while using increasingly accurate modelling of the impact of global climate change in specific locations, to develop integrated or total climate risk management plans and programmes.

## **Integrated climate risk management**

Integrated climate risk management, as a concept, would address both the hazards and vulnerabilities which configure particular risk scenarios and would range in scale from actions to manage the local manifestations of global climate risk, through to global measures to reduce hazard (for example, by reducing greenhouse gas emissions) and to reduce vulnerability (by increasing the social and economic resilience of vulnerable countries such as SIDS, for example). Integrated climate risk management would need to include elements of anticipatory risk management (ensuring that future development reduces rather than increases risk), compensatory risk management (actions to mitigate the losses associated with existing risk) and reactive risk management (ensuring that risk is not reconstructed after disaster events). Moreover, it will have to take into account both potential impacts on socio-economic and environmental systems.

Integrated climate risk management could provide a framework to allow the disaster community to move beyond the still dominant focus on preparedness and response and for the adaptation to climate change community to move beyond the design of hypothetical future adaptation strategies. In some regions, such as the Caribbean and the South Pacific, synergy such as this is already being achieved. However, urgent actions must be taken at the international, national and local levels if integrated climate risk management is to move from a concept to practice and serve to reduce risks and protect development.

At the international level, if it were recognised that most disaster risk is now climate related and that adaptation must refer to the management of existing climate related risks, the United Nations should promote an integrated international framework and partnership for risk management, which incorporates elements of and builds on existing frameworks for addressing climate change, disaster reduction, desertification and others. Such a framework needs to start from a clear concept that climate related risk is one of the central development issues of our time and that, as stated in the first part of this summary, the achievement of the UN Millennium Goals will not be possible unless climate related risks are significantly managed and reduced. The current proliferation of parallel international frameworks and programming mechanisms for addressing what is a holistic development issues is counterproductive if the objective is to strengthen national capacities to manage and reduce climate related risks.

At the national level, integrated climate risk management strategies, plans and programmes need to be built on the dispersed institutional and administrative mechanisms, projects, human and financial resources currently applied to disaster risk management as well as adaptation to climate change and other related areas such as desertification. The United Nations should develop new programming mechanisms and tools to promote integrated national climate risk management programmes as well as resource mobilization strategies to ensure that such programmes can be adequately funded.

Ultimately, integrated climate risk management needs to take root at the local level. Most climate related disaster events are small to medium scale and have spatially delimited local impacts. Even large-scale events can really be interpreted as the sum of a large number of local impacts. Ultimately, risk is manifested and losses occur at the local level and it is at this level that national and international support to integrated climate risk management has to be realised and capacities strengthened. Differential levels of loss at the local levels when faced with similar hazard conditions can only be explained by the differential levels of vulnerability that exist. At the same time, scaling up needs to occur given the diverse territorial base of risk causation.

### **By way of conclusion**

To conclude, climate related risk, aggravated by processes of global economic and climatic change poses a central unresolved development issues for many countries, particularly but not exclusively for SIDS. Unless such risks can be managed and reduced the achievement of the UN Millennium Goals will be a mirage.

Current approaches towards managing disaster risk and adaptation to climate change fail for different reasons to address the issue. The first is still predominantly focused on response to disaster events and fails to address the configuration of hazards, vulnerabilities and risks. Moreover, mono hazard approaches still prevail in contexts more and more typified by concatenation, synergy and complexity and there is still a great deal to do in order to bring risk management and sustainable development concerns and practices together. The second focuses on the impact of future climate change on risk but fails to make the connection with currently existing climate related risk events and patterns. At the same time, both approaches are divorced both in concept and in terms of the institutional arrangements and programming mechanisms at the national and international levels.

If development is to be protected and advanced in countries affected by climate risks, an integrated approach to climate risk management needs to be promoted, building on successful approaches piloted by the disaster risk management community but mainstreamed into national strategies and programmes. Addressing and managing climate risk as it is manifested in extreme events and impacts in the here and now is the most appropriate way of strengthening capacities to deal with changing climate in the future.