Natural and Technological Disasters: Capacity Building and Human Resource Development for Disaster Management: Concept Paper

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**September, 1999.**

**(Prepared under contract to ERD-UNDP Geneva)**

## 1. INTRODUCTION.

Risk and disaster are dynamic and changing. The concepts and theories, empirical realities, and management challenges and options that exist with regard to risk and disaster change commensurately. These changes provide the context within which decisions on the scope, orientation, content and strategic parameters of future capacity building and human resource development must be decided. As the context and challenges change so do the parameters and priority actions required for achieving successful capacity building.

Since the beginning of the present decade, the natural and technological disaster problematic has changed dramatically in many ways. The declaration of the International Decade for Natural Disaster Reduction (IDNDR), a greater public awareness of the dimensions of the problem, and the implicit or explicit idea that the problem can only increase in the future due to the risks associated with global environmental change, the development of new untried technologies and the expected growth in the dimensions of human vulnerability, have stimulated an unprecedented interest in research on the topic and on the promotion of disaster management activities, including organizational and institutional changes at the local, national and international levels.

An enormous increase has been experimented in the number of professionals, organizations and institutions involved with the topic, ranging from governmental through universities and down to the grassroots and local levels. Innovative ideas, concepts and paradigms have been vented and discussed, offering new and imaginative interpretations of risk and disaster, and new challenges for the management of these problems. New organizations have appeared and others have been transformed. Traditional management tools have been accompanied by new experimental or pilot schemes. And, human resource development, using diverse training and educational models, reached an unprecedented high during the last ten years. These changes and advances have not been homogenous, neither socially nor territorially. Vast disparities exist at a regional and national level. But, wherever one looks, the situation today is considerably different to that prevailing a decade ago.

Any consideration of the capacity building and human resource development needs that exist today, and of the potential role that UNDP and the UN System in general can play in helping satisfy these, must inevitably be placed in the context of the changes suffered, the prevailing situation and a projection of possible future challenges. This is the principal objective of the present document.

In view of constraints of time and space, we inevitably face the risk of overgeneralization, given the wide array of different circumstances existing at a regional, subregional or national level. But, it is precisely this diversity that is the principle challenge to be faced in designing

any future planned intervention related to capacity building and human resource development. However, despite the existing diversity there are, we believe, common principles, problems and perspectives that allow us to identify certain unifying factors. The identification of these is a critical input for establishing the basic parameters of any future programme for capacity building. The details of such a programme, the fixing of specific parameters, criteria and contents for different countries or demand sectors is an act of calibration that constitutes the principle challenge involved in the design of any broad scoped, multi-national or multi-sectoral programme. Unity within diversity, heterogeneity as opposed to homogeneity, sensitivity to differences, to specific needs and demands, and a real sense of moment and context are essential if the programme is to be pertinent and appropriate to the diverse national situations that exist today.

## 2. CAPACITY BUILDING AND HUMAN RESOURCE DEVELOPMENT: PRELIMINARY CONSIDERATIONS.

Prior to taking up on the principle subject matter of this concept paper, it is necessary to provide some preliminary ideas as regards what we understand by " capacity building and human resource development" in the context of the risk and disaster problematic. This will provide us with a point of reference for the discussion of the substantive ideas put forward in this document.

In generic terms, capacity building refers to a process by which individuals and organizations strengthen their ability to delimit, structure and understand determined social, economic and environmental problems, to identify and mobilize resources in order to overcome them, and to maximize opportunities for sustainable improvements in the standard of living of the population. This is determined by the capacity of people to construct policy information, infrastructure and institutions, to train and educate human resources and to facilitate the participation of stakeholders in the decision-making process. (UNCED, 1992). From the perspective of the World Bank this process involves three levels or components: individual knowledge and skills; institutional capabilities; and, the development of rules, procedures and understandings that people, societies and institutions can hold and work by.

Transforming this generic definition of capacity building into one that is specific to the risk and disaster problematic, we can posit that this refers to a process by which individuals and organizations strengthen their abilities to:

Analyze and understand existing patterns of risk in society, dimension these in social and spatial terms, and project or predict future associated disaster impacts.

Anticipate and project future patterns of risk generated by ongoing natural, social and technological processes.

Elaborate legislation, policy guidelines and strategies, and implement plans, projects and activities that promote: i. a reduction in the levels of risk in society; ii. an increase in the economic and social efficiency and efficacy of disaster response, rehabilitation and reconstruction schemes.

Continually adjust, adapt or transform existing social and institutional structures and practices in a way that is cognizant of new advances in the understanding of the risk and disaster problematic and of disaster management as a social practice.

Collaborate and coordinate with other relevant individuals, organizations and institutions on the basis of clearly defined and agreed upon normative criteria.

The attributes of the above delineated process refer to individuals, institutions and organizations that assume relevant roles at the community, local, regional, national or international levels. Capacity building efforts at any one territorial level may be facilitated by or dependant on capacity already built at another level.

Organizational and institutional development and sustainability is dependant on human resource development. But, relevant and useful human resource development is also dependent on organizational development and stability. The role and timing of human resource development achieved through training and professional education processes must be determined according to need and context. There is little point in developing human resources if there is no stable institutional base from which to work, or no clear institutional commitment to the development of activities for which training has been provided. In the same way institutional and organizational development can not be achieved without adequate human resources. Both types of context are frequently found in capacity building projects in the disaster management area. Strategy and equilibrium are key factors in achieving an adequate balance and approach.

The final objective of capacity building is to contribute to a continuous and sustainable increase in the overall levels of development of the host society and to increases in the standards of living of it's members.

## 3. MODERN CONCEPTUALIZATIONS OF RISK, DISASTER, AND MANAGEMENT

Albert Einstein once affirmed that " there is nothing more practical than a good theory". Neil Britton, a longstanding theoretician and practitioner of disaster management stated that " the type of precaution that is institutionalized in order to confront disasters reflects the ways in which disaster is conceptualized by those that take decisions". Clearly the way in which we deal with the problem of risk and disaster is closely related to the ways we see disasters and the aspects considered to be most important in the conformation of the problem.

Over the last decade, various significant transformations have occurred in the conceptual base used to consider the problem. These have been the result of both university type research and discussion and reflections derived from the practice of disaster management. Many of the ideas are not new deriving from discussions that have ensued over the last twenty years, but finding a particularly receptive milieu during the last ten. Some of these have informed changes in management practices. Others remain latent in terms of their application in practice. Some have not got beyond a limited circle of conceptual adepts, whether in the academic or practitioner circle. But all are important and represent important advances in the structuring of the risk and disaster problem.

The more important conceptual transformations and their significance for management practice are considered below. Although these are separated into discrete components for the purpose of presentation, all are in fact intimately related and part of a complex redefinition of the conceptual bases of the risk and disaster problematic.

### 3.1. The Essential Concept: Risk or Disaster?

The concept and definition of "disaster" assumed a dominant position in debates up to the present decade. This reflected a particular interest in the problem seen from the perspective of a concrete and visible product defined as " a disaster". This emphasis on " disaster" as such,

reflected the dominant social interest in responding to these crisis events. The over riding priority given to the problem of disaster response and preparedness inevitably signified that the important thing was disaster seen as a product. A certain air of inevitability surrounded this dominant concern. Disaster management and the majority of the organizations involved in this were still predominantly concerned with and trained to deal with disasters once imminent or real.

Over the last ten years, however, whilst the concept of disaster still attracts considerable attention, there has been a notable tendency to shift the discussion in favour of a consideration of the problem of " risk". Risk constitutes the latent, but at the same time objective and real condition which precedes the eventual appearance of disaster. It is the probability of damage and loss occurring in the future. Disaster can not occur without the previous existence of risk, and disaster can be conceptualized in the last instance as the actualization of existing risk. The increasing emphasis on the notion of risk signifies that disaster is now considered more in terms of process than merely as a product to be dealt with. The construction of risk is an ongoing social process, the origins of which lie in particular modalities of human and societal change and development. Disaster is thus a social problem and during the last years increasing consideration has been given to the idea that disasters are "unresolved development problems"

The increased attention given to risk reflects an increasing concern for the problem of disaster prevention and mitigation, as opposed to response. This in turn derives from the increased concern for the growing levels of loss associated with disasters and the pressure on existing social resources that response and reconstruction signify. The declaration of the IDNDR represented one of the more visible expressions of this concern and was a significant factor in stimulating a more concerted preoccupation for the study and analysis of disaster causation, the essence of which is captured in the idea of risk. The analysis of disaster causation is an inevitable first step in the promotion of adequate disaster reduction, or more precisely, risk reduction policies, strategies or activities. At a management level, risk reduction still tends to be subsumed within the general category of " Disaster Management". However, the recognition that risk reduction involves very different processes and social actors than disaster response has led to a gradual recovery of the notion of "Risk Management", and the increased use of the term in different organizations and institutions.

### 3.2. Risk as a Complex Category: The Importance of Vulnerability.

Probably the single most pervasive conceptual and operational development witnessed over the last ten years has been associated with the central notion of vulnerability. Vulnerability can be most succinctly and comprehensively defined as the propensity of a society to suffer damage and loss when exposed to a potentially damaging physical event, and as a measure of the difficulties it confronts in recovering from this.

In terms of the analysis and measurement of risk, the increased importance assigned to vulnerability parameters has had enormous repercussions. Risk has passed from being used as a simple synonym for, or as a measure of the level of physical exposure to hazard, to being a complex social category determined by the particular relations that exist between hazards and vulnerability. In the same way as hazards are diverse in type, spatial and temporal appearance, intensity and duration, vulnerability is equally if not more complex. No longer is vulnerability seen as something limited to the location of population and production in hazard prone areas or to the structural security of buildings or infrastructure. Rather, today, it is most comprehensively considered in terms of a wide array of social and environmental

characteristics which in conjunction lead to varying levels of global vulnerability in any particular society or social unit. These include social, economic, political, cultural, organizational, institutional, ecological, educational, locational and physical factors.

In terms of the explanation and measurement of risk this can no longer be related simply to the characteristics of hazards. Hazard maps or analysis is not a synonym for risk analysis and mapping. The challenges involved in vulnerability and integrated risk analysis are enormous. The concept is still far ahead of the methodological tools and procedures that exist for dealing with it. Moreover, risk can no longer be seen as something that is externally determined and thus subject to external manipulation using predominantly technological and land use instruments. Rather, it is generated within society and is the product of particular social and developmental processes. The consequences of this type of conceptualization are that risk and disaster can not be separated from the problem of development, and risk reduction must necessarily be seen as a dimension of development and development planning. Vulnerability reduction requires the participation of diverse development actors who go well beyond the scope of those traditionally involved in the disaster response problem.

**Hazards: Diverse Types, Diverse Causes.**

Hazards have always been associated with risk and considered a component of this. Traditionally, it has been common to use broadly based classifications of hazard types distinguishing sub categories within each of these. The most commonly known macro classification refers to " natural", " technological" and " social" hazards. From here comes the much-disputed nomenclature that refers to natural, technological and social disasters.

Over the last years a serious attempt has been made to modify this disaster terminology. Among the more common battlefronts the attempt to get rid of the term " Natural Disasters" has assumed most importance. The argument that all disasters are in fact social and that it is erroneous and pernicious to define disasters in terms of the type of hazard they are associated with has been behind this apparently semantic, but essentially conceptual debate.

Within the specific problem of hazards themselves three major types of discussion and advance have assumed particular importance.

**Physical Events or Hazards.**

The first relates to the idea of hazard itself, and the delimitation of when a hazard is really a hazard. Here the problem has been to clearly define the difference between a physical event and a hazard, the latter being defined as a latent and potentially damaging physical event.

Not all potential, extreme physical events are hazards. Clearly the concept of hazard must refer to an event that has the potential to cause harm. In order for this to happen there must be a component of the social structure that is exposed to and vulnerable to its effects. Given this, it is also clear that hazards, as vulnerability, are constructed socially. The transformation of a physical event into a hazard requires a social process by which elements of society are placed at risk by that event. Thus, it is also clear that hazards can not exist without vulnerability and vice versa. This simple premise has signified a profound reappraisal of the work done on hazard and risk mapping as a tool for management decisions. Many so called hazard maps were in fact maps of potential physical events, many of which posed no existing threat to society. Many hazard or physical maps went under the name of risk maps without depicting the social

components supposedly at risk. The challenge of providing integrated and dynamic risk evaluations and maps, which bring together hazard and vulnerability criteria and parameters, has been one of the important challenges faced over the last decade, and in good part unresolved to date.

Amongst the important methodological developments that have taken hold during the last years, the relatively massive diffusion of sophisticated Geographical Information Systems has been outstanding. Such techniques have been proposed and utilized for mapping elements of the physical and social milieu considered to be hazards, vulnerabilities or capacities. As such, they have been seen as an important contribution to hazard, vulnerability and risk mapping with uses for diverse management activities, including prevention and mitigation, preparedness and response.

Despite the proliferation of these techniques, an important debate exists as to their real validity and pertinence, particularly in developing world contexts where the continuous maintenance of updated information, the capacity to provide relevant analysis and the ability to maintain sophisticated hard ware are all in question due to resource limitations. The debate on, and search for less sophisticated tools and the importance of more qualitative approaches to risk and vulnerability analysis have inevitably assumed an important place in current concerns.

**Hazard Types and Causation**

The second question relates to the nature of hazards and hazard causation. Here, the broad classification of hazard types mentioned above satisfies certain classificatory criteria, but essentially disguises a number of basic characteristics and distinguishing social aspects that are of fundamental importance for the design of management strategies and interventions. These problems have been taken up during the last decade leading to new classificatory and conceptual approaches when dealing with hazards.

Particular issue has been taken with the category of " natural hazards". Here it has become very clear that many phenomena that are lumped into the category of natural hazards are far from natural, although they assume the form of well-known types of natural events. This is particularly evident in the case of many incidences of flooding, drought, land subsidence, landslides, conflagration, pest infections and erosion. These types of event do of course exist naturally. But, in an increasing number of recorded cases, the event has been induced, accelerated or increased by human intervention related to such processes as deforestation, mining, slope destabilization, degradation of ecosystems, changes in agricultural cropping patterns, urban development without adequate land use management and provision of drainage infrastructure etc. These events occur at the interface of natural and social processes and are more adequately classified as " pseudo" or "socionatural" hazards. They are socially induced, they tend to be rapidly increasing in numbers and they are associated with an increasing number of small to medium scale damaging events.

Beyond the obvious importance this type of hazard has in terms of loss and damage, increasing recognition of their existence and proliferation has had various significant repercussions in terms of the risk and disaster management problematic during the last decade.

Firstly, when considered along with the broad and growing number of technological hazards related to modern processes of production, circulation and consumption, it is clear that the problem of hazard management assumes as important a role in risk reduction as does the

reduction of social vulnerability. Hazards can not be seen as inevitable and subject only to study, prediction and control by engineering methods, as maybe the case with truly natural hazards. The sum of these socionatural and technological hazards are subject, in theory, to social control and reduction, if not elimination.

Secondly, these hazards are the result of inadequate and unsustainable developmental and environmental processes and practices. This automatically provides a further confirmation that the risk and disaster problem is a component of the sustainable development and environmental problematic, and must be organically linked to these if effective advances are to be made in the reduction of the problem. This type of argument becomes even more apparent when we realize that these types of hazards are essentially no different to those anticipated for the future and related to ozone depletion, global warming and climatic change. Changes in sea levels, intensification of such phenomena as El Nino, changes in hurricane strength and recurrence, increased precipitation in certain areas and, on the other hand, decreased availability of hydrological resources in others, will constitute new non natural hazards that complement those existing at present.

The efforts made during the last ten years at reconceptualization and redefinition of the risk and disaster problem has helped to bring the topic closer than ever to development and environmental concerns. This was difficult to achieve until recently due to the fact that the disaster problem was essentially defined in terms of the event itself and the subsequent humanitarian response, emphases that basically divorced the problem from its developmental and environmental roots.

**Complex, Linked or Concatenated Hazards**

The dominant practice of considering disaster types in terms of discrete or specific hazards has suffered important modification. The increase in numbers of hazard types, particularly those related to environmental mismanagement and technological developments, and the full realization that hazards do not work in isolation, has eroded much of the value of management practices based on single hazard scenarios. Moreover, analysis of different risk contexts shows that a good part of the population at risk is subjected to the possible influence of two, or many more hazard types, simultaneously or at different times. A major consequence of these developments is that multi-hazard analysis has become far more influential.

Within the field of natural and technological disasters, the notions of complex and concatenated or linked hazards have also become increasingly important. These refer to contexts where a primary hazard event will lead to secondary hazards, which may have more destructive impact than the original triggering event itself. Examples can be found in cases such as earthquakes that lead to fires, landslides, explosions or spills of dangerous chemical substances. Or, of floods that lead to failures in dams, conflagrations or chemical contamination of water sources. These considerations find a parallel in the concept of "Complex Emergencies", used to denote contexts where political, social and natural hazards may combine to severely undermine the security and functioning of a society. The parallels that can be found here also serve to reconfirm that the dividing up of the disaster problem into natural and technological and complex emergency components at times establishes an arbitrary boundary between the two.

The continuous growth of new technologies and their potential hazard connotations signifies a constant reappraisal of risk scenarios and the potential for complex disasters. This is

particularly of concern for large urban centres where modern production and distribution facilities are concentrated, leading to increased complexity for risk management and eventual disaster response operations.

The exposure of vast populations to multi-hazard scenarios poses other more complex management decisions. Striking an adequate balance, for example, between seismic and flooding risk, poses an important challenge for risk managers, where these may occur in the same place, affecting the same population groups.

### 3.4. The Scale of Analysis and the Scale of Resolution

Disasters are generally associated with large-scale events. Such an association derives from the dominant interests of the social actors involved with disaster management, with response organizations, earth scientists and sociologists assuming a predominant position, until recently. For these three groups, disaster is taken as a product, something that exists, has a large scale, physical, triggering mechanism and the need for complex and large-scale intervention, including the collaboration of external agents. Disasters produce social conditions that exceed the coping capacity of the affected communities.

Whilst this view of the problem is clearly justified and relevant, due to the magnitude of the human and humanitarian consequences associated with large-scale events, increasing attention has been given in recent years to a perspective on the problem that uses a different scale of resolution. This approach is intimately linked with the vision of disaster seen as a permanent process, where risk is the dominant explanatory variable. It is also related to the increased emphasis placed on vulnerability, the growing numbers, types and spatial distribution of hazards, and evidence of the types of social response to disasters witnessed amongst the affected population. The overall impact of these factors, combined with alternative conceptual viewpoints, has been a lowering of the scale of resolution of the problem towards small-scale or fractal perspectives.

Risk is a pervasive and increasingly complex aspect of human existence. It is highly dispersed territorially. When risk is actualized it is manifested in the form of a damaging event. These events involve very different levels of damage and loss. Some take the form of the large-scale " disasters" or " catastrophes" most commonly associated with disaster management as we know it today. Others are of smaller or far smaller scale and may be categorized as small and medium-scale disasters, or by using some other terminology. Seen from a risk perspective, large, medium and small-scale disasters and accidents form a continuum. However, the majority of these smaller occurrences receive little or no international or external attention, and are generally dealt with or managed by national or local actors. Given the relative infrequency of very large-scale disasters in any single country, these smaller events tend to comprise the bread and butter work of most national and local emergency authorities. Moreover, evidence would suggest that existing management structures are best suited to deal with this lower level type event, few if any being equipped and capacitated to deal with the larger disasters in a " routine" way.

These smaller events have assumed an increasing importance in the debate on disasters for various reasons.

Firstly, their numbers, territorial spread and impact are rapidly increasing.

Secondly, it has been increasingly suggested that the accumulative impacts of these permanent and recurrent events may approximate, if not exceed that associated with the large, but relatively infrequent disasters and catastrophes.

Third, many of these small events may graduate in time into the large events of the future, as population and vulnerability increase in the areas proximate to the hazard sources, and as the hazards themselves grow in size and potential intensity. This is particularly important in cases involving hazards associated with environmental mismanagement, or those of an anthropogenic or technological type. At the same time, the usually more transparent nature of the immediate causes of these events, and the lesser magnitude of the hazards and vulnerabilities involved, suggests that they could be more easily " snipped in the bud", than is the case with large-scale events where the problem has attained such a magnitude that intervention is extremely difficult. In preventive terms, the adage that a "stitch in time saves nine" may well be extremely relevant in these cases. Moreover, it is congruent with the idea of " thinking globally, and acting locally"

Fourthly, the ability to intervene in and control the occurrence of this type of event or to deal with the consequences once they occur, serves as a "training ground" for, and a measure of the possible future efficiency of local and national actors in dealing with larger scale events.

Lastly, these events tend to recur in annual or other temporal cycles, and lead to the continuous and persistent erosion of livelihood and development options for the affected populations. Unlike large disasters little rehabilitation or reconstruction aid or assistance is generally forthcoming, signifying that the affected population and communities must deal with the problems using their own scarce resources.

Moving to the other end of the spectrum, even large disasters have been increasingly subjected to analysis from other scale perspectives, recurring to arguments related to such analytical tools as fractal geometry.

A disaster associated with a single or concatenated series of hazards is seen to be "large" due to the levels of accumulated death, injury, damage, disruption and stress that it causes in a more or less continuous geographical area. Moreover, the fact that it is seen as a **single** disaster relates to the fact that national and international organizations involved in disaster response have to take on and attend the overall consequences of the event, no matter where the damage or disruption occurs in the affected geographical area.

However, when seen from a different social and territorial perspective it is also possible to consider a large-scale disaster to be a finite number of small disasters, all associated with the same hazard agent. For the population, families, communities, localities and geographical zones affected, these live out their own particular disasters, suffer their own distinctive levels of loss, face particular problems with response, rehabilitation, and reconstruction and establish different relations with the external actors involved in the process. The differential effect of variations in the size, intensity, temporal and geographical extension of the hazard, combined with the very different structures, levels and components of social vulnerability existing in different areas or amongst social groups, means that the disaster event is manifested in very diverse and spatially differentiated levels of damage, abilities to cope and to recover. The " single" disaster is in fact a continuous series of different disasters with different effects, social needs and solutions, when seen from the perspective of the population, families, communities and localities.

The increased debate on "small-scale" viz a viz large disasters, and on the fractal nature of the latter, has begun to have important repercussions in terms of disaster management theory and practice. This debate reinforces various preexisting trends witnessed during the last ten years in particular. This relates particularly to the increasing importance given to local perspectives on disaster management and to the search for an increased, dynamic, and participatory role for local actors in this process. Although the processes that lead to hazard, vulnerability and risk may be generated in diverse territories or geographical spaces and by diverse social actors, they are ultimately manifested and suffered at a local level. The very wide range of different conditions and circumstances that exist at the local level and which condition disaster impact and response, are a key factor to be taken into account in the design of management options and in the conformation of working management systems.

**The Development-Disaster and Disaster-Development Linkages.**

The discussion on the disaster-development link was initiated in a comprehensive manner at the beginning of the 1980s, stimulated by Fred Cuny's seminal work on **Disasters and Development**. During the present decade this topic and it's practical implications for Disaster Management has been one of the dominant themes taken up by disaster experts. Not only has it been relevant for a consideration of risk reduction and sustainable reconstruction, but also for the debate around, and the practical response to disaster relief activities, formulated under the notion of Bridging Relief and Development.

The essence of the arguments put forward as regards the linkages are extremely easy to understand.

In terms of the way so called " development processes" lead to risk, and consequently disaster, this comprises a natural extension of the clear cut notion that the construction of risk is a social process. Social processes are engendered by models of societal change, often known as "development models". Infrastructure development, land use changes, environmental degradation, industrial and urban growth, modalities of income distribution, settlement patterns, and many other specific social processes can lead to the propagation of risk for diverse sectors of society. The overall notion of disasters as non resolved development problems encapsulates both the idea of development, and the lack of development, leading to increased risk.

Rather than questioning the basic argument, more penetrating arguments or questions can be asked as to the formulation of the notion of a development-disaster linkage in itself. Thus an obvious question arises as to whether development can in fact engender risk, or whether the generation of unacceptable levels of risk is in itself the negation of one of the essential defining characteristics of development. That is to say, human welfare and security. The debate as to whether it is not more appropriate to speak of the relations between economic growth models, vulnerability and disaster, rather than development and disasters, remains a critical conceptual issue.

The relations between global growth models and risk has been paralleled by a complementary interest formulated at a lower scale of analysis: the local, community and family levels. A good deal of debate has ensued as to the way disaster is constructed on the basis of normal or daily life in communities and localities. That is to say, disaster does not represent a dramatic break with normal, daily life as had been commonly argued. Rather it represents the continuity of daily life, particularly for the poor and most vulnerable. The creation of risk and future disaster

conditions is interwoven with every-day living and can not be divorced from this in many cases.

Survival supposes the creation of disaster and other types of risk for many. Access to unsafe land and housing, minimum incomes and livelihood insecurity are all harbingers of future disaster. This context signifies that any attempt to reduce risk and future disaster impacts can not be divorced from a consideration of the every day needs and living conditions of the vulnerable. Risk of disaster is but one of the many risks faced by the population in their daily search for survival. And, the reduction of disaster risk is often low down on the priorities of the population, when compared to the problems associated with lack of income, health, education, housing, or basic security. The practical management conclusions derived from this type of consideration are enormous. The reduction of disaster risk must be integrated into the overall development objectives and goals of the community and dealt with contemporaneously with these. The search to create a separate disaster problem is almost bound to failure. Popular participation in the definition of problems and in the design of solutions is also indispensable if economic, cultural, social and political feasibility is to be attained.

The growing acceptance of the relations between economic growth models and disaster has placed the disaster reduction or risk management problem in a complex position. No longer is it possible to consider risk reduction predominantly in terms of technocratic, high tech, engineering solutions, building controls and land use planning, many of which have not been operative in any real sense. The problem is now firmly placed in the development camp. Development and environmental management become the potentially single most effective ways of mitigating risk. This means that the disaster problem firmly enters the political arena and the range of relevant social actors involved as stakeholders increases dramatically. Disaster reduction is not a topic to be treated by traditional disaster actors linked to preparedness and response, but rather by experts related to sustainable sectoral and spatial planning initiatives.

Parallel to the development-disaster debate considerable attention has also been given to the impact of disasters on the development process. This debate, substantiated by growing data series that purport to demonstrate the rapidly growing losses associated with disasters over the last decade, has been intended to draw political attention to the need for increased efforts in risk or disaster reduction. Lost assets, combined with increasing investments in relief and reconstruction, are seen to erode important development benefits and opportunities. Arguments as to the cost-benefit value of investing in prevention and mitigation, as opposed to financing disaster response, have been particularly prolific during the last years.

As regards the medium and long term impact of disasters on development no absolute consensus exists. Few substantiated studies, formulated with comprehensive temporal frameworks and utilizing wide ranging development indicators, have been undertaken. In general, impact studies rely on the use of macroeconomic indicators and projections of disaster impact on the global economy. Existing methodologies do not permit a thorough analysis and the drawing of conclusions as to the real effects of disasters on development. There is an urgent need for the development of methodologies which allow an appraisal of the ways disasters may affect such indicators as personal and regional distribution of income, access to social services, access to and ownership of land resources and other assets, community development and participation, improvements in infrastructure and production, amongst other factors. Much of what is concluded as regards the negative impact of disasters on development is more hearsay than empirically founded fact.

On the other hand, the use of cost-benefit analysis to justify risk reduction measures has severe limitations. When applied to the modern sectors it is probably of greater utility, even though it is clear that many decisions taken by governments and private enterprise may be guided more by opportunity cost criteria. When referring to mitigation directed at the poor or destitute, cost-benefit analysis has little use given the low monetary value and economic productivity of these sectors when judged in terms of economic efficiency. Here it is clear that other social parameters must come into play in attempting to justify mitigation and place it on the list of political priorities.

Within the scope of the disaster-development link, two other dominant discussions have taken stride over the last few years.

The first relates to the now pervasive conceptual framework given by the notion of " Bridging Relief and Development". Basically this establishes the need for implementation of response, relief and rehabilitation activities in such a way as to promote and strengthen ongoing development initiatives, as opposed to activities that create dependency, erode local and community initiatives, replace local opportunities for sustainability, etc. As in many other cases, the concept is far ahead of reality and an enormous amount of work needs to be done in order to convert the concept into a generally applied principal for disaster response work.

The second relates to the idea of disaster as a " window of opportunity" for achieving more sustainable, lower risk development in affected communities and regions. This requires reconstruction strategies that promote more resilient economies and communities, stimulate and build on local abilities and capacities, and are built on sound environmental and land use planning principles.

The notion of "sustainable reconstruction" parallels the more embracing notion of "sustainable development". The problem of how to guide future developments is at the centre of the debate. During the last years increased attention has been focussed on the essential difference between what may be called " compensatory risk reduction" and " prospective risk reduction".

In the first case reference is made to the reduction of existing risk, the product of historical processes of growth and social change. In the second case, reference is made to the introduction of risk reducing criteria and mechanisms in new, as yet non existent investments. This is of supreme importance given that during the next 30 years it is likely that both population and the quantity of fixed infrastructure investments will double. The risk status of these new investments and of the living conditions of the " new" population, are critical questions. The social, political, and economic context of compensatory as opposed to prospective risk reduction are very different. Remedying existing problems is a very different situation to that of anticipating future problems. The introduction of methodologies for the use of risk reduction criteria in new project development cycles remains an urgent challenge which must involve a wide range of development oriented organizations at the government and civil society levels.

### 3.6 Relief and Response: From Assistencialism to Collaboration and Participation

Response and relief conceived as humanitarian aid to disaster victims by external actors, has given way, at least in the text books, to a conception based on the idea of external actors supporting and strengthening local populations in a coordinated and mutually supportive fashion in the search for survival, sustainability and development.

The idea of disaster " victims" has been firmly replaced by the idea of participating protagonists. Local capacities, monetary, material and organizational resources should be built on and not substituted or over ridden. External humanitarian assistance should not substitute existing local commodities and resources, depressing the economy. Relief activities, logistics and organization must be cognizant of local culture, society, history and economy.

The sum of these, and other factors, implies that the generally applicable rules of disaster relief must be adjusted to take account of the very many different types of circumstances that exist in different disaster contexts. Each disaster is different in essential ways. Only with respect for, and the participation of local populations can relief, rehabilitation and reconstruction be undertaken in an adequate and satisfactory manner.

### 3.7 Organizational Concepts and Disaster Management Systems and Structures.

The changes in the concepts used to understand risk and disaster over the last decade has inevitable repercussions in terms of the concept of disaster management functions and structures.

The diversification of disaster management functions, from those essentially restricted to disaster preparedness and response issues, to one that includes the full range of "continuum" functions, including prevention, mitigation and reconstruction, has inevitably led to a reconsideration of the concept and structure of management organizations as such. Most national disaster organizations were originally set up to deal with response, and many follow the civil defense, single organizational model, with high levels of centralization and control. The move towards a more complex, multifunctional vision of management has put an inevitable tension on this model. Challenges associated with the incorporation of risk reduction activities, with the decentralization of functions, with the need to incorporate a range of other social actors from government and civil society have placed a strain on existing organizational frameworks. These have been dominated, and continue to be dominated by social actors, experience, work ethics and practice related to the response function.

The most advanced conceptions of organizational structures now favour the notion of Disaster Management Systems. The basic premise relates to the need for systems, that bring diverse governmental and non governmental organizations together under one umbrella, coordinated by a central organization. The systems must have intersectoral representation, be decentralized to the regional and local levels, and have broad-based community participation. The incorporation of risk reduction, prevention and mitigation activities, signifies a widening of the traditional organizational base of existing disaster management structures to include sectoral and territorial development organizations.

The transformation of concepts into practice remains one of the major unresolved challenges existing to date.

## 4. CONTEMPORARY DISASTER TRENDS AND ISSUES

The identification of disaster trends, and comparison with the past is not an easy task. Deficiencies or biases in data-bases, atypical or abnormal sequences or series of events in a particular time period, the subjectivity of the analyst or observer, amongst other things, may lead to distortions in conclusions. These risks are inherent in any task of analysis.

The analysis of disaster occurrence and impact on society relies on systematized information, published or readily accessible data-bases, and analytically generic or specific disaster studies. Many of these do in fact exist. However, the criteria used in compiling statistics, the coverage in temporal and spatial terms, and different analytical stances do not make comparisons and conclusions easy. Moreover, the scope of existing global statistics and the quantitative definition of what constitutes a disaster are open to criticism. Statistics far from capture the full range of the problem due to a bias in the registering of information which favours only the larger and most notorious events. There may in fact be many arguments that favour a revision of the content and form of disaster statistics such that they lend themselves to more incisive and useful analysis by researchers and practitioners in the future. Here we rely on what is available along with intuition, knowledge and common sense.

Most published analyses of disaster occurrence suggest a significant increase in disaster impacts over the last ten years or so. This is the message that tends to circulate in the literature, press and disaster forum.

A good part of this conclusion derives from the analysis of the economic losses associated with large disasters and calculated by such institutions as the Munich Reinsurance Group, the Economic Commission for Latin America and the World Bank. Munich Reinsurance data suggest for example that whereas between 1980-89 economic losses in US$ (at 1998 prices) summed to 160.9 billions, between 1989-98 the sum had increased to 479.3 billions, or by 200%. Changes for preceding decades show increases of 100% between the 60s and 70s and 60% between the 70s and 80s. Here it is necessary to point out that the losses registered in the last decade are severely distorted due to the incidence of losses associated with large, " atypical" disasters in developed countries. Thus Northridge, Kobe, Hurricane Andrew and the Mississippi floods alone account for more than 50% of registered economic losses.

As regards other impact data, conclusions as to permanent increases are also not easy to substantiate. In fact data published by the International Federation of the Red Cross and Red Crescent, using the CRED data-base at the University of Louvaine, show a general decline in many average annual impact indicators for the present decade as compared to the previous. This includes deaths, injuries, homeless and affected populations and holds in general for different continents.

Within the limits of this document it is impossible to submit these disaster statistics to a detailed analysis. Moreover it is probable that deficiencies in the data available would render this an almost futile exercise if the idea is to arrive at concrete conclusions as to definite trends. Despite this, it is prudent to indicate some of the common problems that may occur in undertaking this type of exercise.

Firstly, there is the problem of abnormal years, abnormal events and unrepresentative samples which makes the use of averages almost useless as a statistical tool for analysis. A single catastrophic event will distort the whole statistical series. This occurs frequently with the data published to date where averages are still the most commonly used measure. Any relevant conclusions require far more detailed and specific analyses than are generally available today.

Secondly, the establishment of trends is always difficult with short time series operating in the context of hazard events that may work in long cycles. Events with an annual periodicity are

different to those that work in longer cycles. Data-bases can not take into account this diversity of rhythms, tending to absolutize or average everything out.

Thirdly, the data produced is rarely compared with other relevant economic or demographic data that would allow the measured impacts to be placed in perspective. Thus, for example, if nearly 500 billion dollars were lost between 1989-98 as compared to 161 billions in the preceding decade, how do these sums compare to the size of the world economy, fixed investment, or any other macroeconomic indicator in the different time periods? If an average of 20000 persons loose their lives in the 1960s as compared to 25000 in the 90s what does this signify in relative terms when compared to total population? Clearly with increased fixed investment and population and the persistence of hazard events, it would be natural to expect increased absolute loss. But this is not the same as saying there is a general tendency for increased loss in relative terms.

These problems are irresolvable in the short term. In consequence it is almost impossible to arrive at clear cut conclusions on trends and changes at a global, regional or national level, though it is clear that disasters continue and there is no evidence to suggest they are going away. Despite this, it is possible to identify a series of disaster characteristics, problems, challenges etc that derive from a consideration of the statistical data, empirical reality and analysis of disaster contexts during the last decade. Rather than distract ourselves with spurious statistical analysis we will dedicate time to identifying these current concerns and preoccupations.

### 4.1 The Urban Question

Urban-based disasters have occurred throughout history. Many of the most dramatic losses of life have been associated with the massive destruction of cities, principally by earthquakes. Despite this, the problem of urban risk and disaster had been relegated in the scale of enquiry and concern until the present decade. During the last ten years the urban disaster problem has become of increasing concern and new stimulus have been found to dedicate more serious attention to the reduction of urban risk. The urban risk problem has been increasingly linked to the debate on sustainable cities and environmental degradation.

A part of the explanation for the increase in interest in the urban question can be found in the notorious impact of various damaging events on large cities during the present decade. The Northridge earthquake in California, which caused damages of up to 45 billion dollars in and around Los Angeles, Hurricane Andrew in Florida which marginally missed the central city complex of Miami but inflicted damage worth around 30 billion dollars in neighbouring suburban regions, the record breaking losses of possibly near to 200 billion dollars associated with the earthquake in Kobe, and the severe threats posed for multiple urban areas along the Mississippi during the prolonged flooding in 1993, brought the condition of urban vulnerability home with force in a short period of time. Curiously these were the first and largest urban disasters suffered in the most developed economies in many years. The end of the decade was marked by the Armenia, Colombia and Northern Turkey urban earthquakes, reconfirming the problem of city insecurity in the developing countries.

Within the developing countries urbanization rates are extremely high with obvious differences between Latin America and other southern continents. However, within 30 years it is likely that all continents will have urban indices of above or around 50%. Risk and disaster will inevitably become predominantly urban problems. Problems of urban environmental degradation, lack of

urban services, urban drought, occupation of marginal lands, massive concentration of poor populations, unsafe dwellings, technological hazards, amongst others, will all come together to increase urban disaster proneness, unless serious changes are made in urban development practices. Many of the largest urban centres in the developing world are located in highly hazard prone zones.

As regards the developed nations, the urban disasters of the 90s vividly illustrated the problems associated with the concentration and density of fixed capital in large cities. The economic losses associated with Northridge, Kobe and Andrew alone accounted for nearly 50% of the world-wide disaster losses registered by Munich Reinsurance for the decade. The concentration of social, economic, political and cultural assets in the largest world cities, and the control they exercise over the world economy provide a serious disaster scenario. In addition to the problem of loss in strategic world cities and the possible impact on the economic and monetary system, the rapidly increasing insured losses associated with developed world disasters have already lead to severe adjustments on the part of the insurance business, brought to the brink of bankruptcy following the large disasters at the end of the last and beginning of the present decade.

Although an important part of the problem of urban disaster lies in the world's large mega cities or metropolis, many of which are located in highly hazard prone zones, many smaller, rapidly growing and spatially dispersed cities are also in this situation. The challenges for risk reduction in the large and consolidated metropolis is essentially very different to that in rapidly growing, smaller or new cities. Many small cities are and will continue to grow in new locations in the new agricultural and economic frontiers stimulated by changes in the world economic system over the next decades.

### 4.2 Hydrometeorological Disasters: Environmental Degradation and the Spectre of Global Climatic Change.

Data series and registers constantly reveal the domination that weather and water related disasters have in the total disaster scene. Hurricanes, tornadoes, flooding, storm surges, tsunamis, and drought account for over 65 % of the disasters that occur every year.

Although many of these events are fundamentally natural in origin, increasing concern has been expressed during the last twenty years as to the manner in which human land use practices have had a serious impact on the behaviour and incidence of flooding, drought and landsliding in particular. The relations between environmental malpractice and degradation and hazard behaviour and disaster have constantly drawn closer.
A particular breed of non-natural, "natural" hazard has been gestated.

Preoccupation for this type of phenomena has increased notably over the last decade. But, it has been greatly increased due to the serious concerns engendered with the prognosis of global climatic change and the probable impact on such factors as sea level, rainfall patterns, incidence of drought, river flows and ground water supplies. Events such as El Nino of 1997-8 and Hurricanes George and Mitch in the Caribbean and Central America in late 1998 added fuel to the debate on the relations between environmental modification and disaster impact. The massive destruction of river basins, extreme flooding patterns, landslides and other more bizarre phenomena attributed to these events in different parts have been analyzed in the light of the possible impact of environmental degradation and global climatic change. Similar reflections took place in China, Nepal, Bangladesh, India and other countries following the

massive flooding experienced in 1998. And, the massive forest fires suffered in Indonesia, Brazil, Florida and other parts also came under scrutiny in the light of possible changes in climate patterns and negative human intervention at the local and regional scales. Overall, beyond the disaster problem considered in traditional terms, the concern for what are called " Environmental Disasters " reached new peaks in the decade.

### 4.3 Changing Parameters of Scale and Territory.

The statistical evidence available relating to large disasters occurring over the last ten years does not reveal any dramatic change in the number of disasters occurring nor in the distribution of events by continent. This does not mean of course that disaster impacts are not necessarily rising given that the average size of events may be increasing due to the greater exposure of population and infrastructure, and higher existing levels of vulnerability.

Recent evidence from experimental data-bases would suggest, however, that there is a hidden strata of disaster events that are in fact increasing at a rapid rate. These are what may be referred to as small or medium sized disasters which, because of their size, do not enter any of the internationally recognized data bases. These require either a death toll of 10 persons, or more than 100 injured or an international appeal for disaster assistance, in order to qualify as a " disaster". The smaller scale events are associated with a multiplicity of hazard agents, are highly dispersed in the national territory, and are more recurrent than the larger scale, " exceptional" disaster events. A more appropriate terminology for these events would probably be " damaging events", rather than disasters. However, they combine the same elements of hazard and vulnerability that determines disaster risk and lead to damage and loss which, in global terms, is probably comparable to that associated with large events.

An illustration of the importance of these small scale events can be gained by comparing the disaster events recorded in the IFRC's, 1999 Global Disaster Report, and those recorded in a pilot study data base project in Latin America- DESINVENTAR. The IFRC, using CRED data, registers nearly 5000 disasters in the world between 1988-97, or an average of nearly 500 per year in more than 200 countries. The DESINVENTAR base, which registers all identifiable damaging events, has registered near to 20000 events in only eight countries of the region between 1988-98. Of these events only between 10 and 15 % are counted for by the large disasters included in the CRED data-base.

This type of information has served to illustrate that the disaster problem is considerably more serious than is depicted in traditional statistics. Moreover, an important number of the smaller events are related to hazards generated by environmental degradation or other types of human activity. The territorial incidence of the events is wide spread and many occur in those economic and demographic spaces where new, frontier type development is occurring, with the presence of rapidly growing urban centres.

### 4.4 Technological Hazards: From Independence to Concatenation.

As with disaster statistics on large events, there is no evidence for major changes in the incidence of technological hazards over the last ten years. In fact, accepting the dangers of spurious statistics and abnormal years, the number of events in 1998 was almost one third of the average for the preceding ten years. This dearth of events of relatively large size has probably been compensated by the number of small scale events not registered in the statistics.

Despite these statistics, the theme of technological hazard has assumed much greater importance during the last ten years, spurred in the first place by the important accidents occurring last decade-Bhopal, Chernobyl, Exxon Valdez, Mexico City, Guadalajara, etc. Many postmodernist thinkers specializing in the risk problem anticipate the next century in terms of the "Century of Risk". Their principal concern is with what Anthony Giddens has called" constructed risk" derived from human venture, as opposed to external risk, deriving from natural forces.

The problem of technological risk is undoubtedly one of the challenges of the future. The continuous generation of new, potentially dangerous technologies not only poses a problem in itself, but also because of the potential for concatenation and the creation of complex hazards, combining natural and technological elements.

### 4.5 Globalization and the Dynamics of Risk and Disaster

Risk and disaster theory and concepts clearly relate these phenomena to social processes, economic growth and development models. It may be suggested that different risk scenarios are associated with different models. The nature of risk and the characteristics and spatial distribution of disaster change over time.

The advent of globalization, structural adjustment, privatization and neoliberalism as guiding principles for economic growth and societal development will most probably be accompanied by significant changes in the conformation of the risk and disaster problems over the next decades. When combined with the probable effects of global climatic change and environmental degradation new problems and new challenges will be faced. These may include new conformations of hazard and vulnerabilities, changing social allocation of risk, and changing spatial patterns of risk and disaster. The trend towards increased levels of poverty and marginalization associated with the present model, particularly, but not exclusively, in developing countries, will have important consequences for the disaster scene at a world level.

These problems have been of increasing concern to disaster researchers. However little has been done to date to take up the challenge in terms of the practical conclusions that may be drawn, and as regards change in disaster management systems.

## 5. TRENDS, LIMITATIONS AND CHALLENGES WITH DISASTER MANAGEMENT

During the decade of the 1990s more changes and transitions in the content, approaches and structure of disaster management occurred than at any time since the inception of institutionalized, legally constituted, government agencies for disaster management from the 1950s onwards.

Many of the changes undoubtedly relate to the declaration of the IDNDR by the United Nations and to the stimulus provided by different international actors at the national or regional levels. It is probably fair to state that without this external stimulus very little would have changed at a country level. Disaster management and disasters are still probably seen as passing problems for most countries when compared to the multiple other more permanent problems they face. Only with the advent of a large disaster in national territory does a window of opportunity open for concerted change, but this usually closes very rapidly. One such recent opportunity can be seen in the impact El Nino and Hurricane Georges and Mitch have had in the Americas and

elsewhere. These events have put the debate on disasters and development very much in the forefront for the first time in the region, and the debate on risk reduction, as opposed to disaster response, has flourished as never before.

Undoubtedly, one of the major challenges to be faced in the coming years will be how to utilize international support in order to attain a significant and sustainable breakthrough as regards the nationalization of the concern for comprehensive disaster management, and build on the important, but as yet sporadic and dispersed achievements of the last decade.

In the following pages we will attempt to summarize some of the more important changes and trends that have occurred over the last ten years, which offer a basis for consolidation in the future. At the same time, we will attempt to highlight the limitations and challenges that exist for attaining sustained progress in the future. A more specifically institutional analysis will be provided in the following section. Here we will only make allusion to particular types of institution involved in the changes.

**5.1 Risk Reduction versus Disaster Response.**

Probably the most pervasive message introduced with the IDNDR was for the need to accompany the efforts made in disaster response and preparedness with a concerted effort in the fields of disaster prevention and mitigation. Risk reduction and risk management were the principle messages of the Decade.

After ten years it is clear that risk reduction has certainly entered the discourse of national and international actors as never before. Many national disaster management organizations have institutionalized organizational components dedicated to disaster prevention, and some stimulated legal changes that gave more explicit attention to these aspects. However, beyond the discourse and the good intentions, there is little evidence to suggest that great progress has been made in getting risk reduction and management firmly established as a national priority. Few national policy statements exist on the matter. Beyond the establishment of legal attributes on the matter, little political and financial support has been given anywhere to the consolidation of national policy and to the stimulus of a risk reduction action framework.

This context can be explained, we believe, in various ways.

First, both for national and international organizations it is clear that preparedness and response continue to dominate current concerns for very obvious humanitarian and political reasons. Most institutions exhibit a type of institutional schizophrenia. They constantly refer to disaster prevention and mitigation, but generally end up supporting preparedness activities, which are one specific type of risk reduction mechanism. In many national institutions, preparedness has become a synonym for prevention and mitigation as opposed to a component of this.

Secondly, risk reduction although attractive as an idea, is a thorny problem to deal with. It requires commitment to changes in the social allocation of resources, to empowerment of local populations, to the redistribution of income, and to changes in other development parameters. Otherwise, using a more technical and technocratic approach to prevention, it requires the commitment of vast resources in structural engineering or land use planning mechanisms that few are willing to assume. The extent of existing risk makes it almost untouchable given present economic and political restraints.

Third, the disaster problem is still dominated at a national level by social actors linked to disaster response. National institutions, even with recent modifications to their statutes, are still response oriented institutions. Little has been done to date to actively involve other social actors, more closely linked to the development and environmental problematic. But these are the sectors that must assume the risk reduction message and promote changes in the institutions they represent. The problem of prevention, where it has been taken up, has been inserted in institutions that are still response dominated. No parallel, but complimentary management structure for risk reduction has emerged as yet.

Despite this general context, several trends and extremely valid experiences can be identified. These offer indications as regards possible future developments in the field. The majority of these have been promoted or financed by international organizations in collaboration with government or non governmental organizations. Three types of approach have been particularly visible:

**The strengthening of local capacities in risk management**: projects in this category tend to be directed towards local level actors from governmental, non governmental and civil society sectors, to be based on participatory training techniques, to place great emphasis on the construction of local level vulnerability and risk analyses, and to be adjusted to the social, economic and cultural conditions of the localities. The creation of local networks, the development of alliances, and the channeling of local resources tend to be favoured as strategies. These schemes tend to include aspects related to risk reduction and preparedness and response, in a single, integrated methodological training format.

**River basin management schemes**: the increasing recognition that environmental degradation and the destruction of river basins are major factors in disaster occurrence has led to the promotion of river basin management schemes, including reforestation, run by governments, NGOs and local organizations.

**The development of methodologies and training schemes for promoting the introduction of risk**

**criteria in sectoral planning project cycles**: This has been attempted particularly with strategic economic and social sectors—lifelines, energy production, schools and hospitals.

**5.2 Preparedness Planning and Activities.**

The Decade has probably seen more activity in the area of preparedness than in any other single area of concern for disaster management. Clearly it has been seen as a happy compromise between response and prevention and mitigation, given existing economic and political strictures. The major concerns that can be discerned relate to:

a) The preparation of national and local disaster preparedness plans.
b) The preparation and distribution of propaganda pamphlets on disaster preparedness

The development of early warning systems: these have included highly sophisticated electronic systems, and systems based on the local population using low cost solutions. Evidence suggests that some combination of these methods yields the best and most economic solutions.

Simulation exercises: these have tended to be one off affairs with little proven worth. At times they have been extremely expensive to enact.

**5.3 Relief and Response**

Relief and response related activities have continued to receive priority attention. Most established Disaster Management Training facilities in the world are set up to deal with the needs of response organizations. Most disaster professionals are related to response functions, whether in national disaster organizations, armed forces, civil defense, medical brigades, police, fire fighting units, or Red Cross/Red Crescent. Most formal educational opportunities in the disaster field concentrate on response and preparedness. In terms of particular emphases highlighted during the last years, the following can be mentioned:

The establishment of functioning Emergency Operation Centres in different countries.
The design and implementation of protocols for improving intraorganizational and interorganizational coordination mechanisms, including government, international and nongovernmental organizations.
Training in methods of disaster impact assessment.
Training in different facets of rescue operations and distribution of aid.
Training in the concept and practice of Bridging Relief and Development.

An evaluation of the efficacy of the distinct training and capacity building mechanisms carried out in different countries is difficult to achieve. Post disaster evaluations are rarely systematically and thoroughly undertaken.

Various conclusions can be posited however as regards improvements in disaster response over the last decade.

Although improvements in the technical abilities of disaster managers have undoubtedly been achieved, it is interesting to note that following almost every large disaster that has occurred during the decade severe criticisms were voiced as regards overall response, and particularly as regards the role of national governmental agencies. This was the case with Andrew, Kobe, Mitch, George, El Nino, Bangladesh (1991 and 1998), Armenia and Turkey. In various cases a restructuring of organizations was posited or instrumented, or calls for wholesale improvements were made.

Even accepting that large disasters inevitably present an opportunity for political manipulation and social conflict which may exaggerate the criticisms leveled at government, it is clear that response is still not fine tuned and well coordinated.

Here, it is possible to put forward the hypothesis that management training is possibly too technical and purist and not sufficiently cognizant of contextual factors- social, economic, cultural and political. On the other hand, it must be recognized that very few, if any national disaster organizations are able to deal with large disasters. A common trait with these magnum events is that the established disaster authorities are normally bypassed during the disaster, with control passing to the President's or Prime Minister's offices. Such a movement tends to disrupt the established lines of coordination between different organizations. That is to say, the command and organizational structure established in disaster plans and protocols breaks down during a disaster. The problem is thus not so much the technical competence of disaster managers but rather the break down of the normative basis within which they must work.

**5.4 Post Disaster Reconstruction.**

Despite the fact that reconstruction is considered a component of the disaster management continuum, it is still common for the process to pass through separate, unarticulated channels and not through the established disaster management systems. Reconstruction is generally placed in the charge of specially created organizations led by social actors that have little to do with established disaster systems and organizations. The general lack of an overall, integrated management structure signifies that much of the theory as regards the " continuum" and the need for bridging relief and development and relief and reconstruction is not operationalized in reality.

There is still no concrete evidence to support the idea that the reconstruction effort is essentially guided by the principles of risk reduction. The formal reconstruction process is still essentially directed at the formal, advanced economies. The poorer and more vulnerable groups still tend to reconstruct outside of the formally instituted process given that needs and demands have to be satisfied at rhythms that are not compatible with the slow rate of implementation of formal, government led processes. Vulnerability is constantly reconstructed and probably augmented following most disasters.

**5.5 National Disaster Management Structures and Organizations.**

During the Decade, many times with the technical assistance of international organizations, a significant number of countries have created National Disaster Management organizations or have revamped and modernized existing structures. The general principle behind the development of management structures has been the idea of Management Systems that search to articulate, in a single format, different organizations and social actors from the governmental and nongovernmental sectors. The principles of decentralization, strengthening of the local levels, and popular participation are pervasive in most schemes.

The real development of the " new" management structures does however show serious deficiencies and weaknesses. Decentralization and participation are still formal propositions rather than empirical realities. Local structures are still dominated by central government representatives, and the proposed coordination between government and nongovernmental organizations is still incipient. The rigid and bureaucratic structure of many governmental institutions has signified that many international organizations offering support for strengthening management structures have preferred to work with the non-governmental sectors.

On the other hand, despite the call for comprehensive disaster management, with increased attention for the aspects of risk management, very little advance has been achieved in introducing and strengthening this aspect in existing structures. The organizations are still dominated by response and preparedness concerns. This tendency is reinforced by many international organizations which are unwilling to take the bull by the horns and commit to the risk reduction theme, easily sliding back to the preparedness mode.

Few organizations have any real and active participation on the part of representatives of development and environmental agencies. These sectors, of critical importance for risk reduction, are still essentially sitting on the side-lines.

The search to widen the functional base of existing response oriented organizations such as to include the problem of prevention and mitigation has not worked. Many now question the efficacy of this model and begin to suggest the need to stimulate independent organizational

structures dedicated specifically to the risk reduction theme and controlled by social actors that are different from the traditional and still dominant military or Civil Defense authorities.

**5.6 Commitment to the Local Levels.**

As regards the territorial dimension of disaster management, the present decade has heralded the coming of age of the local dimension. Treatment of the problem at this level has permeated formal government structures, and dominated the approach taken by non-governmental organizations and many bi and multilateral donors.

An array of different orientations were displayed. Some concentrating on specific response and preparedness training activities, and others oriented towards the risk management perspective or integrated approaches covering all management concerns. Most schemes preferred participatory methodologies with an active role for local actors. A very wide range of training methodologies and tools were developed over the decade by different organizations. The use of vulnerability analysis and risk scenario tools as bases for training was prevalent. Sensitivity to local circumstances was sort for in many schemes.

Little systematization or evaluation of these capacity building and training schemes has taken place to date. Moreover, the proliferation of training methodologies has not been matched in general by their distribution among other potential users. There still exists a tendency for each organization to invent it's own methodology as opposed to adapting existing, and perhaps appropriate methodologies. Work done in the different southern continents is generally unknown in the others. Language barriers have contributed to this in the case of Latin America viz a viz other continents.

**5.7 Privatization of Risk.**

A significant trend during the 90s has been towards the discussion of mechanisms that favor the " privatization of risk". That is to say, to pass the problem of risk reduction to the potential losers. This was stimulated by the enormous insured disaster losses that occurred during the Decade and that obliged the insurance industry to revise it's policies and rate structures. The increased presence of development banks in the disaster problem has helped stimulate this tendency. Although such a tendency may reap fruits as regards the advanced, high income economy and sectors, the problem of risk and disaster for the poor is circumvented by such propositions and mechanisms. Increased discussion has ensued however as regards possible insurance mechanisms for the poor and poor communities.

**5.8. Disaster Culture and Education.**

Disaster management practice in developing countries has been typified by the lack of systematic educational opportunities for professional formation. Most practitioners have either learnt on the job and/or attended short, intensive training courses offered by international organizations or formal training establishments in the developed or developing countries. The vast majority of these courses have been oriented to preparedness and response issues, concentrating on strategic, logistical, and practical issues. For the " general public" and primary, secondary and university level students few educational opportunities existed up to the present decade oriented to the development of a " disaster culture" or professional formation in disaster management issues.

During the present decade, important advances have been made on various educational fronts. This has been unequal between the different continents, with Latin America far ahead of the others. Four types of development have occurred.

Firstly, in collaboration with Ministries of Education, many countries have stimulated curricular reforms leading to a specific treatment of the disaster problem at the primary and secondary levels. This has tended to favour the treatment of disaster from the preparedness and response perspectives. A select number of cases of more integral and holistic approaches have been attempted, searching to integrate the problem with developmental and environmental concerns.

Secondly, curricular components have been introduced into various undergraduate university programmes. This has been particularly prevalent in Medicine, the Natural Sciences and Engineering.

Thirdly, in a select number of universities, degree programmes have been commenced on Disaster Management. These concentrate predominantly on the response problem.

Fourthly, a limited number of options for postgraduate study have been opened up during the decade. Masters programmes have been started in Latin America, using traditional teaching formats and INTERNET based distance learning. These programmes concentrate on the risk management issue and not the disaster response problem. Other programmes have been commenced in developed countries aimed primarily at students from developing countries.

All of these developments suggest a move in favour of the professionalization of the disaster management problematic.

### 5.9. Information and Documentation

Prior to the present decade, access to information and documentation on the risk and disaster problem was extremely limited in the developing continents. No resource facilities existed comparable to those available in developed nations.

Primarily in Latin America, but also in the other continents, important advances have been made in the building up and access to library resource facilities. Documentation centres and INTERNET based services have expanded relatively rapidly, making access to documentation far easier. An important increase in written materials available on the disaster problematic in developing countries has also taken place

### 5.10. Subregional Approaches.

Although as yet not well diffused in the developing countries, the decade has been witness to the instigation of various attempts at subregional integration and cooperation in the promotion of disaster management activities. This has been particularly apparent in Latin America where for historical reasons distinct regional identities have been fomented. Particular cases can be found in the Caribbean Disaster Response Authority, the Coordinating Centre for Disaster Prevention in Central America and amongst the Southern Cone countries.

Such intergovernmental schemes have been complimented by subregional approaches to project financing promoted by international donor agencies. The Disaster Preparedness Programme instigated by ECHO in Central America, the Caribbean, South- East Asia, South Asia and the Andean countries between 1997 and the present; the Pan Caribbean Mitigation Programme coordinated by the Organization of American States; and GTZ Germany's Central American project on strengthening local level mitigation are examples of this type of collaborative approach. Regional disaster prevention or mitigation networks have emerged during the decade in Latin America, Southern Africa and South East Asia, bringing together disaster workers from diverse types of institution.

### 5.11. Institutional Diversification.

Prior to 1990, the range of institutions and organizations involved in disaster management activities was essentially limited to the national governmental organizations and a very limited number of NGOs and international organizations. Since that date the institutional map has become considerably more complex with a large scale increase in the range and types of organization present. These include national and international development oriented NGOs, local based popular organizations, regional associations of governmental organizations, bi and multilateral donor organizations, international organizations, regional networks, national, regional and international development banks, and private sector organizations. Such diversification has enriched the scene but brings with it the problem of coordination, complementarity, competition and coherence.

The topic of institutional structures and capacities is dealt with more fully in the following section.

## 6. INSTITUTIONAL FRAMEWORKS AND CAPACITIES AT THE REGIONAL, SUBREGIONAL NATIONAL AND LOCAL LEVELS.

### 6.1 Regional Level.

Regional approaches and institutional frameworks for disaster management do not exist as such for any of the three developing continents as a whole. However, various approximations have been developed.

**Capacity Building and Human Resource Development Schemes with Regional Coverage.**

These schemes take two forms: topic specific programmes and generic training programmes.

The first case is best exemplified by: i. the OFDA-AID, Training of Trainers Programme in Disaster Response which has been developed throughout Latin America and the Caribbean since the 1980s. A complimentary programme on rapid Post Disaster Impact Assessment has been promoted during the 90s.

ii. the Pan American Health Organization's Emergency Preparedness Programme promoted in Latin America and the Caribbean since the end of the 1970s

iii. the Organization of American State's Natural Hazard Project which promotes the introduction of vulnerability reduction in strategic infrastructure and sectors in the region since the middle of the 1980s.

These three longstanding programmes have formed what could be called management " schools of thought" in Latin America. Although maintaining their central concerns, all three programmes have tended to diversify into selected complementary areas of concern at different moments. Such is the case of OFDA's current interest in El Nino; PAHO's work with hospital retrofitting; and OAS's interest in mitigation in small river basins.

The second case is typified by the existence of regionally based Disaster Management Training Centres serving the Asian continent, as is the case with the Asian Disaster Preparedness Centre in Bangkok and the recently formed Asian Pacific Disaster Management Centre in the Phillipines. These Centres have tended to become increasingly involved with disaster mitigation work, complementing the traditional interest in response and preparedness.

**Regional Disaster Prevention Networks**

With the advent of the IDNDR, an increased interest in disaster prevention and risk reduction, the perceived need for alternative social science based approaches to disaster reduction, and the need for pooling scarce human and financial resources, a series of regional resource networks were formed in the developing regions. This includes LA RED in Latin America, Peri Peri in Africa and Duryog Nivaran in South East Asia.

These networks, which bring together civil society based professionals and institutions, have been engaged in the promotion of research, publications, seminars and conferences, training and teaching programmes and the development of methodologies for risk analysis and disaster data base collections. The primary focus of these networks has been the local and community levels, and they have served to promote debate amongst different stakeholders involved in the disaster problem at these and the national, regional and international levels. Although civil society based, they have searched to promote collaboration with governmental organizations in the promotion of different capacity building schemes. This is the case of LA RED which has collaboration agreements with more than fifteen governmental organizations in Latin America for the promotion of local level training schemes and the development of disaster data-bases.

**6.2 Subregional Level (Sub Continental)**

The development of a limited number of subregional approaches to capacity building has been one of the interesting schemes promoted during the present decade. Previously, perhaps only one important scheme could be identified —the Pan Caribbean Disaster Preparedness Project, supported by OFDA, UNDRO and PAHO.
As in the case of regional programmes, Latin America and the Caribbean have been particularly dynamic in the promotion of subregional programmes. This reflects the levels of regional identity and common history existing in various areas of the continent. This identity is not as pervasive in Africa and Asia

Three genre of subregional programmes can be identified.

a) **Governmental Based Associations**

Two fully fledged government based subregional organizations exist in the world, both created during the 1990s, and both in the Americas.

The Coordinating Centre for Disaster Prevention in Central America-CEPREDENAC- is unique. Representing the six governments of the isthmus, CEPREDENAC is an official member organization of SICA, the Central American Integration System. The Centre has a wide range of projects and activities financed by numerous donor agencies that promote collaboration between the different countries in hazard and vulnerability analysis, development of early warning systems, confection of regional and national disaster plans, data base systems, local level capacity building schemes, disaster mitigation, river basin planning and environmental management. As such it is one of few examples of an organization that promotes activities across the full range of disaster management concerns.

The Caribbean Disaster Emergency Response Authority-CDERA- brings together the English speaking countries of the region, providing mutual support mechanisms and capacity building schemes primarily for disaster preparedness and response.

Although no other such organizations exist in the developing world, potential for future developments in the Andean Pact and Southern Cone countries exists. Similarly, within the SADAC nations and the ASEAN regional grouping in Africa and Asia respectively, potential exists for the promotion of subregional management schemes.

**Subregional disaster mitigation and preparedness projects.**

As in the case of subregional associations, it is in Latin America and the Caribbean that subregional projects have flourished during the present decade. Various examples exist of this type of project, covering distinct topics, including:

The GTZ-CEPREDENAC project on Strengthening of Local Disaster Mitigation Structures in Central America.
The OAS-ECHO project on disaster preparedness and mitigation in small river basins in Central America.
The OAS-OFDA Caribbean Mitigation Project aimed at reducing vulnerability in key sectors and strategic investments.
The OAS project on Vulnerability Reduction in Commercial Corridors in Latin America.

**Subregional strategies for the promotion of disaster preparedness and mitigation.**

Since 1997 the European Community Humanitarian Office has promoted a subregional approach to the development of disaster preparedness and mitigation projects. This has replaced it's previous laisser faire approach to project financing. At present sub regional strategies are in place for Central America, the Caribbean and South East Asia, whilst new programmes are being designed for the Andean countries and South Asia.

One characteristic of the financing strategy has been it’s relatively non innovative nature. First round financing for projects was granted to already existing projects run by well established organizations such as PAHO, GTZ, CEPREDENAC, the IFRC, the OAS, Action Aid, and CARE. DIPECHO has avoided finance to governmental organizations preferring to work through NGOs or intergovernmental groupings. Little attempt has been made to date to

stimulate innovative schemes directly involving local organizations and base-groups, national NGOs or others.

### 6.3 National and Local Levels

Capacity building at the national and local levels during the present decade can not be analyzed outside of the context of externally financed and promoted projects. Here it is fair to say that very little capacity building and human resource development has been achieved through the use of national resources. This holds for the majority of the countries of the developing world. Resource constraints and reduced budgets for disaster management organizations have impeded such organizations from investing in such activities in general.

Capacity building has been achieved either through the regional and subregional type projects and mechanisms described above, or through bilateral agreements with international donor or development agencies.

In general, national level institution building has been promoted through projects instigated by the UN system, and UNDP in particular, channeling resources from diverse donor sources. Through such agreements, national disaster management organizations have been promoted in many different countries. Many of these may turn out to be unsustainable once project financing stops, due to national resource limitations. Serious questions may be asked as to the strategy involved in such promotion and as to it's feasibility in the medium term. Many of these national capacity building schemes include components for strengthening local levels. In general this is directed at the decentralized components of the national organizations, but not at the sum of the local actors or stakeholders.

More comprehensive local capacity building has taken place via regional, subregional or national projects, undertaken by NGOs and utilizing funding from diverse donor sources. Important increases in local capacities have been achieved through these projects but their coverage in territorial and social terms leaves much to be done in the future. Due to limitations in the coverage that NGOs can give to the problem, it is difficult to think that the local level can be adequately covered without national government commitment and collaboration with other organizational actors.

## THE UNITED NATIONS SYSTEM AND DISASTER MANAGEMENT

From 1990 to the present, the UN system has experienced an important growth and increase in complexity as regards it's role in Disaster Management. The increase in complexity has required the search for clear, non competitive functional roles for the different agencies that make up the system, and the establishment of coordinating mechanisms at the central and country levels. The principle mechanism for overall central coordination comprises the Inter Agency Standing Committee Working Group, composed of representatives from the different UN agencies working in the disaster area.

Two outstanding objectives can be identified in the development of the UN participation in the disaster problem. Firstly the increased presence and improved performance in the area of disaster response, including the phase of disaster preparedness. And, secondly, the search to link the disaster problem to that of development, promoting the areas of risk or disaster reduction and sustainable rehabilitation and reconstruction.

**Disaster Response and Preparedness.**

The lead agency in traditional disaster response has been transformed during the decade from the original and longstanding UNDRO, to the Department for Humanitarian Affairs (DHA), to the present Office for the Coordination of Humanitarian Affairs (OCHA). The Secretariat of the International Decade for Natural Disaster Reduction has always been located in this transformed institution. The present day OCHA is directly responsible to the Sub Secretariat for Humanitarian Affairs of the United Nations.

Amongst it's many functions, OCHA serves as the focal point for coordinating international response to disasters. This includes donor support, impact assessment, and search and rescue support. National level coordination is achieved through the established United Nations Disaster Management Teams-UNDMT- which are generally coordinated by the UNDP Resident Representative and coordinator of the UN System in the different countries. The UNDMT brings together representatives of the UN agencies in the country and representatives of other international organizations or agencies. The role of OCHA in disaster response is complimented in a coordinated fashion by other specialized UN agencies present in the countries. This is particularly the case with UNICEF, FAO and WFO, WHO-PAHO. Collaboration with the UN Environmental Programme can be activated in the case of environmental crises and with the Emergency Response Division of UNDP-Geneva as regards the development of strategies and approaches that search to guarantee a development orientation in disaster response and rehabilitation activities.

The development of the institutional system for disaster response has been accompanied by training methodologies directed at professionals from the different agencies according to their principle roles and functions. The inter agency, UNDP-DHA/OCHA coordinated Disaster Management Training Programme run from 1990 to the present provided a means of training members of country UNDMTs, and of introducing UN system personnel and national counterparts into the overall topic of disaster management seen from the development perspective.

The progress made in the development and articulation of the UN response function, has been accompanied by the promotion of disaster preparedness activities, including an important component related to the development of crisis monitoring and early warning systems, permitting pre disaster planning where appropriate and possible.

Beyond the role of the UN system in immediate disaster response, the decade has witnessed an enormous increase in the support given to a wide range of countries for the creation, strengthening or transformation of national institutions and organizations for disaster management. Much of this support has been sponsored by UNDP. At present near to thirty different projects are under way in different countries. Although no thorough evaluation of these experiences is available, severe doubts may be expressed as regards the efficacy of the model. Many of the schemes seem to be extremely homogenous in there approach and not well attuned to the real circumstances and opportunities existing in the different countries. The sustainability of the structures they propose to create or strengthen is many times in doubt due to the lack of real commitment, measured amongst other things by the resources provided by national authorities.

On the other hand, despite the fact that many of the projects propose the creation of capacity in comprehensive disaster management, including prevention and mitigation aspects, the majority never really get to grips with these latter aspects. This is probably due to the fact that the projects are implemented through established disaster authorities that are traditionally involved with disaster response and have little knowledge or inclination for risk reduction or disaster prevention and mitigation, rehabilitation or reconstruction.

**Risk Reduction or Disaster Prevention and Mitigation**.

The principle motivation for the instigation of the IDNDR was the need to promote actions that guaranteed a reduction in disaster losses. This essentially relates to the development of schemes for preparedness, prevention and mitigation. The call for advances in these areas was informed by the notion that disasters were essentially development problems and in themselves led to the erosion of development benefits. Disaster response, although absolutely necessary and fundamental, had to be accompanied by an increase in the attention given to risk reduction. Moreover, disaster response should be implemented in a way that guaranteed an efficient, development oriented use of scarce funds.

Coverage and promotion of the risk reduction theme at the UN level, as elsewhere, has been sporadic and inconsistent. Disaster response has continued to dominate, even in agencies that have a clear mandate and comparative advantage to deal with mitigation within a development framework. This is the case of UNDP where as commented previously, many of the national capacity building schemes promoted have basically sidelined risk reduction issues. Previously, much of the training proffered by the DMTP was also weak on the risk reduction issue and attracted few professionals directly linked to this problem. Despite this, some important areas of progress can be seen.

The creation of the Disaster Recovery and Reduction Programme at the Emergency Response Division of UNDP in Geneva comprises a significant step forward. The objectives of this programme clearly give priority to the promotion of preparedness, prevention and mitigation with an emphasis on the strengthening of local level capacities, and to the issue of development oriented relief efforts and sustainable rehabilitation and reconstruction. The challenge is not to get overly distracted by the politically more attractive response issues.

In addition to UNDP, various of the UN specialized agencies have promoted important projects in the risk reduction area. The World Food Programme has developed interesting vulnerability analyses for diagnostic and predictive purposes and has promoted rapid crop recovery or rehabilitation programmes in the aftermath of disaster. FAO has undertaken similar crop recovery projects and promoted the Global Information and Early Warning System. The Pan American Health Organization has given considerable emphasis to the reduction of structural vulnerability in hospitals and to the mitigation of losses in water and sanitary systems. UNICEF has worked in different parts on the strengthening of community level vulnerability analysis and mitigation and on the introduction of curricular reforms in primary and secondary education. UNESCO has promoted hazard and risk mapping exercises. HABITAT has been involved in promoting local level, community based organizations for disaster management. And, UNEP has developed projects in local level management of technological hazards and problems of environmental crisis.

Despite these risk reduction projects, the topic is still severely underrated and promoted, absorbing a minimal part of the finance dedicated to the disaster area as a whole. Much room for further promotion and interagency collaboration exists.

## A UN INTER AGENCY SPONSORED CAPACITY BUILDING PROGRAMME: DEMAND SECTORS AND BASIC PREMISES

Capacity building needs in the natural and technological disaster area are numerous. Multiple schemes have and are being promoted by different organizations in many different countries throughout the world. These range from schemes aimed at the promoting or implementing institutions themselves, through to national, local and comunity based management organizations or structures. Risk management, preparedness, response and reconstruction have been covered by different schemes in different places.

The postulation and promotion of a UN sponsored interagency capacity building scheme must be based on the previous identification of a series of basic premises and demand sectors that guarantee the pertinence, non competitive nature and appropriateness of the programme when seen from a multi agency perspective.

In terms of "demand sectors" two can be clearly identified:

a) Intra United Nations staff involved with the promotion or running of disaster management activities related to risk reduction and disaster response.
b) National actors, institutions and organizations relevant to the promotion of disaster management activities.

Given the interrelations between these two sectors they should not be considered to be autonomous and independent. Determined capacity building activities will require the joint participation of members of both sectors.

As regards the basic premises behind the conceptualization of a Programme, various can be postulated that relate differentially to the two demand sectors.

Programme components that are particularly directed at UN staff must have an interagency appeal. That is to say, they should relate to common needs in dealing with disaster management problems and not to specific agency needs.
Intra UN capacity building should consider both the risk reduction and disaster response problems. The former, with the exception of preparedness aspects, has been continuously marginalized despite the fact it should have constituted a priority area for work during the present decade. Prevention, mitigation and sustainable reconstruction issues should be dealt with.The disaster response problem maintains it's relevance and must be the object of continued improvement. This involves both improvements in logistical and planning aspects and in bridging disaster relief and development.
Programme components directed towards national capacity building should be flexible within established limits. Needs vary enormously from country to country depending on the particular characteristics of the disaster problem and the level of advance achieved to date with disaster management.
Preference should be given at the country level to local level capacity building. This has proven to be the most fruitful, productive and sustainable level of work. National level capacity building should be related to the need to promote the local level.

Local level capacity building should include risk reduction and disaster preparedness and response concerns under a single integrated capacity building format. This is far more feasible at the local than at the national level given that the same local actors are potentially involved in the full range of disaster management concerns-- mayors, local councils, municipal authorities, NGOs, church, private sector, community based organizations,etc. Moreover, the basic methodological instruments used for structuring approaches to risk reduction and disaster response are similar- risk analysis, risk scenarios, vulnerability and capacities analysis, strategic planning formats, decision making aids etc. At the national level the social actors involved in the different management concerns tend to differ thus requiring less holistic or integrated approaches to many problems. Thus, for instance, whilst disaster preparedness and response is in the hands of traditional operational agencies and organizations, risk reduction requires the involvement of sectoral ministries and territorial planning agencies, budgetary authorities and the private sector.
Capacity building and human resource development within the UN system must search to satisfy both in house needs, and needs deriving from the relations established with the national and local levels.

## 9. PROGRAMME STRUCTURE, COMPONENTS, AND PROCESS.

A consideration of the basic premises and contemporary risk and disaster issues identified in previous sections allows us to identify three discrete but related Programme components:

In house UN capacity building relating to the international coordination of disaster response and to the promotion of bridging relief and development ( considering the relief, rehabilitation and reconstruction phases)
In house UN capacity building relating to the promotion of risk reduction measures in development projects promoted by the UN System.
National and local capacity building in the area of risk management, including disaster preparedness, rehabilitation and reconstruction.

### 9.1 UN Coordination of International Disaster Response.

The formation of national level United Nations Disaster Management Teams ( UNDMT), generally coordinated by the UNDP Resident Representative, and the training offered through the original Disaster Management Training Programme sought to facilitate the adequate coordination, scope and content of international response to disaster events in different countries. The concept of the disaster "continuum" and the need to consider response and reconstruction from a development perspective were important premises in the training proffered. This training was aimed at Resident Representatives, members of the UNDMTs from different UN agencies and other international organizations, and national counterpart personnel from different institutions and organizations involved with disaster response.

Over the last ten years important advances have been made in the understanding of disaster response and new evidence relating to the successes and failures of this has been gleaned from experience in the field. Significant advances have been made in the development of methodologies that facilitate the process of early warning and response and reconstruction. Some of these have been developed by UN agencies themselves. Many of the ideas and

methods presented in the original DMTP training materials are now outdated or fall short in terms of coverage and content. Much training may have become rote and irreflexive, falling far short of the possibilities given the existing knowledge base.

On the other hand, many of the professionals that passed through the original training programmes, whether UN or national level staff, are no longer involved with the disaster problem. And, little institutional memory and continuity has been conserved. Many members of present day UNDMTs have received no formal training or education in the areas they are now covering. Enormous gaps exist in the knowledge base and as regards adequate procedures, action and coordination. In view of the above-mentioned factors, there is a clear need for a continued and renovated approach to capacity building and human resource development aimed at members of the UNDMTs, other international staff and national counterparts. This should include among it's principle objectives an increase in the capacity to:

Understand existing and new risk monitoring and early warning systems and facilities, and instrument preparedness planning for imminent disasters.
Understand the processes, procedures, protocols and other normative instruments that exist for instrumenting and coordinating the international response to disaster
Understand the roles, functions and hierarchical structure of international, national and local organizations involved in disaster respons
Comprehend the dynamic of the changing roles and attributes of institutions and organizations during disaster response
Fully comprehend the notions of bridging relief and development and the options and instruments that exist for promoting development oriented approaches to disaster response, rehabilitation and reconstruction.

In the design of capacity building and human resource development options full recognition must be given to the fact that disaster experts can not be produced by providing short, one off training courses. More extensive professional formation, experience and exposure are needed if we are to advance in any sustainable way. Unfortunately, the disaster problem and the commitment to this is still ephemeral in many ways and approached in an amateur fashion. In no other area of development work would one suggest that experts can be formed by giving a week or two week training course. Professional formation and training must also be accompanied by access to constantly updated documentary and literature sources.

### 9.2 Risk Reduction and Development Projects.

Increasing emphasis has been placed on the fact that disaster vulnerability is in many instances increased through the negative impact of development projects promoted without due concern for their risk implications. Large scale infrastructural works, land use changes, urban development, and processes of industrial change can be included amongst these. At the same time many projects are implemented that have not included an assessment of their level of vulnerability to environmental hazards. The overall result is that the risk problem and the need for future disaster response and reconstruction increase commensurately. Development resources channeled through international agencies and donors, including the UN, are constantly lost to environmental extremes. This process has been increasingly recognized by lending or donor institutions and a move has taken place to incorporate risk assessment procedures in new project planning cycles. However, there is still a long way to go to raise the status of risk assessment to that achieved by other development control parameters such as environmental impact and gender equality.

Risk assessment and evaluation should become a standard procedure and point of reference in all development projects promoted by the UN System. Programme Officers and other programme staff at UN field offices should be trained to introduce risk reduction criteria and instruments in promoted projects. In order to achieve this, procedures should be implemented that increase the capacity of UN programme and project personnel to:

Fully comprehend the development-disaster links and the contexts in which development projects lead to increased societal risk..
Utilize risk analysis and evaluation techniques and introduce risk diagnosis components into country level planning procedures, including the Common Country Assessments.
Comprehend the range of risk reducing techniques and instruments available and introduce risk reduction criteria into UN global planning frameworks (e.g. UNDAF), and project planning cycles.
Understand and manage techniques of risk monitoring in the context of ongoing development projects.
Facilitate training for national and local organizations in the use of risk analysis and risk reduction techniques.

### 9.3 National Capacity Building in Risk Management

National capacity building support should concentrate on risk reduction management, including preparedness planning, particularly at the local levels. This does not signify a bypassing of the national levels. Rather it means strengthening the national levels in such a manner that it facilitates the decentralization of disaster management, and the development of the local levels.

Local levels have proven time and time again to be the most effective, resilient and sustainable components of a national risk and disaster management system. The full range of management functions, from prevention through to reconstruction, can be dealt with in an integrated way at the local level given that the organized social actors involved in the different activities are in general the same. Moreover, experience has shown that it is at the local level that commitment and perseverance exists as regards both risk reduction and disaster management, in it's broader sense. The growing tendency in favour of political and administrative decentralization and strengthening of local government structures in many countries will only give increased importance to the local levels in the future.

#### 9.3.1 General Considerations as regards the Capacity Building SubProgramme.

Capacity building needs at different national levels vary enormously and are dependant on the particular risk and disaster context, and the levels of development of existing organizations and institutions. Due to this it is impossible and inconvenient to posit a single approach to capacity building to be applied in all countries alike. In view of this, the programme must be flexible taking into account the different national needs.
Flexibility must be achieved within the bounds of certain established parameters. Here, it is suggested that the capacity building ends be circumscribed to the major contemporary issues identified in the previous section of this document—urban risk, environmental degradation and

risk, vulnerability in strategic sectors, and technological risk. All of these themes are of general relevance and importance for different countries. The emphasis placed on one or the other must be decided at the national level, following an initial situational diagnosis.
The strengthening of capacities in risk management must consider both compensatory and prospective risk reduction measures, and environmental monitoring and early warning systems.
Encouragement should be given to the socialization of project results in each country, especially on a South-South basis. Schemes for joint project promotion and coordination on a subregional basis should be encouraged.
Where possible, the capacity building schemes should be implemented by local, national or subregional institutions or organizations. Support may be required from regional, international or UN organizations.
The programme would be coordinated and supported globally by the United Nations. Support activities would include the accessing and systematization of relevant analytical and training methodologies, the promotion of the elaboration of additional methodologies where required, and the establishment of a central documentary and information resource facility.
The capacity building programme would be highly appropriate for multi agency collaboration. The priority contemporary issues identified are multidisciplinary and multisectoral by nature. In terms of UN agency interest and relevance, particular scope for collaboration would exist with WFP and FAO, Habitat, UNEP, UNICEF, OCHA, and WHO-PAHO. From outside of the UN system, the Organization of American States and the International Red Cross/Red Crescent could make significant contributions to project development.
The human resource development proposed for national UN staff in the previously detailed capacity building component (9.2) would complement that proposed in the present component.

### 9.3.2 The Capacity Building Process: General Aspects

The process for establishing the capacity building project in each participating country would comprise a series of sequential steps as follows:

**Country Situational Analysis**: an analysis would be undertaken examining the present risk and disaster context in the country and the state of disaster management organizations and institutions. In light of the range of contemporary issues identified as objects of capacity building, a prioritization of topics and themes would be undertaken and recommendations forthcoming as to priority areas for the capacity building project. Here it is necessary to clarify that the different issues identified may be integrated in a single issue. For example, the urban and technological risk problems or the urban risk and environmental degradation problem. The analysis would be undertaken with the participation of UN personnel, national government staff and other relevant organizations.

**Elaboration of Capacity Building Scheme:** on the basis of the previously identified priority areas an appropriate capacity building scheme would be designed for the country.

**Beneficiaries:** These will obviously vary according to the particular emphasis given in each country. They should include all relevant social actors and stakeholders in the problem, from government and civil society. Preference would be given to those that can guarantee the reproduction and sustainability of the lessons and skills derived from the scheme and its transmission to the local level. Strengthening of networking, alliances and collaboration between different social actors should be highlighted, as should the principles of governance.

**Project Activities and Methodologies:** these would be selected in accord with the priority areas chosen for capacity building. They could include participatory diagnoses, focal group discussion work, training courses and seminars, formal professional training at university level, study tours, action research projects, etc. Project components would be justified in a rational and sequenced fashion.

**c) Evaluation and Socialization of Project Results**: projects would always terminate with an evaluation procedure and a process of socialization of results.