An Approach to Concept and Definition in Risk management Terminology and Practice.

(Final Draft)

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1. INTRODUCTION.

Risk and disaster reduction issues increased in salience over the last decade. The dominant preparedness, emergency or disaster response concerns were broadened to include a more comprehensive approach to disaster management. Moreover, this tendency brought the debate on risk and disaster more closely into the development field, particularly as regards environmental and human sustainability. The pervasive relief to development continuum approach advocated since the beginning of the nineties was expanded, incorporating the notion that development planning must in general be imbued with the notion of risk reduction. The move towards a broadened scope for management concerns received an additional impulse with the large-scale disasters occurring in Central America and the Caribbean, Venezuela, Turkey, Mozambique and India over the last three years. One consequence of these changes is that "risk" has begun to assume a more dominant position in existing conceptual frameworks than "disaster" as such. That is to say, process has substituted product as the major concern, although management practice is still dominated by disaster preparedness and response issues.

The increased concern for risk reduction seen as an important facet of development planning has inevitably had an impact within the UN System, particularly in it's development agencies. UNDP, UNICEF, FAO, WFP, and WHO, in particular, have consistently widened their concerns and practice in the risk and disaster reduction areas over the last ten years. All have existing or embryonic policy statements and agency guidelines relating to the topic. On the other hand, the UN System as a whole has moved to reform it's programming and planning bases in order to achieve greater levels of co-ordination within the System and between this and government and civil society actors at the country level. This is most obvious in the promotion of the Common Country Analyses-CCA and in the formulation of the United Nations Development Assistance Frameworks-UNDAF. Both of these complimentary instruments are cognisant of the risk and disaster problematic and it's relations to the development challenge.

The increased importance conceded to risk and development issues, and the need for cohesion and co-ordination in the approaches and coverage given by UN System agencies has not been accompanied to date with the development of a common framework and guidelines for agency intervention. The objective of the present document is to advance in this direction with the proposal of some preliminary annotated guidelines for Inter-Agency Collaboration in Programming for Disaster Reduction.

2. **ANTECEDENTS AND IMMEDIATE CONTEXT**.

In January 2000, the Emergency Response Division at UNDP, Geneva, circulated a concept paper amongst interested UN agencies entitled " ***Development of a Core set of Concepts, Principles and General Guidelines to Facilitate Inter-Agency Collaboration and Co-ordination in Programming for***

Disaster Reduction". This document offered the basis for the celebration of a first Interagency Meeting on Guidelines for Disaster Reduction held at UNDP in Geneva on the 11th of February 2000. Representatives from UNDP, WFP, FAO, WHO/EHA, and UNICEF attended the meeting.

The considerations raised in the Concept Paper and in the subsequent Inter-Agency Meeting can be summarised in the following manner:

- While disaster management theme groups have been established in some UNDAF countries, no common programming principles and approaches have been agreed among the agencies most concerned with mainstreaming disaster reduction issues in development programming, in particular with relationship to disaster risk and vulnerability assessment.
- Discussions on the risk and disaster theme are still hampered by different uses and understanding of terminology. Moreover, a number of aspects pertaining to disaster risk reduction still require common understandings and approaches, including hazard and vulnerability reduction measures.
- Concerned development agencies need to reach a consensus on basic definitions, the basic principles for programming of assistance towards disaster reduction and as regards a conceptual framework and generic guidelines for risk assessment/ analyses and for programming assistance to reduce risks. The lack of guidelines is a gap in relation to the development work of the agencies. These are required in order to improve operational performance.
- Guidelines should be generic and would not exclude agency specific guidelines related to specific mandates. These generic guidelines could eventually feed into the UNDAF and CCA processes. These already refer to risk, vulnerability and disaster issues in their guideline documents, in the following direct and indirect terms:

    - The CCA will lead to "improved UN collaboration, strengthened analytical capacity and a common understanding of major developmental challenges and key issues for priority attention, including **risk assessment**" (Section 2, Objectives and Use of the CCA, p.3)
    - " The CCA can be useful in dealing with the spectrum of issues that link relief and development, such as risk and vulnerability assessment, disaster preparedness and mitigation, and post-conflict and post-natural disaster recovery and rehabilitation…." (Section 2, Objectives and Use of the CCA, p.6).
    - All CCA documents should contain…" an indication of the geographic incidence of poverty and vulnerability….(and) base line data on the key issues including vulnerability analysis". (Section 3, Contents of the CCA, points a) and c)).
    - Participation in the UNDAF will " facilitate the involvement of humanitarian and other entities throughout emergency phases ranging from disaster preparedness and mitigation to relief and recovery" (UNDAF Guidelines, Section 1, Key Partners, p.2.).
    - Co-operation strategies for achieving the objectives of UNDAF include " the identifying of critical areas of vulnerability for the purpose of disaster preparedness and mitigation, working in collaboration with humanitarian agencies" (Section 3, The Use of UNDAF, Co-operation Strategies, p.5).

- In view of the context summarized in previous points, consultants should be contracted to begin developing the conceptual structures, analysing the existing agency guidelines and starting work on the outline for common Inter-Agency guidelines. This should be based on a reading and analysis of existing materials related to definitions and concepts, assessment

of disaster risk and vulnerability and disaster mitigation and reduction measures. The product of this work will be a document containing a draft-annotated outline of the guidelines, which will be presented to the agencies for their consideration and follow-up.

The contents of the present document are based on the reading of available agency materials, documents or guidelines and a consideration of current main-stream thought, concepts and ideas on the topic of risk and disaster reduction. The documents and bibliography consulted are listed in an annex at the end of this document. The present document covers three major topics or areas: Basic concepts, definitions and typologies and the risk and disaster process; risk management and intervention as a process and the links to development planning; and, risk reduction in the context of UN System planning methodologies and instruments.

The document is structured in the following manner. Firstly, in relation to the major topics or areas identified above, a discussion is offered on the way these themes are dealt with in existing agency documents. Comments and critique are offered, a series of needs and definitional requirements are identified and proposals are made. These are the entire responsibility of the author of the present document. Where definitions or concepts are offered, a range of alternatives is presented. This is intended to stimulate thought and debate but not to close off the argument.

Emergency or disaster response issues are dealt with in a passing fashion throughout the document except where the notion of risk reduction is clearly related to these practices, as should be the case in general.

3. DRAFT ANNOTATED OUTLINE OF GUIDELINES: A DEBATE ON TERMS, CONCEPTS AND PROCEDURES

3.1 BASIC CONCEPTS, DEFINITIONS AND TYPOLOGIES.

Common, co-ordinated and consequent approaches to risk reduction can only be achieved if there is a common agreement as to the structure of the problem and as to the basic concepts, notions and terms utilised in its definition. These refer to the risk and disaster process as such, and to the management processes and schemes implemented in order to achieve risk reduction.

An analysis of existing Agency documents reveals four different but related types of problems or contradictions: a) a general lack of attention to definition and concept; b) different interpretations and uses for common terminology and concepts; c) differences in usage at different moments in the same agency documents; c) an at times out-dated approach to concepts given modern developments on the topic.

In the development of our annotated outline reference will be made to these problems and suggestions offered as regards their possible resolution.

3.1.1 Concepts, definitions and terminology referring to the risk and disaster process.

Preliminary considerations:

The construction of risk in society and the eventual concretion of disaster conditions may be understood utilising a relatively limited number of basic notions or concepts. These basic ideas then give rise to internal divisions or typologies that require more specific definition.

The basic notions or concepts generally utilised in Agency documents include hazard, vulnerability, risk, hazardous events, emergencies and disaster. Further refinements and additions may be found in certain documents where terms such as "unsafe conditions", "dynamic processes" and "underlying causes" are evoked with reference to the construction of vulnerability, and "capacities" and "capabilities", "resilience" and "adaptability" are evoked with regard to the reduction of vulnerability. With the exception of WHO/EHA documents little concerted effort is made to define the terms used. Terminology is taken to be implicit. This leads to a number of very clear contradictions and uncertainties as regards definition and meaning. This may, or will lead to problems in terms of reduction practice.

Basic concepts*:*

a. Hazard and Hazard Types: No clear definition of hazard appears in the literature. Rather, hazards are defined in terms of types or typologies of events e.g. earthquakes, storms, pest infestations; natural, man made or technological hazards, etc. These typologies vary from agency document to agency document. At times these listings of types are open to question given the heterogeneous basis used for hazard definition. Thus, for example, at the same time as earthquakes and hurricanes appear in some lists, so do population density and over-cropping. These are clearly very different concepts and processes, some referring to the natural system and others to social processes and products that may in fact give rise to different hazard or vulnerability types and levels.

The only attempt at definition appears in the WHO training materials where hazard is variously defined as: “a threat”, as a “potential that can be assessed but not calculated”, “as an event such as a storm”, as something that has “the potential to cause damage”, and as “something that causes disaster when it affects people”. Here, it is clear that confusion exists as regards a **potential event** and the **event itself** once it occurs. On the other hand, FAO documents tend to refer to "hazardous events" and not to hazards as such, including listings of predominantly natural, and some man-made phenomena.

In general, there is a lack of clear definition, a confusion of levels and types, and confusion between potential and real events. This tends to serve to replicate common historical errors as regards the distinction between hazards and disasters, where these are used as synonyms. This leads to the widely accepted error of referring to "natural disasters" when in fact reference is really being made to natural phenomena or hazardous or damaging events that may contribute to disaster, but are not synonymous with it. Options for clarity and precision are varied. Concise definition and detailed typologies are one of these.

Definitional Options.

Hazards or Threats:

- **Potential damaging physical events which should they occur in the context of vulnerable populations, production and infrastructure, will lead to economic and social loss that may reach the scale of a disaster. Latent conditions that represent future threats. They are not the damaging event as such but once transformed into a real event damage may be expected.**

- **A natural or human-made event that threatens to adversely affect human life, property or activity to the extent of causing a disaster. (WHO/EHA).** Here hazard is considered as an **event**

that threatens damage, as opposed to a potential threat. That is to say, hazards are real events, which threaten not potential future events that may cause damage.

***Physical phenomena*: These comprise multiple manifestations of the natural and social world that, in determined contexts, may cause damage. But, not all physical phenomena are hazards (earthquakes, tornadoes, hurricanes, explosions, conflagrations, etc)**

Hazardous events: **These are real world events of varied nature that will be associated with varying levels of societal loss. They are what have been called "triggering events" in the disaster equation.** The WHO/EHA definition of hazard given above would seem to correspond more accurately to this definition of a hazardous event.

The difference between potential and real events that do or do not contribute to causing damage and loss is important for risk and disaster management practice. This makes the need for definition and distinction important. The existence of hazards that can be identified, mapped, measured etc. provide society with the option to take anticipatory, precautionary measures. This knowledge of hazard may be based in part on the analysis of past real events. But, not all hazards have a past history. Hazard mapping comprises the cartographic depiction of possible future events accompanied by qualitative and quantitative analysis; it is not only the mapping of past events. Hazards are as dynamic and changing as vulnerability and society.

Hazard Types and Hazardous Events.

The time has come it can be argued for a somewhat more sophisticated and realistic distinction between hazard and hazardous event types than that captured in the traditional idea of natural, man-made or technological hazards. Moreover, the concatenation of events and synergy must be considered in more detail. Here we will make some advances in this direction, recognising that multiple forms of classification and typology may exist according to user preferences and needs. Here we attempt to provide options geared to the needs of the UN System and it's programming and planning options.

Hazards and hazardous events may be conveniently considered according to a basic five-fold typology:

- ***Natural-Physical***: contexts that are directly and unquestionably related to natural earth forming and transforming processes. This includes geological and geotechtonic, geomorphologic, meteorological, oceanographic and hydrometeorological phenomena, amongst others.
- ***Natural Biotic and Biological***: referring to a variety of factors ranging from pest infestations, through to microorganisms that cause general health problems and, in extreme cases, epidemics and pandemics.
- ***Socio or pseudo natural***: this refers to hazards and hazardous events related to social processes that transform the natural environment and resources in such a way that new hazard types are created. These take the form of naturally occurring events but are socially induced or accentuated. Examples include flooding related to river basin degradation, urbanisation without adequate drainage infrastructure, blocking of river channels with domestic and industrial debris etc; drought related to inadequate land use practices or depletion of aquifers; landslides associated with slope mining or deforestation. Some biotic and biological vectors may also appear under this notion. This type of hazard is rapidly increasing and has in general a close association with the environmental problem.
- ***Man-made/technological*:** This includes a wide range of different phenomena related to existing technical and technological conditions and the levels of insecurity they signify. Contamination of earth, water and air; explosions and conflagrations; etc.

- ***Social:*** referring to conflict situations ranging from war to civil strife and violence, including terrorism and the use of damaging artefacts.

The art of hazard classification for programming and planning of risk reduction interventions can be seen in the utility it has for identifying differing contexts and causes. The need to recognise the difference between natural and socially induced hazard is of particular importance given that the options for intervention differ enormously between the two. Hazard reduction, which has had a limited interpretation to date, becomes a far more viable and necessary activity today than ever in the past. Most hazard types that exist today are socially induced, and new ones will inevitably appear with changes in the productive and technological environment. All hazards are in fact socially constructed in the sociological sense of the notion.

Classificatory systems such as that suggested above might be crossed with other types which refer for example, to rapid and slow onset or creeping hazards. Such distinctions are also important for programming and intervention.

Beyond the simple typologies of hazard types and generic distinctions between these, the complex nature of hazard needs to be made far more explicit. This can be captured in the idea of **concatenated, complex or combined** hazards. The idea of " **complex emergencies** " rests in good part on this idea. With natural and manmade hazards, rarely do unilateral, single-type hazardous events occur. Rather, one hazardous event triggers off one or more other types, as is the case for example with earthquakes that may and do lead to fires and contamination, landslides and flooding. Synergetic effects must also be taken into account and defined.

b. Vulnerability Components and Causation.

Over the last ten years "vulnerability" has become a key concept used in the analysis of risk and disaster. Although the notion is not hard to grasp intuitively when used in the context of empirical realities, a clear specification of the nature and types of vulnerability, as well as the processes behind it's construction are not always well established.

In the Agency documents analysed little attempt is made to accurately define the notion, to detail its different components or to consider the processes that lead to the construction of vulnerability. Only in WHO materials is some attempt made in this direction. Other agency documents use the concept freely without major specifications or definitions.

The importance of a clear definition, specification of different types and indications as to the processes through which vulnerability is constructed, is critical for the programming and planning of risk reduction strategies and instruments. Different types require different approaches. The processes leading to vulnerability are inevitably linked to the development models prevalent in different country contexts and can only be permanently reduced or modified in the context of changes in the parameters of these models. A clear specification of vulnerability types and causation is required if we are to bring the risk and development problems together in a consequent manner.

Definitional Options:

Vulnerability:

- **The predisposition of a society, or a component of society, to suffer damage or loss when exposed to natural or socially induced physical events, and to face difficulties in recovering from this loss.**
- **The degree of susceptibility and resilience of the community and environment to hazards. (Emergency Management Australia).**
- **The characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a hazardous event (adapted from Blaikie et. al.)**
- **The predisposition to suffer damage due to external events. Vulnerability is about susceptibility (i.e. exposure and proximity to external events) and resilience (i.e. access to resources, capacities and capabilities). Vulnerability "factors" include underlying causes, dynamic pressures and unsafe conditions (see Blaikie et. al.). Vulnerability includes the following dimensions: physical, emergency management, demographic, health, economic, communications, psychological, societal/cultural and organisational. (WHO/EHA document)**

Seen in these terms, vulnerability can be described as a series of characteristics that **already** exist and that lead to the mentioned predisposition to suffer damage or loss. These characteristics are what appear under the name of "unsafe conditions" in the Blaikie et. al. model. In any strict sense, location or exposition viz. a viz. hazardous events should not be considered a factor of vulnerability. Exposition or location in hazardous areas is a **precondition** without which it is irrelevant to talk of vulnerability. Vulnerability comprises a series of characteristics of societies occupying hazardous areas.

Vulnerability Types or Components

Many different schemes exist for classifying the components or factors of vulnerability. These range from rather detailed schemes that identify many specific levels or components of vulnerability (economic, social, organisational, institutional, ideological, educational, cultural, physical, locational etc; see Wilches Chaux, 1993) through to more condensed schemes identifying vulnerability types (economic/social, organisational/institutional, motivational etc; see, Anderson and Woodrow, 1989). Both types of scheme are relevant and recognise that the "global vulnerability" of a particular subset or group of society is the result of the combination or interaction of different generic types of vulnerability. Vulnerability involves a combination of factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and identifiable event in nature or society.

In any guideline document oriented towards improving intervention, the detailing of distinct vulnerability types is indispensable.

Vulnerability Causation.

Different descriptions of vulnerability components or types do not in themselves provide an explanation of why these exist. Vulnerability or unsafe conditions are the result of ongoing social processes. These are included in the Blaikie model under the name of "root causes" and "dynamic pressures". Whatever the name given to these processes or their particular characteristics, they all derive from societal processes related to historical and ongoing development models and paradigms. Any guidelines should provide an overview of these processes in order to facilitate the linking of vulnerability reduction to development processes and parameters.

Indications are required as regards such questions as: when and how is poverty transformed into vulnerability? Why do communities and localities lack power and decision making capacity? Why are land planning ordinances and building codes not put into practice? How does the operation of the land market exclude poorer groups from access to safe land etc.?

c. Capacities, Adaptability, Coping and Resilience.

A consideration of vulnerability and its causal factors must be accompanied by a consideration of the opposing forces that predispose a society to non-damage and/or rapid recovery. These are basically captured in the notions of **capacities, adaptability, coping and resilience**. These attributes comprise development indicators or parameters. These terms and notions are used in various agency documents but little attempt is made to define them in a consistent manner.

Definitional Options:

***Capacities*:**

- **The ability to do related to the availability of information, authority, institutions, partnerships, plans, resources, and procedures to activate them. (WHO document)**
- **Attributes of a society or sub-component of this that allow advances in production, income, consumption and social protection and recovery.**
- **The ability to protect one's community, home and family and to re-establish ones livelihood (Anderson and Woodrow). (Livelihood is the command an individual, family or other group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. (Blaikie et al.)).**

***Coping:* The means with which people act within existing resources and range of expectations of a situation to achieve various ends. (Blaikie at. al.)**

***Adaptability*: The ability of an individual, family, community or other social group to adjust to changes in the environment guaranteeing survival and sustainability.**

***Resilience*:**

- **The access to resources, capacities and capabilities (WHO document)**
- **A measure of how quickly a system recovers from failures (Emergency Management Australia).**
- **The level of resistance and the capacity to absorb external shocks that a society or sub-component of this demonstrates (human, productive, commercial, service or structural).**

d. Risk, Acceptable Risk, Objective and Subjective Risk: Social Conditioning and Territorial Dimensions:

Today, risk comprises the essential complex concept used in disaster studies. The existence of risk is an indispensable requisite in order for disasters to occur. Definition of risk and the identification of fundamental notions as regards the conformation of risk in society are indispensable for programming and planning purposes.

UN agency documents consulted are rarely explicit in terms of the definition of risk, assuming a common understanding of its significance. This leads to confusions in many instances. Hazard and risk continue to be confused, as do risk and vulnerability. More refined concepts such as acceptable risk,

risk perception, objective and subjective risk etc. are not dealt with or defined. This may have serious consequences for programming and planning.

On the other hand, given that risk is a product of ongoing social processes it is clearly necessary to provide ideas on the nature of the processes involved in the social construction of hazard and vulnerability. These two elements are generally seen to be dominant risk factors. Moreover, the social and territorial conditioning of risk should undoubtedly be dealt with in any guidelines for intervention.

Definitional Options.

Risk:

- **The likelihood of harmful consequences that derive from the interaction of hazards, societal vulnerability and the environment. Risk is potential, a measure of future possible harm under determined conditions, expected loss (adapted from Emergency Management Australia).**
- **The social loss expected due to the interaction of hazards and vulnerability in a particular time and space.**
- **A statistical concept relating to the probability that a negative event or condition will affect an individual in a given time and space. (WHO/EHA document)**

These definitions refer to what can be called **objective** risk. Measurement of possible future loss is subject to the accuracy with which variables are introduced into the calculation. This is not always very easy to achieve.

Acceptable Risk: **The level of loss a society or sub-component of society considers acceptable given existing social, economic, political and cultural conditions.**

Unavoidable Risk: **Risk that is unavoidable given existing social, economic, political and cultural conditions.**

Acceptable loss is a **subjective** connotation. Different groups or sectors of society will manage different acceptable risk scenarios. Acceptable risk is a notion far more applicable to advanced and developed sectors of society where the ability to calculate and take unforced decisions exists. Amongst the poorer more vulnerable groups the notion has little real value. In these contexts far more importance should be attributed to the level of loss that can realistically be avoided or reduced given the existing pervasive daily survival challenges faced, and which absorb much of the energy and resources of these groups.

Social and Territorial Aspects of Risk.

Risk is socially constructed and may be socially deconstructed or reduced. The social processes leading to risk have clearly defined territorial circumscriptions. Risk is manifested in places, locus, areas, zones, communities, families, etc. When this risk is actualised loss will occur, at times achieving the level of disaster. Thus, risk has a territorial circumscription and can be depicted cartographically and described qualitatively and quantitatively.

On the other hand, the processes leading to risk, whether these apply to hazard or vulnerability variables, have a very varied territorial circumscription and these do not necessarily coincide with the

areas in which risk is expressed or experienced. Thus, for example, deforestation in upper river basins may increase flooding in the lower basins many miles from the cause of the problem; economic and political decisions taken in national capitals or in Washington, London or Paris, may have lasting impacts on the levels of vulnerability of poor populations in Latin America, Asia or Africa; industrial pollutants ejected into rivers upstream may affect population groups hundreds of miles away living on, or using the resources of the same river. The diffuse and disperse territorial base of risk causation signifies that intervention in favour of risk reduction can not be restricted to the areas where risk is manifested.

Measuring the existence of risk is one thing. But any adequate approach to risk reduction must inevitably be cognisant of the causal factors and their territorial circumscription. Guidelines on these matters are indispensable.

e. Disasters and Emergencies.

As with other basic concepts, rarely does a concise and concrete definition of disaster exist in UN agency documents. Rather, there seems to be an implicit acceptance that what is a disaster is not a necessary definitional task. In many ways this replicates the situation described by Enrico Quarantelli in the sense that defining disaster has not been that successful from a scientific perspective, but that every body knows when we have one on our plate!

When seen from the response perspective there has always been a practical need to define when disaster conditions exist given that international and national or local organisations or institutions charged with disaster relief need to have a firm notion as to when they should intervene. The disaster as a product or concrete reality notion has led to multiple definitions of disaster, catastrophe, accident and emergency.

Definitional Options (Disaster as a product)

Disasters

- **Any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health services on a scale sufficient to warrant an extraordinary response from outside the affected community. (WHO/EHA document).**
- **A social occasion in which society or a sub-component of society suffers damage and loss to the extent that it is unable to spontaneously and autonomously recover, thus requiring external assistance. (adapted from Fritz, Quarantelli et. al.).**
- **Social situation in which the levels of loss and destruction suffered exceed the normal response and healing capacity of the affected populace, thus requiring extraordinary measures or outside assistance to restore or improve on previous levels of well-being and opportunity.**

The first of these definitions serves to illustrate a common problem still pervasive in the disaster literature. That is to say, the tendency to still consider a disaster to be a physical event that causes damage. Or, in other words, the tendency to consider hazardous events and disasters as synonymous. Here it is clear that a disaster is not the event that causes damage. Rather, a disaster is the damage caused. Once again the notion of natural disasters pervades because some still insist that the disaster is the physical event itself

Emergencies

The notion of emergency is considered in various different ways in the documentation consulted. Thus for some, emergencies are one phase of the disaster scene- the phase experienced immediately after event impact and normally associated with the early response phase of disaster assistance when survival, health, nutrition etc are of critical concern. In other documents the emergency is the result of disaster. That is to say, it is a consequence not a phase of disaster. Here it is probable that this terminological and phase contradiction comes about because some still see disaster as being the physical event such that the emergency is what others call disaster (see WFP and FAO). FAO in fact does not give a great deal of attention to the idea of disaster, preferring to talk of emergencies, and phases in the management of emergencies. That is to say the idea of disaster is substituted for the idea of emergency.

Beyond the two previously described viewpoints, others in the disaster literature accept the idea that emergencies can exist without the existence of disaster, but that disaster can not exist without an emergency phase. Emergency without disaster exists, for example, in the case of large-scale traffic accidents, fires or explosions even though it is accepted that such events could achieve dimensions such that they qualify for the category of disaster.

Disaster seen from the perspective of risk (disaster as process**)**

The acceptance that disaster is impossible without the prior existence of risk elevates this latter notion to a primary conceptual and practical position. The preoccupation with defining disaster in terms of determined levels of loss and the need for external assistance derives from the dominance of response based management paradigms. Seen from the perspective of a risk-based paradigm, the preoccupation for loss levels associated with any single large-scale event is substituted for by the concern for loss in general, under very different conditions and magnitudes of risk.

Risk when it is actualised may lead to very different levels of impact and loss, from small-scale to catastrophic. A continuum of loss scales and area impacts exist, some of which are seen to qualify for the name “disaster”, and others not.

Given this idea, practitioners and researchers increasingly talk of "damaging events", or small, medium and large scale disasters or damaging events. The importance of the small and medium level impacts, which have rarely qualified for the category of disaster, can be seen in the growing damage and loss associated with these un-dramatic events. This probably considerably exceeds that associated with the large scale one off events that dominate disaster thought and practice. Moreover, this type of risk, expressed in a multiplicity of zones and communities and associated with numerous hazard and vulnerability types, is a very relevant parameter of unsustainable development practices and is many times associated with inadequate environmental management practices.

In sum, seen from a risk perspective the need to define disaster becomes relatively unnecessary given that the principle concern is not with dealing with impacts once they occur but rather with anticipating and reducing risk in varied stages of its development. Risk reduction concerns can do without disaster definition.

The diverse notions of small, medium and large scale damaging events or disasters, the fractal nature of disaster when seen from the risk and vulnerability perspectives, and the whole problem of the actualisation of risk are critical concerns that must be dealt with in agency programming and planning guidelines.

Disaster Definition from a Process Perspective.

When considered from a risk and process perspective, disaster definition changes. The following are some of the definitions that circulate more freely amongst researchers and practitioners:

- **Disasters are unresolved development problems where vulnerability represents deficits in development.**

- **Disasters are the actualisation of risk in society.**

- **Disasters represent the breakdown in sustainable society-environmental relations. As such they are environmental problems.**

f. The Risk and Disaster Process

A concise specification of the range of concepts discussed previously permits an easy transition towards a detailing of the risk and disaster process and it's multiple specific contexts and connotations.

Thus, risk can be seen as the result of the interaction of determined hazard and vulnerability conditions that are in themselves the result of determined and varied social processes deriving from historical and ongoing economic growth or development models. Risk can be seen as a structural component of determined models and a negation of determined development criteria, indicators or parameters. It can also be considered to be an indicator of non-development and of unsustainability. Vulnerability may be seen as deficits in development. Interventions in favour of risk reduction must be cognisant of basic causal processes if we are to move beyond temporary risk control using compensatory social mechanisms. The essence of risk control, reduction or elimination can be found in the modification of the social processes that create unreasonable risk. (this recognises that some level of risk is unavoidable on a planet still in formation, and in societies in a process of constant change).

On the other hand, disaster or damaging events represent the actualisation of pre-existing risk conditions. A triggering event, be it an earthquake, plague, fire or explosion etc. reveal existing vulnerability conditions and transform risk into a real and palpable social condition, at times called disaster or even catastrophe, and at others, accident or emergency. Disasters have different scales and consequences. Where the definition of disaster incorporates the need for external assistance in order to facilitate response and recovery, this very notion admits of disasters of very different scales and social connotations. Thus, according to such a criteria, a family affected by loss such as to require immediate community assistance comprises a case of disaster in the same way as a country affected by a major earthquake and requiring international assistance. What differs is the scale and the economic, social, political and cultural connotations.

This scale principle allows us to reconsider the very notion of single large-scale disasters. Thus, it is possible and convenient to consider so-called large-scale disasters as being, in reality, a myriad of small-scale disasters all related to the same original triggering event. However, the levels of damage and impact will vary from community to community, zone to zone according to differences in the

levels of vulnerability, adaptation and resilience. Families and communities attend the consequences of loss as it affects them and their immediate surroundings and not the overall consequences of a large-scale event that affects a vast geographical zone. This problem is reserved for national and international disaster response agencies, which have typically defined or delimited what is disaster and when it exists.

3.1.2 Concepts, Definitions and Typologies relating to the Risk Reduction or Risk and Disaster Management Processes.

Prelude:

Risk reduction practices have traditionally been associated with the so-called prevention and mitigation phases of the "disaster cycle", "disaster sequence" or "disaster continuum". This is one viewpoint. Today, risk reduction, modification or elimination is seen by increasing numbers of scientists and practitioners to be an activity that permeates the full range of risk and disaster related phases or stages, from prevention through to reconstruction. It's nature and instruments may change but the fundamental notion of risk reduction remains in any of the different phases.

The risk and disaster reduction problematic is impregnated with concepts and notions that are many times defined and detailed in a contradictory fashion. This comprehends such terms as prevention, mitigation, preparedness, response, rehabilitation, reconstruction, recovery, and disaster and emergency as such. Within the UN agency literature contrasting definitions and notions exist, as they do in general.

Finally, it is clear that the nomenclature has not necessarily evolved at the same pace as the notions, ideas and concepts developed to help delimit and interpret the problem. Efforts to accommodate terminology to changing conceptions or to avoid problems associated with differing definitions of the same term do exist. One clear one is the use of the term "Natural Disaster Reduction" in the IDNDR title. This attempted to get around the use of the words prevention and mitigation. However, the end product was another rather ambiguous and inexact term. Disaster reduction requires that a disaster exist, just like weight reduction! Moreover, given the confusion that existed and still exists as regards the distinction between a natural phenomenon and a disaster, Natural Disaster Reduction could be interpreted to include actions that search to reduce hazards or hazardous events as such. This was clearly not the intention, but the problem of definition and contrasting definition obliged the invention of another apparently neutral term. Given that "disaster" seen as a product, dominated the scene, neither was it possible to support the idea of a Decade for Risk Reduction. This would, however, have been far more consistent conceptually and in terms of the Decade's proposed goals.

Today, however, risk reduction, risk management, vulnerability reduction etc are household terms and part of mainstream thought. This allows more freedom to suggest more refined definitions and terminology that are semantically consistent and conceptually precise.

a. Disaster Prevention and Mitigation

The search for consistency in the definition of what is Prevention and what is Mitigation carries on today. Various different definitions exist. These may consider that these two activities are essentially different, or alternatively, that one notion is subsumed within the other. Within UN agency literature these two contexts exist. Moreover contrasting definitions of the two can also be found in different documents (not to mention cases within the same document)

***Existing Definitions: A review*.**

- **Prevention refers to measures designed to prevent natural or socio/political events and processes from resulting in disasters characterised by destruction and loss. FAO activities in this area are designed to reduce vulnerability to such events/ processes in the food and agricultural sectors (FAO document)**

With this definition prevention is clearly used to refer to vulnerability reduction, but does not include activities that modify or reduce the occurrence of hazardous events or modify the exposition of populations, production or infrastructure to them. Moreover, the definition suggests that disaster can exist in some cases without destruction and loss. This denies the idea of disaster defined as a socially disrupting occurrence, unless we assume that when mention is made of disaster, reference is in fact made to the physical triggering event itself. Finally, the exclusion of hazard reduction or elimination from the original definition is later denied in the same document. Thus, for example, in the section on "SUDDEN NATURAL DISASTERS" (p.14), it is mentioned that FAO prevents disasters caused by natural events promoting soil conservation and avalanche control techniques or by promoting forest fire control.

In this same FAO document no explicit definition of mitigation exists. However, the document does talk of "drought mitigation action plans" (p.8). These plans "aims to lessen the impact of drought when it occurs, thus reducing its capacity to cause disaster". That is to say, mitigation is exactly the same as prevention. FAO documents analysed are imprecise and changing in the use of terminology.

- **Disaster mitigation is the reduction of vulnerability to the effects of natural disasters on people's food security. The term mitigation includes preparedness, prevention and response to early warning. (WFP document).**

Beyond the rather strange notion that prevention is a component of mitigation (they are clearly different things, at least in dictionary definitions- prevention is to stop a thing occurring and mitigation is to ameliorate or reduce it's effects or magnitude), the very same WFP document later states that "evidence shows that without prevention and mitigation efforts the impacts of disasters on vulnerable communities and their resources is greater and the recovery process is longer". This is obviously contradictory to the idea that prevention is a **component** of mitigation. Moreover, once more the idea is transmitted that the disaster is the physical event that in fact triggers a disaster. Disasters do not have an impact on communities; disaster **is** the impact caused, although this primary impact will have additional secondary effects or impacts over time.

- **Mitigation and Prevention are used as synonyms. Some prefer to drop the term Mitigation and use only Prevention. The term Mitigation can be comprised in the term Prevention. Mitigation means to reduce the severity of the human and material damage caused. Prevention is to ensure that human action or natural phenomena do not result in disaster or emergency. (WHO/EHA document)**

In contradiction with the WFP notion, mitigation is considered to be a component of prevention. Prevention is defined in terms of impeding the occurrence of disaster, and mitigation as reducing the impacts of physical events. This is a consistent statement.

- **Prevention is saying no to the hazard. Mitigation is saying no to vulnerability. (Wilches Chaux, 1989).**

This definition is extremely simple. Prevention refers to activities or actions that attempt to eliminate reduce or modify hazards in a positive fashion for society. Mitigation attempts to reduce the impact of physical events on society by reducing vulnerability. Both activities form part of risk reduction, but operate through very different mechanisms.

- **Mitigation is defined as actions that reduce damage and loss. These include measures to reduce the physical hazard, to provide structural and non-structural mitigation and to increase preparedness...Mitigation can be viewed from the point of view of vulnerability, vulnerability reduction, and popular attempts at coping and self-help (Blaikie et al).**

This definition is provided given the author's conclusion that prevention, or the elimination of disaster, is utopian. According to the authors mitigation, seen as any action that reduces loss and damage, includes hazard reduction. This is obviously in conflict with the Wilches Chaux definition, although consequent with others. A further contradiction can be seen given that mitigation is seen from the point of view of vulnerability reduction. This would then eliminate hazard reduction as a mitigation component. Preparedness is here seen to be a part of mitigation. This coincides with the WFP definition.

In sum, analysing only a few attempts at the definition of prevention and mitigation, a wide range of conflicting and contradictory notions are provided even within the very same agency documents.

***Options for avoiding the definitional problem*.**

Disaster prevention is open to more problems as a concept than any other in the subject area. Mitigation has far less problems, as does the notion of risk reduction or, if we wish, disaster risk reduction. These latter two notions may be considered very close synonyms if we consider that hazard reduction or control is a mitigating action. However, this does raise certain conceptual problems given that mitigation is defined as the reduction of the negative effects related with a hazardous or damaging event through the reduction of vulnerability. This does not as such cover reduction in the magnitude, incidence or intensity of the event as such. In fact we could suggest that mitigation allow for the event to stay the same and that vulnerability reduction permits lower or mitigated impacts, lower risk levels.

***Risk Reduction or Disaster Risk Reduction*:**

Defined as the sum of the efforts, policies, strategies, actions and activities promoted by society in order to guarantee a reduction in risk factors and in the impacts that a physical event may have on society under given existing risk conditions. This includes hazard and vulnerability reduction, control or amelioration.

Hazard reduction activities comprise a body of thought known as Hazard Management. Vulnerability reduction comprises an intervention paradigm referred to as Vulnerability Management. The social actors involved in both types of intervention are clearly broad ranging and many times different, but they must co-ordinate and work together in the reduction of risk in any particular social and territorial circumscription. This should be achieved on the basis of a common understanding of existing risk scenarios and appropriate risk reducing strategies.

Attacking the problem from the risk and risk reduction perspective, as opposed to the disaster prevention and mitigation viewpoint has the advantage of redefining the principle problem involved. Emphasis is placed on risk and not on disaster, on process and not on the product. Moreover, the incorporation of hazard and vulnerability reduction under one umbrella serves to emphasise that these are two sides of the same coin, and that reduction of one does in fact automatically lead to reduction in the other.

Hazard reduction has received far less attention in the literature and in practice than vulnerability reduction. This relates to the erroneous idea that hazards are basically immutable due to the natural processes involved. However, if we consider the range of hazard types defined previously in this document, it is easy to understand that a great majority of the pervasive hazards faced by society today are in fact socially generated (socio or pseudo natural, technological, and social hazards). Even with natural hazards, wide-ranging options exist for social intervention in the reduction of their incidence on society. This ranges from land use planning for reducing exposition to hazards, through river basin management techniques and on to engineering controls for floods and lahars etc. (a more detailed classification of intervention options is offered later in this document)

Under such a definitional scheme it is possible to make " prevention" equivalent to hazard management and "mitigation" equivalent to vulnerability management. (see the Wilches Chaux definition above). However, we should also be aware that if we do make disaster prevention synonymous with hazard reduction, we are falling into another conceptual imprecision. That is to say, we are equating disaster once more with the physical triggering mechanism or hazardous event. Or, suggesting that prevention can only be achieved by eliminating the physical event as such. This is clearly contrary to the precepts of the vulnerability paradigm. Given this, it is probably more appropriate, and certainly less conceptually compromising, to suggest that prevention be considered an overall somewhat utopian goal, which requires the reduction of hazards and vulnerability. And, that mitigation comprises a step in that direction to the extent it has a positive impact on vulnerability levels. Vulnerability reduction does immediately reduce hazard levels given the interactive and dialectical relationships that exist between these two generic types of risk variables.

Finally, the use of terminology and concepts that concentrate on risk has the advantage of liberating the problem from the restrictive notion of "disaster" risk. Many risk contexts will not lead to disaster where this is defined in traditional terms. That is to say, something that exceeds the coping capacity of the affected community or society. As has been expressed previously, these lower risk contexts are the norm and the damaging events associated with them are commonplace, repetitive and frequent. They are also many times the prelude or forewarning of future larger events that may reach the commonly accepted level required for them to be seen and attended as a disaster. An approach that allows consideration of risk and damage in general is far more consequent with the problem of environmental management and sustainable development than one that restricts our attention to large-scale events and large-scale disasters. Moreover, it also allows far more attention to be paid to the role of localities and communities in risk reduction.

Risk Reduction and Risk Management as Integrating Concepts and Practice.

Moving beyond the definitional problem, the use of risk reduction concepts and notions has other positive attributes as regards societal practice.

One of these relates to its use as an integrating, horizontal management concept that compliments the many times criticised notions of the "disaster cycle" or "disaster continuum". In this sense, risk reduction and risk management may be seen not as stages or phases relating predominantly to so-called prevention and mitigation activities, but rather as a philosophy, point of view or practice that cuts across the whole range of "disaster" related activities. Risk reduction should be a common and determining practice throughout the disaster cycle or continuum.

Seen in the context of traditional prevention and mitigation activities it relates to the need to reduce or eliminate what may be called "primary" or structural risk variables which, if they persist, will eventually lead to loss or disaster. In the context of preparedness, risk reduction refers to the need to prepare society in such a manner that should an event occur risk is anticipated and controlled to a greater degree than would be the case without prior preparation.

Once an event impacts on society, the pre-existing levels and components of risk are actualised, transformed and amplified. New risk factors appear. These may include disease vectors, lack of access to adequate and sufficient food and potable water, insecurity for women and children in temporary shelters etc. Emergency or disaster relief activities basically comprise risk-reducing activities where an attempt is made to control or eliminate new risk factors. It is now commonly accepted that this should be achieved by promoting local initiatives and participation in such a way that relief fosters development. This is the essence of the idea of "bridging relief and development", an idea much in vogue throughout the past decade and mainstream today.

Finally, risk reduction in the context of rehabilitation, reconstruction and recovery retakes the notion of control over "primary" risk variables espoused with reference to traditionally conceived prevention and mitigation practices. Here, an attempt must be made to guarantee that new developments and investments are imbued with the idea and practice of risk control. The risk scenario created following event impact will be different to that existing previously and this must be considered as the point of reference for societal intervention that attempts to reconstruct and transform society at the same time.

In sum, risk reduction notions and practice should be seen as a permanent practice, varying in content and method according to where we are in the so-called disaster continuum. Use of this key notion and ordering principle also allows a breakdown in the traditional distinction between risk management and disaster management. Risk management is seen in many classificatory schemes as being a component of disaster management. This is clearly erroneous given that disaster management can only really cover the managing of disasters once they occur. When risk management is considered a cross cutting activity it can be removed from a subordinate or parallel position viz. a viz. disaster management. It can then assume the role of an integrating concept and practice relevant in all phases or stages of the risk problematic, and a component of development, but not disaster planning.

b. Preparedness.

Preparedness presents less definitional problems than many other risk and disaster notions. This type of intervention is generally conceived as including a wide range of activities developed prior to the impact of a hazardous event, and which lead to a reduction in loss, and increased response capacity and efficiency.

Given existing risk levels, preparedness allows society to reduce losses even where primary risk variables have not been reduced. In this sense, preparedness may be seen as a component of vulnerability reduction or mitigation. As we have analysed above, WFP, Blaikie et. al. and Wilches adhere to this idea. On the other hand, FAO adheres to an emergency sequence notion that apparently

clearly separates prevention and mitigation from preparedness, but which in the last instance does not sustain this separation (see later).

Finally, WHO/EHA introduce an interesting variation. Thus, they refer to Primary and Secondary Prevention. Primary prevention refers to activities that reduce, avoid or avert the risk of disaster occurring, by getting rid of hazard or vulnerability. Secondary prevention means to recognise promptly the event and to reduce its effects (preparedness).

This latter definition is basically in accord with our own ideas on the topic, and consistent with the development of a definitional and conceptual base which takes Risk Reduction as the global concept, and activities such as prevention, mitigation, preparedness and response as discrete, if related sub categories. Given this, a proposed solution to the definitional problem would be:

- ***Risk Reduction***: The sum of activities leading to positive changes in risk levels in society prior to and following the impact of a damaging or hazardous event.

- ***Prevention and mitigation*** (whether one is subsumed in the other or not). Activities that attempt to reduce or eliminate primary risk variables in society whether these are of the hazard or vulnerability type. Primary risk variables refer to those structural factors related to the environment, economy and society that place people at risk.

- ***Preparedness*****:** Educational, organisational, planning and logistical activities developed in the context of existing structurally determined risk scenarios that attempt to reduce possible loss during and after the onset of a damaging event. These activities attempt to prevent the appearance of secondary or derived risk variables. Secondary or derived risk variables refer to new risk factors that are generated in the wake of an event or afterwards (disease vectors, malnutrition, lack of potable water, violence etc.). Preparedness contemplates a wide range of activities including the development of emergency operational plans and contingency planning, the establishment of emergency operations centres, public education schemes, stockpiling of resources, planning of evacuation routes and shelters, and early warning and alert systems.

The latter component (early warning and alert systems) is at times seen to be a discrete type of activity; a part of preparedness, but with sufficient distinction to allow it to be separated off from this. This can be seen, for example, in FAO documentation where early warning is included in the prevention and preparedness phases of the emergency sequence, but is also presented as a discrete phase worthy of a complete volume in the Agency's technical handbook series.

Early warning and alert systems basically refer to the capacity for society to predict or prognosticate impending hazardous events, to provide adequate information to potential "victims" and to elicit risk-avoiding responses. As such, it is clearly a part of preparedness.

Overall, it is important to recognise that hazard reduction is a different activity to vulnerability reduction (although they must be related and the reduction of one automatically reduces the other), and that reducing primary risk variables is a very different activity to preparing society to react or respond in a given primary risk context or scenario. The social actors involved in these different activities and the mechanisms and procedures they employ are many times very different, although co-ordination between them is always required. The differences that exist between types of activity requires the development or precision of clear concepts and notions that allow them to be placed in some sort of management hierarchy and relationships

c. Disaster or Emergency Response or Relief/ Humanitarian Response/Impact Phase

The diverse nomenclature included in this section title reflects the diverse uses incorporated in documents and treatises on the topic of the immediate post impact phase, when disaster is real and dynamic.

Although the modes of expression may differ, there is little essential disagreement as regards what the immediate post impact phase is all about. Thus, essential defining aspects relate to the mechanisms by which society and it's organisations provide for the immediate survival of affected populations, guaranteeing the means by which health, nutrition, shelter, distribution of goods and resources and reconstitution of the basic economy can be achieved. Early response is about guaranteeing survival, welfare and continuity in daily life when seen from an economic, social, psychological and political perspective.

Terms of reference for the elaboration of Interagency Guidelines suggest that emergency management issues should not be considered at this stage, given the need to concentrate on disaster risk reduction issues. However, arguments can be made to support the idea that emergency response does in fact include a significant number of risk reduction and development issues. This is mainstream thought today, as is reflected in the notions or guiding principles incorporated in the idea of "bridging relief and development".

In view of this we will develop certain notions here as regards emergency response when seen from the risk reduction and development perspective and which may be of importance in the formulation of Interagency Guidelines on the matter of Risk Reduction. The majority of these issues are dealt with in UN Agency documents dealing with the topic.

Emergency or Disaster Response: Not What, but How.

Little doubt exists as to what response should attempt to achieve, and as regards the organisational, logistical and resource needs and problems faced.

This has not been the main issue over the last few years, although it continues to be an important issue. Rather, discussion and practice has concentrated on the topic of how to achieve final response goals whilst at the same time strengthening local capacities in disaster affected areas and promoting practices that foster development and sustainability, as opposed to dependency and the erosion of local self-sufficiency and initiative.

Although these issues are implicit in much UN literature there is a need for more explicit pronouncements and indicators in future guidelines. This includes considerations on themes such as: self-sufficiency and local participation; the stimulation and use of the local economy in disaster relief; the use and complimenting of local resources; local leadership and organisational issues; the merging of relief and rehabilitation/reconstruction activities in the framework of social transformation; and increasing of local capacities and the avoidance of dependency. Here it should be immediately recognised that development based response and relief is automatically a future risk reduction mechanism.

Emergency and Relief Operations seen as part of the Risk Reduction and Management Complex.

The previously elaborated ideas on Risk Reduction and Management emphasise that this is an activity that crosses horizontally all of the so-called "Disaster Cycle or Continuum" phases. All activities developed in the Emergency Phase are, or should be, risk reducing by nature. They operate in the context of new risk, built on pre-existing, pre-impact risk. As has been expressed previously, the search for and rescue of disaster victims, the control of disease vectors and malnutrition, the guaranteeing of food-stuffs and potable water, the rapid stimulation of economic recovery and employment, security in temporary shelters and the provision of temporary housing, etc. are all risk reducing activities that operate in the context of new post-impact risk scenarios. In view of this, additional arguments can be made for including disaster response in risk reduction debates and guidelines.

d. Rehabilitation, Reconstruction and Recovery

This sequence of phases or activities is generally considered to take place following emergency response and relief activities. This notion is now seen to be rigid and incorrect and it is currently accepted that many of the supposedly sequenced activities do in fact overlap, having very different temporalities in different contexts. Relief activities may in fact go on for many months or even years in some areas, whilst rehabilitation/reconstruction may well take place parallel to ongoing relief activities, even in the context of the same population groups and areas.

All UN agency documents deal with rehabilitation-reconstruction activities but once more, few make any concerted effort to define these terms and their limits. Like disaster, few define it, but all know what it is all about!

In any future Guidelines efforts must be made to provide clear and concise definitions of terms, establish premises for these activities and clearly denote risk reduction and development implications and parameters. These are all global issues that cut across different Agency mandates.

Definitional Options:

- ***Rehabilitation:*** Activities and investments that search to re-establish the basis for local self-sufficiency and economic recovery. Rehabilitation activities re-establish infrastructures to a level consonant with the functioning needs of the local economy and the welfare requirements of the population. Such activities may lead to temporary solutions that fill gaps whilst fully-fledged reconstruction plans and investments are put into place. Unfortunately, many temporary solutions turn into permanent solutions that contribute to increased disaster vulnerability in the future.

- ***Reconstruction:*** Activities and investments that establish a permanent infrastructural and economic base for development in the affected region, and for the full economic, social and psychological recovery of affected populations. Reconstruction should guarantee that affected areas have a higher development potential than in pre-disaster times.

Parameters and Indicators:

Rehabilitation and reconstruction activities should enhance and incorporate local capacities, under decentralised operational schemes. New investments must be cognisant of gender equality,

environmental equilibrium, poverty reduction, territorial organisation and risk control. Increased welfare in the context of sustainable low risk development must be sought. Risk control should be an essential component of any reconstruction programme.

3.2 THE RISK REDUCTION MANAGEMENT PROCESS: STRATEGIC, METHODOLOGICAL AND INSTRUMENTAL REQUIREMENTS.

Once a common basis is achieved as regards risk and risk management-related concepts, we then require definitions and hierarchies which help facilitate communication and mutual understanding and the establishment of a common understanding as regards the components, methodologies and instruments for risk reduction. Some of these derive directly from our discussion of concepts and terms and will be repeated here, whilst others will be introduced for the first time in the present section of this document.

3.2.1 Types of Risk Reduction Activity across the "Disaster Cycle or Continuum".

Risk Reduction has, in general, been used as a synonym for what has traditionally been known as Disaster Prevention and Mitigation. However, as we have argued previously, this is extremely limiting conceptually and practically. Risk reduction, in different forms and flavours, cuts across the full management cycle. These forms and flavours are extremely important and must be made explicit in any guideline document.

a. Primary Risk Reduction Activities or Prevention and Mitigation.

In the section on definitions and concepts, it has been argued that disaster prevention and mitigation terminology should be reserved, within the risk reduction process, for activities that attempt to reduce, control or eliminate "primary" risk factors in society, whether these be of the hazard or vulnerability type. That is to say, those structural factors associated with, and deriving from natural and social processes. This is, in general, consonant with the viewpoint expressed in WHO/EHA documents.

This notion allows us to identify two dominant forms of intervention that have different temporal, social, economic, planning and political connotations and that have not to date been widely discussed or incorporated in an explicit fashion in risk reduction guidelines or handbooks. These are:

- **Compensatory Risk Reduction.**

- **Prospective Risk Control**. (here, we deliberately do not use the terms "reduction", or "prevention and mitigation" for reasons that will be obvious a little later in our discussion.).

These two concepts have very recently been introduced into formal UN documentation with the presentation of the **UNDP Draft Consultation Paper on Disaster Reduction and Recovery** (Version 4: July 13th, 2000). Previous development of these notions can be attributed to members of the Network for the Social Study of Disaster Prevention in Latin America-LA RED- over the last four years in particular.

Compensatory Risk Reduction.

Disaster prevention and mitigation has commonly been associated with activities that search to reduce or eliminate existing risk factors. That is to say, existing risk factors that represent a clear threat to society. These are the product of historical processes related to land-use, environmental degradation, poverty, industrial and agricultural growth and change, amongst others. The reduction of these risks

requires a multiplicity of complex and complimentary interventions which are many times seen to be socially, economically, culturally or politically in-viable. Relocation of multiple communities, massive reforestation, expensive protection infrastructure, dragging of rivers or retrofitting of buildings amongst these. This type of intervention searches to compensate historical "errors", errors that explain a good part of disaster loss today.

This type of intervention in multiple differing sectorial and spatial contexts is well-developed in UN Agency documents. This is particularly so in FAO guidelines where very detailed information on types of mitigation interventions is provided. These correspond to different intervention types and strategies. It is these types and strategies that should be highlighted in any Inter-agency guideline document, as opposed to mandate specific actions and types.

A preliminary attempt at classification of compensatory primary risk reduction types is presented below for illustrative purposes (classification is inevitably difficult given that certain categories may be located in different types)

i. Hazard Reduction:

- ***Structural Engineering or Mechanical Mechanisms***:
    - Hazard exposure-limiting mechanisms: dykes, retaining walls, frost furnaces, lahar deviation structures, dams, barrages etc.
    - Water management mechanisms: irrigation channels, well and aqueduct construction, etc.
- ***Environmental (Urban and Rural) Management Mechanisms***:
    - River basin management: re-forestation, controls on aquifer depletion, terracing, etc.
    - Protective barriers: tree planting for windbreaks, protection of dykes and flood control etc.
    - Climate modification: seeding of clouds, fog creation, etc.
    - Solid, gaseous and liquid waste or pollutant controls: cleaning of urban drainage systems, removal of artificial dams and lagoons, control over existing discharge of toxic fluids into water systems, control over emission of toxic gases etc.
    - Land-use management: protection of erosionable soils, protection of fragile soils and ecosystems, desertification control techniques, relocation of settlements, infrastructure and buildings to non-hazard areas, etc.
    - Transport planning mechanisms: changes in the routing and movement of dangerous substances by land, air and water,
    - Biotic and plague control mechanisms: natural biotic controls, elimination of residual deposits of water, etc.

ii. Vulnerability Reduction:

- ***Economic and social:***
    - Governmental social and economic policies and instruments that affect the employment, income, educational and welfare status of vulnerable groups and areas.
    - Social investment and compensatory funds.

- Development of mechanisms for social protection: insurance schemes, disaster reserve funds, etc.
- Empowerment of local population and groups.
- Crop diversification and the introduction of resistant strains in drought or flood prone areas.
- Diversification of productive options in rural and urban areas

- ***Physical/Structural:***

  - Retrofitting of infrastructure and buildings

- ***Organisational/Institutional***:

  - Promotion of local, sectorial and territorial development organisations.
  - Decentralisation in favour of local political and civil society organisations.
  - Strengthening of horizontal and vertical integration mechanisms.

- ***Educational/Cultural/Ideological***:

  - Curricula reform at different formal educational levels with regard to risk, disaster, environment and development.
  - Informal education and training in the risk and disaster areas.

Prospective Risk Control.

Compensatory mechanisms deal with existing risk. Prospective control mechanisms search to avoid the creation of new risk related to future social and economic development. That is to say, guarantee that the risk associated with new investments, infrastructural development, population location, land use change, etc is maintained at acceptable levels. Given that population, investment, construction and production will more than double in most developing world countries over the next 35 years, prospective risk control must search to guarantee acceptable and adequate levels of risk in order to avoid the problems that have resulted from past growth and development models and paradigms.

Prospective risk management should be seen as a normal component of development and project planning and be put on a par with such parameters as gender equality, environmental impact and poverty alleviation in the design of development schemes and projects. As such it is erroneous to see this type of activity as being a legitimate component of **disaster** prevention and mitigation or risk **reduction.** The objective is precisely to avoid having to reduce risk in the future or to prevent and mitigate disasters because of errors committed in the development stage of projects and investments. However, although this type of activity is not a legitimate component of "risk reduction" it is a fundamental and necessary component of **Risk Management.**

The application of risk control mechanisms in new developments under non disaster conditions can be extended to include investments made in the wake of disaster and contemplated in disaster rehabilitation and reconstruction. In general risk control is less onerous economically, socially and politically than compensatory mechanisms

Risk control mechanisms are varied in scope, including the following generic types (many of these are clearly parallel to those used in compensatory risk reduction; others can be introduced in a final formulation of the problem):

- ***Land Use and Territorial Planning***: Urban and rural zoning regulations guaranteeing location and production in hazard free or acceptable hazard locations, territorial organisation in lieu of risk management parameters.
- ***Building or Construction Codes and Regulations***: Guaranteeing the use of hazard resistant methods, techniques and materials.
- ***Technological innovation in building materials***: development and use of socially accessible and appropriate hazard resistant building materials in different environments.
- ***Organisational and institutional innovation in lieu of risk control and management***.
- ***Incorporation of mechanisms for social protection in new development schemes:*** insurance coverage, reserve funds, etc.
- ***River basin and ecosystem management techniques guaranteeing hazard control.***
- ***Diversification of production.***
- ***Legal and social controls over pollutants.***

b. Preparedness.

Preparedness includes a series of mechanisms that attempt to guarantee that society is in a position to reduce disaster losses under given primary risk conditions. As such it is a type of secondary prevention or mitigation that reduces social vulnerability given existing primary risk contexts or scenarios. As has been mentioned previously, preparedness essentially comprises educational, organisational, planning and logistical tools and procedures. These may be classified in the following manner (multiple different activities are contemplated within each of the different types of preparedness activity):

- ***Environmental monitoring, early warning, alert and evacuation or protection mechanisms***: Procedures that permit the monitoring of the environment on a permanent basis in order to predict and prognosticate future or impending hazardous events, warn and alert the population and elicit adequate and timely evacuation and protection of goods and belongings.
- ***Emergency or Disaster Response Plans and Logistical Procedures:*** Including the design and testing of inter-sectorial and inter-organisational plans for immediate disaster response, including the establishment of Emergency Operations Centres, the assignation of roles, the training of impact assessment teams, the identification and provision of necessary human, material and infrastructural resources and accompanying logistical procedures etc. Plans may exist at the national, regional, local community or family levels.
- ***Emergency Response Education at Multiple levels:*** This is in function of the need to secure adequate responses and participation of multiple different individuals and organisations in the instrumentation of Emergency or Disaster Response plans.

c. Emergency or Disaster Response.

Risk reduction or control seen from the perspective of Emergency Response relates more to the mechanisms and procedures employed than to the particular tasks and objectives as such. However, as stated previously, all disaster relief operations are essentially concerned with the elimination or reduction of secondary or derived risk variables.

Risk reduction can be considered in terms of the efficacy of undertaking response activities within a framework guided by development principles. This includes:

- **Self-sufficiency as opposed to dependency.**
- **Capacity building, organisational strengthening and use and enhancement of local capacities.**
- **Use of local resources and products as opposed to those imported from outside.**
- **Incorporation of local actors and organisations in the logistics of relief activities.**
- **Rapid re-stimulation of the local economy and creation of employment opportunities.**
- **Learning about risk in the wake of disaster.**

d. Rehabilitation and Reconstruction.

Here, the approaches and options are very similar to those discussed in the framework of Prospective Risk Control. A fundamental difference resides in the fact that reconstruction takes place in areas and with population groups that have already suffered disaster and where a good deal will be known as regards existing risk scenarios. Moreover, the problem of recovery in its psychological dimension is also present.

3.2.2 Basic Methodologies for Risk Management: Risk Evaluation and Impact and Needs Assessment.

The different generic types or subsets of activities associated with risk management require a series of differing types of methodologies and instruments. However, there are a limited number of methodologies or instruments which cross phases or types of intervention and are of more generalised value and use. All UN Agency guideline or technical documents refer to and describe these methods, although differences exist in terms of precise definition and specifications. Here, we refer to risk analysis and valuation procedures and impact and needs assessment methodologies. These two types of instrument are common to all UN agencies whatever their mandate may be. In this sense, in risk and disaster contexts it is clearly far more convenient and efficient to provide a single integrated risk and impact evaluation than multiple ones according to the particular interests of different agencies. This holds in general for all risk and disaster actors whether part of the UN System or not.

Risk Mapping, Scenarios, Analysis and Assessment:

A detailed quantitative and qualitative understanding of risk, its causal factors and social incidence is critical for the planning and development of risk reduction, risk control and disaster preparedness and response. Risk analysis and evaluation comprise methodologies or tools that are of wide-scale use for a number of risk and disaster management related exercises.

Up to the past decade, hazard notions dominated disaster work and hazard mapping was a common practice amongst disaster actors. With the advent of vulnerability considerations, vulnerability mapping notions appeared on the scene as a compliment to hazard mapping considerations. Both of these exercises have been plagued with conceptual and definitional problems. Thus hazard maps were many times referred to as risk maps, whilst vulnerability was also equated with risk leading to the same error.

Moreover, what were depicted as hazard maps were in fact many times maps of potential physical events but not necessarily of hazards as such. It has become very clear that in order to provide a hazard or vulnerability map, analysis or assessment, these two risk variables must be considered together. It is impossible to map or assess hazard without at the same time considering vulnerability, in the same way as it is impossible to map vulnerability without considering the hazards which give the notion of vulnerability validity. Hazard defines vulnerability and vice-versa.

The way out of this impasse has been found with the increasing development of composite notions and methodologies revolving around the idea of "risk analysis and assessment or evaluation". Risk is taken as the macro- concept or notion and analysis or evaluation is subject to the incorporation of considerations as regards hazard and vulnerability, the two dominant risk variables. Risk analysis will produce both maps and quantitative and qualitative written statements. Not all risk analysis can be depicted in maps.

UN Agency literature and guidelines use different approaches and terminology when faced with the risk analysis problem and little consistency may be found between different agencies. Thus, whilst WHO/EHA consider hazard and vulnerability mapping and analysis as well as risk analysis and evaluation, WFP seems to limit itself to vulnerability analysis and mapping and FAO to the notions of risk and vulnerability profiles. In this latter case no definition or distinction between risk and vulnerability is made whilst the fact that vulnerability is a component of risk is passed over without comment.

There would seem to be a need for some type of homogenous approach and criteria to be provided and developed as regards these methodological and practical notions. Moreover, in the light of recent developments it may be appropriate to also consider the evolving notion of **risk scenarios** which incorporates risk, vulnerability and hazard analysis ideas but which goes somewhat further in projecting analysis into a causal framework. That is to say, existing conditions of risk are dimensioned in terms of process, and the social actors behind the creation of risk are identified.

Overall it would seem pertinent to attempt to develop common definitions, methodological guidelines and indications as to the techniques that may be employed with reference to the following tools or instruments:

Risk Analysis and Assessment or Evaluation.
Hazard Analysis and Assessment.
Vulnerability Analysis and Assessment.
Risk Scenarios.

Here it must be recognised that analysis and assessment or evaluation is not the same thing. Analysis should provide an objective view of the existing context whilst assessment incorporates subjective and value judgement notions which permit decisions to be taken in terms of intervention in favour of risk reduction. The notions of objective and acceptable risk are important in this context.

As has been indicated and is recognised in UN agency literature, these analytical and assessment tools are of critical importance for risk reduction and control in the framework of mitigation, preparedness, and response and reconstruction activities.

Impact Analysis and Needs Assessment

These two complimentary tools or methodologies are commonly referred to in UN agency documents. The results of the application of these methodologies are of critical importance in guiding response activities and in providing critical information for rehabilitation and reconstruction work. Given that all agency interventions in response and reconstruction schemes require this type of analysis, no matter what their own particular mandate, common guidelines methodologies and understanding is required as regards definition, content and method.

3.3 THE RISK REDUCTION PROCESS AND THE UN ANALYTICAL AND PLANNING METHODOLOGIES: CCA AND UNDAF.

In the second section of the present document, the manner in which risk and disaster considerations are incorporated in the CCA and UNDAF guidelines has been summarised.

Clearly, these two programming and planning tools offer an excellent mechanism for promoting a concerted and co-ordinated approach to the risk and disaster problem between different UN agencies and between these and national governments and civil society representations.

Seen in terms of the distinction between risk analysis and risk assessment or evaluation, one obvious way of relating to the UN programming instruments is to see the first aspect as part of the CCA methodology and the second as part of the UNDAF framework.

Thus, the CCAs should incorporate analysis presented in the form of constructed risk scenarios for the country. These should be arrived at in a consensual and collaborative manner with the participation of UN agencies, national governments and civil society representatives, and utilising available or specifically constructed information bases on hazard and vulnerability parameters.

The UNDAFs should include a programming approach to risk reduction based on a prior process of risk assessment. Priority problems should be identified, their relations to other development parameters and goals specified, and criteria should be developed as regards the particular role to be played by different UN agencies in collaboration with other relevant national and international actors.

The mechanisms and methodologies to be employed in order to facilitate these tasks must be the object of development in any Interagency Risk Reduction Guidelines.

4. CONCLUSIONS

The analysis presented in the present document indicates varying problems as regards common definitions and use of concepts between UN agencies concerned with risk reduction. Moreover, definitions and concepts, methodologies and instruments are not always cognisant of modern debates and developments. A preliminary attempt has been made in this document to resolve these aspects and contradictions. This includes definitional options and conceptual precision.

In general one of the principle problems faced relates to the manner in which concepts and definitions, methodologies and instruments do not evolve at the same pace as do ideas and notions on the risk and disaster problematic. At times there is an attempt to utilise outmoded definitions and concepts adjusting them to new contexts and problems. This is particularly true in a context where “risk” is the dominant concept and concern but definition and notions still take disaster as the primary point of reference. In this context a concerted attempt should be made to modernise ideas and thought, definitions and concepts in accord with modern thought on the topic. This must be the basis for the definition of

common guidelines of utility in an Inter-agency context. Here, risk must be in the centre of the debate and definition, and not disaster as such.

GUIDELINES CONTENT AND STRUCTURE: A DETAILED OUTLINE

In this final major section of our document a proposal is presented as regards the structure and generic contents of a future fully developed Interagency Guidelines document on the introduction of risk reduction concerns in UN agency and interagency analytical and planning procedures.

The content proposal rests heavily on the debate and attempt at conceptual and definitional clarity provided in the previous sections of the present document. No attempt is made to develop a fully - fledged guideline document. Rather, we limit ourselves here to the provision of an explicit outline of the chapters we believe this guideline should include, and a succinct detail of the contents and considerations that should be dealt with in each chapter. This will provide a starting point for consultations and discussion within an interagency framework and recommendations in terms of the final product to be achieved. Seen from the author's perspective the guidelines should establish an adequate balance between conceptual and theoretical clarity and development and pragmatic notions and procedures related to the introduction of risk reduction parameters and procedures in development planning schemes and activities.

1.Introduction.

An introduction to the Guidelines, where objectives, content and structure are made explicit. This should include the notions of:

- The search to establish common definitions and concepts related to the task of introducing risk reduction and control parameters and procedures in UN agency activities and actions, with particular reference to the CCA and UNDAF methodologies.
- The establishment of a basis for interagency collaboration and consensus.
- The search for minimum acceptable levels of homogeneity in the criteria and procedures utilised by UN agencies, within the context of the heterogeneity of interests and agency mandates.
- The provision of clear guidelines and check lists of factors to be taken into account in the introduction of risk reduction parameters in UN agency development planning procedures, projects and activities.

2. Concepts and Definitions Relevant to the Understanding of the Risk and Disaster Processes.

The understanding of risk and disaster as social processes and as the object of social intervention and control is aided by the use of a limited number of key concepts and definitions. And, by a clear specification of the complexity these exhibit in reality. This is seen in the existence of differing types and hierarchies of risk factors and "disasters" or "damaging events". Concepts, definitions, types and hierarchies must be made explicit from the outset, including the following:

- Physical phenomena and dangerous or hazardous events.
- Risk, hazard, and vulnerability.
- Hazards, hazardous or dangerous events and vulnerability types.
- Distinctions between rapid onset and creeping or slow onset hazards. Distinctions between simple hazard types and complex, concatenated and multi-hazard contexts.

- The social construction of risk, unsustainable/sustainable development, and environmental degradation. Risk scenarios.
- Adaptation, resilience and capacities or capabilities.
- Disasters and catastrophes. Emergencies. Complex emergencies. Damaging small, medium and large-scale events, or small, medium and large-scale disasters.

3. Risk and Disaster, Development and Sustainability.

In this chapter, a reasonably brief and concise discussion would be offered as regards the process by which risk is constructed in society and the manner in which risk is transformed into contexts of loss and damage or, in some cases, disaster. The themes and factors that should be presented include the following:

- The social construction of risk and the processes of social change and economic growth.
- Changing risk scenarios in the light of changing economic growth and development models or paradigms. The challenges associated with globalisation and changing risk patterns and factors.
- Risk as dynamic and changing. Changes in hazard and vulnerability factors.
- The social distribution of risk and disaster loss.
- The territorial dimensions of risk: the spatial connotations and differences in risk causation and disaster loss.
- The social distribution of risk and disaster loss.
- Risk and disaster as criteria and parameters for measuring unsustainability. Security as a development indicator.
- Disaster risk and social risk in general. The relations between every day risk and disaster risk. The coincidence in the social distribution of every day risk and disaster risk. The problem of poverty and vulnerability and their relationships.

4. Concepts, Definitions and Activities Related to the Risk Management or Risk Reduction Process.

Risk reduction and risk management practice depends, in the first instance, on an adequate understanding of the processes by which risk is constructed in society. It also depends on an adequate understanding of the methodologies, procedures, instruments and activities that may be employed in favour of risk reduction and control, and of the way these relate to other development management practices. Concept, an understanding of relationships and sequences and a common understanding of terminology must inform these practices. The guideline document should clearly specify management concepts and definitions, approaches to risk management, and the sequences and relationships that exist between different management procedures according to the nature of the risk to be intervened. Amongst the more salient concepts, definitions and activities that must be covered in the guidelines, the following are of particular importance:

- Risk management as an integrating concept and practice that cuts across sectors and territories and across the range of so called Disaster Cycle or Disaster Continuum phases and activities.
- Redefinition of the Disaster Cycle notion in the light of risk management concept and practice.
- Risk management and the relationship and integration with environmental, territorial and development planning in general.
- Risk dynamics and the transformation of risk conditions throughout the Disaster Cycle or Continuum. The idea of primary or structural risk and secondary, derived or transformed risk during pre and post event contexts.

- Risk management in the different "disaster cycle" phases- prevention, mitigation, preparedness, response, rehabilitation and reconstruction. The concept and practice of "Bridging Relief and Development" and "Reconstruction with Transformation".
- The notions of Compensatory and Prospective Risk Management. Risk reduction and risk control. Prospective risk management and development planning. Sectorial and territorial approaches to risk reduction and control.
- Classification of different hazard, vulnerability and risk reduction and control instruments, mechanisms and practices related to compensatory and prospective risk management.
- Check lists of factors to be taken into account in risk reduction management practice related to different sectors, regional contexts and highly vulnerable groups.

5. Risk Reduction and the Common Country Analyses- CCAs.

The series of notions, concepts, definitions, and practice analysed in previous chapters of the Guidelines are all of direct interest, utility and need in terms of the introduction of risk reduction criteria, parameters and practice in the construction of UN System Common Country Analyses and Development Assistance Frameworks- UNDAFs- and as regards UN practice and policy in general.

With regard to the CCA documents, risk management issues should be considered utilising the notion of Risk Scenarios. Such scenarios should be incorporated in the CCAs. These scenarios are the product of what is traditionally known as "Risk Analysis". In order to facilitate this process, the guidelines should incorporate considerations relating to:

- The construction of scenarios for key sectors, regions and population groups.
- Techniques for hazard, vulnerability and risk analysis. Principle primary and secondary information sources. Historical patterns of disaster damage and loss at the national, regional and local levels.
- Aspects relating to the social dimensions of risk, including the social actors involved in the construction of risk at the national, regional and sectorial levels, and the institutional and organisational structures available or required for risk reduction (institutional vulnerability or capabilities).
- Prospective analysis or risk scenarios given existing economic, demographic, social and territorial trends

6. Risk Reduction and the UN Development Assistance Frameworks-UNDAFs.

The incorporation of risk reduction aspects and considerations in UNDAFs will be facilitated by the inclusion of the following aspects in the guideline document:

- Risk evaluation procedures and techniques and their application in the context of previously defined risk scenarios.
- The notions and practical application of considerations relating to acceptable, tolerable, manageable and unacceptable risk. Cost benefit, ethical and social justice criteria as regards decisions on acceptable risk levels.
- Risk reduction criteria, parameters and instruments related to priority development sectors and projects too be promoted in the future.
- Compensatory risk reduction: criteria for justifying intervention: economic, social and political rewards.
- Incorporation of risk reduction parameters and practice in post impact reconstruction scenarios.

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