



Annex 1

Terminology: Basic terms of disaster risk reduction

Throughout this global review the ISDR secretariat presents main terms related to disaster risk reduction to practitioners and experts for their consideration and further refinement. They are based on a broad collection of different international sources, with the purpose of developing common understanding of terminology on disaster reduction, useful for the public, authorities and practitioners. This is a continuing effort to be reflected in future reviews, responding to a need expressed in several international venues, regional commentary and national responses to the ISDR questionnaire.

Acceptable risk

The level of loss a society or community considers acceptable given existing social, economic, political, cultural and technical conditions.

In engineering terms, acceptable risk is also used to describe structural and non-structural measures undertaken to reduce possible damage at a level, which does not harm people and property, according to codes or “accepted practice” based, among other issues, on a known probability of hazard.

Biological hazard

Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Examples of biological hazards: outbreaks of epidemic diseases, plant or animal contagion, insect plagues and extensive infestations.

Building codes

Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure for human safety and welfare. Building codes include both technical and functional standards.

Capacity

A combination of all the strengths and resources available within a community or organisation that can reduce the level of risk, or the effects of a disaster.

Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.

Capacity building

Efforts aimed to develop human skills within a community, organisation or institution needed to reduce the level of risk.

In extended understanding, capacity building also includes development of institutional, financial and other resources, such as technology at different levels and sectors of the society.

Climate change

Refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer).

Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC, 2001).

Coping capacity

The manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster phenomenon or process.

The strengthening of coping capacities usually builds resilience to withstand the effects of natural and other hazards.

Counter measures

All measures taken to counter and reduce disaster risk. They most commonly referred to engineering (structural) measures but can also include other non-structural measures and tools designed and employed to avoid or limit the adverse impact of natural hazards and related environmental and technological disasters.

Disaster

A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources.

A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster risk reduction (disaster reduction)

The systematic development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development.

The disaster risk reduction framework, as described in this review, is composed of:

- Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;
- Knowledge development including education, training, research and information;
- Public commitment and institutional frameworks, including organisational, policy, legislation and community action;
- Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;
- Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

Early warning

The provision of timely and effective information, through identified institutions, that allow individuals at risk of a disaster, to take action to avoid or reduce their risk and prepare for effective response.

Early warning systems consist of three elements (i) forecasting and prediction of impending events, (ii) processing and dissemination of warnings to political authorities and population, and (iii) undertaking appropriate reaction to warnings.

Ecosystem

A system of interacting living organisms together with their physical environment.

The boundaries of what could be called an ecosystem are somewhat arbitrary, depending on the focus of interest or study. Thus the extent of an ecosystem may range from very small spatial scales to, ultimately, the entire Earth (IPCC, 2001).

El Niño-southern oscillation (ENSO)

An irregularly occurring pattern of abnormal warming of the surface coastal waters off Ecuador, Peru and Chile. This coupled atmosphere-ocean phenomenon is associated with the fluctuation of intertropical surface pressure pattern and circulation in the Indian and Pacific oceans, called the Southern Oscillation.

There have been a number of attempts to define El Niño, both quantitatively and qualitatively, but none has achieved universal recognition. This phenomenon triggers a shift in seasonal patterns of weather systems over many subtropical and mid-latitude parts of the globe.

La Niña is the opposite of an El Niño event, during which waters in the west Pacific are warmer than normal and trade winds are stronger.

Emergency management

The organisation, management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation.

Emergency management involves the plans, structures and arrangements which are established to bring together the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to deal with the whole spectrum of emergency needs. This is also known as disaster management.

Environmental impact assessment (EIA)

Study undertaken in order to assess the effect on a specified environment of the introduction of any new factor, which may upset the ecological balance.

EIA is a policy making tool that serves to provide evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilised extensively in national programming and for international development assistance projects. An EIA must include a detailed risk assessment and provide alternatives solutions.

Environmental degradation

Processes induced by human behaviour and activities (sometimes combined with natural hazards), that damage the natural resource base or adversely alter natural processes or ecosystems. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.

Some examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise, ozone depletion.

Forecast

Definite statement or statistical estimate of the occurrence of a future event (UNESCO, WMO).

This term is used with different meaning in different disciplines, as well as "prediction".

Geological hazard

Natural earth processes or phenomena, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Geological hazard

includes processes of a geological, neotectonic, geophysical, geomorphologic, geotechnical and hydrogeological nature.

Examples of geological hazards are: earthquakes, tsunamis; volcanic activity and emissions; mass movements (landslides, rockslides, rockfall, liquefaction, submarine slides, etc.); subsidence, surface collapse and geological fault activity.

Geographic information systems (GIS)

Computer programmes that combine a relational database with spatial interpretation and outputs in form of maps. A more elaborate definition is that of a system for capturing, storing, checking, integrating, analysing and displaying data about the earth that is spatially referenced. It is normally taken to include a spatially referenced database and appropriate applications software.

Geographical information systems are increasingly being utilised for hazard and vulnerability mapping and analysis, as well as for the application of disaster risk reduction measures and its management.

Greenhouse gas (GHG)

A gas, such as water vapour, carbon dioxide, methane, chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), that absorbs and re-emits infrared radiation, warming the earth's surface and contributing to climate change (UNEP, 1998).

Hazard

A potentially damaging physical event, phenomenon and/or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) and/or induced by human processes (environmental degradation and technological hazards). Hazards can be combined, sequential or combined in their origin and effects. Each hazard is characterised by its location, intensity, frequency and probability.

Hazard analysis

Identification, studies and monitoring of any hazard to determine its potentiality, origin, characteristics and behaviour.

Hydrometeorological hazards

Natural processes or phenomena of atmospheric, hydrological or oceanographic nature, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Examples of hydrometeorological hazards are: floods, debris and mud flows; tropical cyclones, storm surges, thunder/hailstorms, rain and wind storms, blizzards and other severe storms; drought, desertification, wild-land fires, heat waves, sand or dust storms; permafrost and avalanches.

La Niña

(see El Niño-southern oscillation).

Land-use planning

Branch of physical planning that determines the most desirable way land should be used. Involves land-use studies and mapping, analysis of data acquired, formulation of alternative land-use decisions and design of a long-range land-use plan for different geographical and administrative scales.

Land-use planning can help to mitigate disasters and reduce risks by discouraging settlements and construction of key installations in hazard prone areas, control of population density and expansion, and the siting of service routes in transport, power, water, sewerage and other critical facilities.

Mitigation

Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Natural hazards

Natural processes or phenomena occurring in the biosphere that may constitute a damaging event.

Natural hazards can be classified by origin in: geological, hydrometeorological or biological.

Preparedness

Activities and measures taken in advance to ensure effective response to the impact of disaster, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location.

Prevention

Activities to provide outright avoidance of the adverse impact of hazards and related environmental, technological and biological disasters.

Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education, prevention refers to changing attitude and behaviour towards a "culture of prevention".

Public awareness

The processes of informing the general population, increasing their levels of consciousness about risks and how to take action to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster.

Public awareness activities support a change in behaviour leading towards a culture of prevention. This involves public information, dissemination, education, radio or television broadcasts and the use of printed media, as well as, the establishment of disaster information centres and networks.

Public information

Information, facts and knowledge provided or learned as a result of research or study, which is public, open to the people as a whole.

Recovery

Decisions and actions taken after a disaster with a view to restoring the living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk.

Recovery (rehabilitation and reconstruction) is an opportunity to develop and apply disaster risk reduction measures.

Relief / response

The provision of assistance and/or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.

Resilience / resilient

The capacity of a system, community or society to resist or to change in order that it may obtain an acceptable level in functioning and structure. This is determined by the degree to which the social system is capable of organising itself, and the ability to increase its capacity for learning and adaptation, including the capacity to recover from a disaster.

Retrofitting (or upgrading)

Reinforcement of structures in order to be more resistant to the forces of natural hazards.

Retrofitting involves consideration of changes in the mass, stiffness, damping, load path and ductility and can involve radical changes such as the introduction of energy absorbing dampers and base isolation systems. Examples of retrofitting includes the consideration of wind loading to strengthen and minimize the wind force, or in earthquake prone areas, the strengthening of structures by adding shear walls.

Risk

The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions. Conventionally risk is expressed by the equation $\text{Risk} = \text{Hazards} \times \text{Vulnerability} / \text{Capacity}$.

Beyond expressing a probability of physical harm, it is crucial to appreciate that risks are always created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share

the same perceptions of risk and their underlying causes.

Risk assessment/analysis

A process to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability/capacity that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

The process of conducting a risk assessment is based in a review of both technical features of hazards such as their location, intensity, frequency, and probability, and also the analysis of the physical, social and economic dimensions of vulnerability, while taking particular account of the coping capabilities pertinent to the risk scenarios.

Risk reduction measures

The development and application of policies, procedures and capacities of the society and communities to lessen the negative impacts of a possible impact of natural hazards and related environmental and technological disasters. This includes structural and non structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, as well as the development of coping capabilities.

Risk management

The systematic management of administrative decisions, organisation, operational skills and responsibilities to apply policies, strategies and practices for *disaster risk reduction*.

Structural measures

Engineering measures and construction of hazard-resistant and protective structures and infrastructure

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of “needs”, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limi-

tations imposed by the state of technology and social organization on the environment's ability to meet present and the future needs. (Brundtland Commission, 1987).

Sustainable development is based on socio-cultural development, political stability and decorum, economic growth and ecosystem protection, which all relate to disaster risk reduction.

Technological hazards

Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Some examples: industrial pollution, nuclear activities and radioactivity, toxic wastes, dam failures; transport, industrial or technological accidents (explosions, fires, spills).

Vulnerability

A set of conditions and processes resulting from physical, social, economical, and environmental factors, which increase the susceptibility of a community to the impact of hazards.

Positive factors, that increase the ability of people and the society they live in, to cope effectively with hazards, that increase their resilience, or that otherwise reduce their susceptibility, are considered as capacities.

Wildland fire

Any unplanned and uncontrolled fire regardless of ignition, that may damage or benefit land of recognised value to a society.