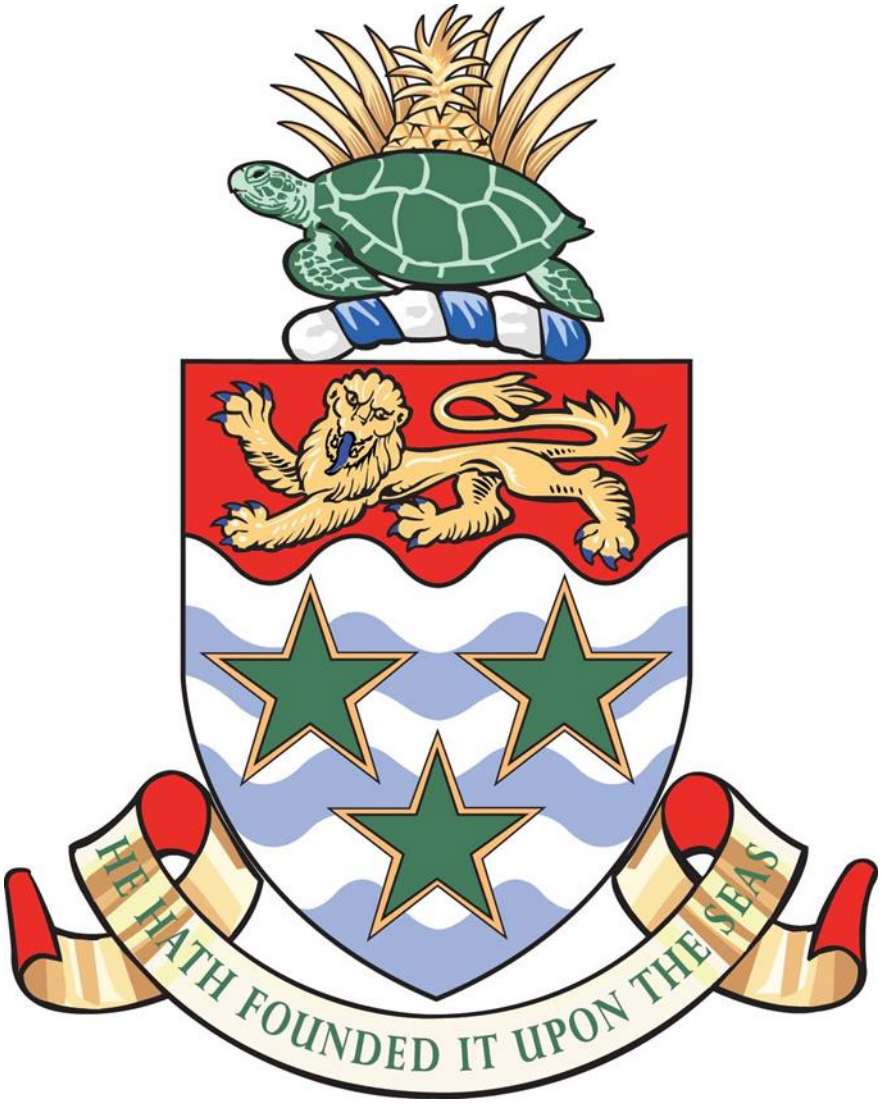
A STRATEGIC FRAMEWORK FOR DISASTER RISK MANAGEMENT FOR THE CAYMAN ISLANDS



HAZARD MANAGEMENT CAYMAN ISLANDS

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A STRATEGIC FRAMEWORK FOR DISASTER RISK MANAGEMENT FOR THE CAYMAN ISLANDS

1. PURPOSE

This Strategic Framework is the key strategic tool for management of the hazards which threaten the Cayman Islands. The Framework captures the vision for disaster risk management and will guide the national risk management programme.

2. INTRODUCTION

The development of the National Strategic Framework for Disaster Risk Management is in keeping with Vision 2008, National Strategic Plan STRATEGY XV:
"We will support comprehensive contingency planning for natural and man-made disasters and incidents, to ensure the preservation of human life, protection of property and economic recovery of the country.

- Establish an Emergency Management Agency.
- Enact legislation which mandates preventative measures to mitigate natural and man-made disasters.
- Enhance Disaster Recovery Protocols.
- Establish a monetary reserve which will allow rapid social and economic recovery."

In addition it acknowledges global movement from response to a pro-active approach which prevents or reduces risk and thus provides greater public safety and economic stability.

Disaster Risk Management entails prevention, preparedness, mitigation, response and recovery for any hazard. It is achieved through policy, administrative and legal instruments and procedures as well as operational procedures.
Disaster Risk Reduction aims to reduce damage and losses to the population, infrastructure and economy, from the impact of a hazard.

There is a global recognition that prevention and mitigation interventions are the most cost effective approaches in the bid to reduce the losses from the impact of hazards. The concept of risk management embodies all aspects of managing the potential impact of hazards. These are prevention, preparedness, mitigation, response, relief and recovery and rehabilitation.

The term comprehensive disaster management is also used sometimes as a synonym for disaster risk management. Comprehensive disaster management is the approach which has been agreed on in the regional context, and is promoted by the Caribbean Disaster Emergency Response Agency (CDERA).
At the 2005 World Conference on Disaster Reduction in Hyogo, Japan, the international community adopted the Hyogo Framework for Action which establishes a global framework for disaster risk reduction. The Priorities under the Hyogo Framework are:

1. Ensure that disaster risk reduction is a national priority with a strong institutional basis for implementation

2. Identify, assess and monitor disaster risks and enhance early warning

3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels

4. Reduce the underlying risk factors

5. Strengthen disaster preparedness for effective response at all levels

The Cayman Islands National Strategic Framework for Disaster Risk Reduction is closely aligned to this international framework. Indeed, the decision by the Government of the Cayman Islands to establish a dedicated office for disaster risk management is in keeping with Priority 1 above. A strong institutional basis will also require establishment of legislation and appropriate policies for risk management.

Regional and International partnerships and exchanges is also be an integral part of the framework. In addition to other Overseas Territories, the Cayman Islands have established partnerships with other Caribbean Territories and forged relationships with Regional Organizations such as CDERA, PAHO and international organizations such as the International Strategy for Disaster Reduction, among others.

The Cayman Islands has in the past concentrated on hurricanes in its emergency management planning. There is however a growing recognition that although hurricanes may present the highest probability threat, other threats exist and must be planned for. The December 2004 magnitude 6.8 earthquake was a reminder that the country is vulnerable to this hazard.

Past events as well as future threats demonstrate the need for a multi-hazard approach to planning for the Cayman Islands. It is vital, therefore, that a multi- hazard approach to managing the country's threats be developed. Credible threats which must be addressed include major transportation accidents, earthquakes, hazardous materials incidents, major fires, and major medical emergencies and epidemics.

The increasingly accepted effects of global climate change and the global reality of terrorism must also be factored into the country's hazard assessment as potential threats.

Projections for global climate change indicate that changes in climate parameters such as rainfall, temperature, mean sea-level and storm/hurricane frequency and intensity may be expected. In the region, a rising sea level would increase risks of coastal erosion and inundation, threatening key tourism, energy, and transportation and communications infrastructure. In addition, warmer waters may cause the bleaching and extinction of coral reefs which act as natural barriers against storm surges, tsunamis and other damaging coastal waves. The impact of these hazards upon island states, demonstrates a disproportionate impact not usually experienced by continental countries.

The Cayman Islands National Strategic Plan 1998 -2008 lists "comprehensive contingency planning" and establishment of a "national emergency management agency" among its strategies. The document also mentions prevention and mitigation as desirable activities to be undertaken to safeguard the country. The proposal for a national agency with a comprehensive mandate to lead the risk management process is therefore in keeping with the plans for national development.

In summary, there is a clear convergence of thinking on the necessity for a national agency for hazard and risk management utilizing a comprehensive approach.

The Disaster Risk Reduction Strategic (Policy) Framework recognizes the necessity and value of this comprehensive, multi-hazard approach and provides a context for its development and application.

3. AIM OF THE DISASTER RISK REDUCTION FRAMEWORK

The Framework will:

- Articulate the national vision for risk reduction
- Guide government policies
- Take a pro-active all-hazards, multi-agency approach to risk management
- Place the country's approach in alignment with regional and international norms
- Plan for the adaptation of best practice models to the local context
- Integrate risk reduction into national development at all levels and across all sectors
- Seek to engage all residents of Grand Cayman, Cayman Brac and Little Cayman in the disaster risk management process
- Establish the Government's policy, roles and responsibilities on the national risk management programme

4. VISION

The National Disaster Risk Management Programme of the Cayman Islands will provide a safe environment for the population from natural and man-made disasters. It will do so by emphasizing prevention and mitigation as national priorities and by maintaining a high standard of preparedness for all hazards.

5. VALUES

- Stakeholder buy-in through education and public consultation
- The government will recognize its responsibilities for public safety by supporting the programme through the provision of adequate resources.
- Each individual is accountable for his or her safety.
- Resource management will be governed by transparent processes.
- Each stakeholder's role and contribution will be recognized and valued.
- Adoption of best practices and high standards, in keeping with international standards and local needs.
- Empowerment of communities to manage their risk.
- Respect for the heritage and culture of the Cayman Islands

6. GENERAL PRINCIPLES/PARAMETERS

- Achievement of consensus through a consultative process

- Commitment to a comprehensive approach to risk management, including prevention, preparedness, mitigation, response and recovery
- Ensuring public safety through maintaining a high level of community preparedness
- Providing residents with adequate information, capacity and skills to allow them to take responsibility for their personal safety
- All levels of Government must be committed to consistently improving their risk management programmes to ensure reduction of impact on the country from hazards, and to maintain public safety
- Establishment of agreements with local and overseas service providers for assistance
- Establishment of Inter-agency agreements and partnerships to achieve common goals
- Cooperation with Regional, International and Corporate partners to further the cause of disaster risk management locally and regionally

7. ELEMENTS OF THE FRAMEWORK

The major elements of the Framework are:

- POLICY AND GOVERNANCE
- RISK ASSESSMENT
- RISK MAPPING
- MITIGATION
- PREPAREDNESS
- PUBLIC AWARENESS AND EDUCATION
- RESPONSE
- RELIEF
- RECOVERY AND REHABILITATION
- POST IMPACT EVALUATION

8. POLICY AND GOVERNANCE

8.0 Policy Statement

National Policies provide clear direction which guide priorities, resource allocation, and accountability for the national disaster risk management programme. Hazard Management Cayman Islands is responsibility for the implementation of the national disaster risk management programme.

8.1 Goal

Risk management outcomes are achieved through the development and implementation of sound policies and mechanisms for effective governance

8.2 Strategies

a. Ensure policy development process is participatory

b. Disaster risk management to be integrated into all public sector work programmes and to be financed by annual budgetary allocations

c. Ensure that adequate financial resources are made available through the budget for implementation of policies and programmes by responsible public sector entities

d. Clear and transparent decision making through consultation and communication

e. Consistent and impartial application and enforcement of policies and regulations

f. Ongoing reviews of the risk management system to:-

   i. Clearly define roles and responsibilities
   ii. Define channels of communication
   iii. Ensure transparency of the decision-making process

g. Integrate risk reduction into strategic and corporate plans at all levels of government, the private sector, economy and communities

h. Develop adequate supporting legislation for disaster risk management structures, policies and programmes, and update existing partner legislation as necessary

8.3 Key Performance Indicators

a. Clearly defined and documented roles and responsibilities of all actors, agencies and organizations in the disaster risk management system

b. Policies have benefitted from public consultation

c. Legislation developed and passed

d. Relevant existing legislation updated and appropriate regulations added

9. RISK ASSESSMENT

Risk assessment is the process of evaluating and quantifying the threat of various hazards to the country. Risk assessments identify hazards, their probability of occurrence, vulnerability to these hazards, probable impact and cost of this impact, and can be carried out at any level, community to national, or for any sector. Risk assessments are needed, among other things, for effective disaster risk reduction planning, sustainable development planning, identifying high risk areas, identifying mitigation and loss reduction strategies and developing preparedness and response plans. Risk assessments are also important for setting risk management priorities.

9.0 Policy Statement

Risk assessments, including socio-economic impacts, will guide national development and will be required for all development projects.

9.1 Goal

Risk Assessments are used to ensure public safety and to contribute to sustainable national development.

9.2 Strategies

a. Use of risk assessments prior to development and implementation of any national risk reduction programme

b. Ensure engagement between developers of corporate and residential sites and planning authorities to enhance the social and environmental acceptability and success of developments

c. Use of risk assessments to inform all housing, infrastructural, commercial/industrial developments

d. Risk assessments and environmental impact assessments to include public dialogue and to inform planning of projects in environmentally sensitive areas

e. Ensure objective and accurate risk assessments by adhering to best practice models

f. Ensure outcomes are clearly articulated and are available to entire country through public consultations

g. Ensure adequate research to inform risk assessments

h. Ensure ongoing update of risk assessments by establishment of hazard and risk database, ongoing research and periodic update of data base and assessments

9.3 Key Performance Indicators

a. Risk assessments are completed, kept updated and available to the public

b. Risk assessments are utilized by government agencies to inform planning

10. RISK MAPPING

Risk mapping is the spatial representation of risk through the use of maps. Typically these maps will show the probability of occurrence of the hazard, the area at threat from the hazard and the facilities/resources at risk. If a value has been assigned to the facilities or resources, a dollar value can be calculated for probable loss.

10.0 Policy Statement

Risk mapping will be conducted for all hazards, and will be updated at regular intervals to capture changing risk patterns and emerging threats.

10.1 Goal

Risk maps are prepared for all major hazards and the entire country

10.2 Strategies

a. Ensure accurate risk mapping by adherence to best practice models

b. Ensure risk maps are kept current by ongoing risk analysis and updating of maps at prescribed intervals

c. Ensure maps are freely available to entire country

d. Ensure use of maps integrated into national development at all levels and across all sectors

10.3 Key Performance Indicators

a. Risk maps produced and updated regularly

b. Risk maps easily available to public

c. National development reflects input of risk mapping

11. MITIGATION

Mitigation is the process of reducing the impact of hazards and thus saving lives and reducing damage. Implementation of mitigation measures results in the saving of costs through reduced damage and faster recovery. Calculations of cost: benefit ratios can be used to quantify probable savings.

11.0 Policy Statement

Mitigation measures to reduce identified risk must be explicitly stated in all development applications and must be assessed by technical agencies prior to any final approval.

11.1 Goal

Reduced risk through maximum resilience for country and natural environment

11.2 Strategies

a. Position mitigation as the primary method of increasing resilience

b. Ensure mitigation programmes aligned with risk assessments

c. Integrate mitigation into all government policies and programmes

d. Improve land use management through the use of hazard data base and assessments, and risk maps to inform decision-making

e. Apply building codes stringently for all structures

f. Ensure review and update of codes and standards to meet emerging or changing threats

g. Integrate mitigation into education curricula

h. Establish indicators to track performance in mitigation/risk reduction

i. Declare Specially Vulnerable Areas and No Build Zones based on risk analysis and mapping

11.4 Key Performance Indicators

a. Indicators show improved resilience of communities and systems

b. Mitigation priorities determined by risk assessments

12. PREPAREDNESS

Preparedness arrangements ensure that if a threat exists, it can be detected and that available resources to meet that threat can be efficiently mobilized and deployed.

12.0 Policy Statement

Government will maintain a state of maximum preparedness through the provision of necessary resources to the public sector, and will require the private sector to adhere to local preparedness standards.

12.1 Goal

State of maximum preparedness for identified threats achieved and maintained for country

12.2 Strategies

a. Ensure adequate monitoring and forecasting capability for all threats

b. Ensure warning and alerting systems adequate and functional

c. Ensure timely release of alerts and warnings to public

d. Ensure existence of hazard management plans from community to national level, and for all sectors, and carry out regular exercises of these plans.

e. Ensure alignment of plans with credible scenarios

f. Ensure plans address business continuity for all sectors including government

g. Develop local capacity through training and development of community hazard management teams and NGO network

h. Capture local capacity in community teams and volunteers

i. Adequately resource national preparedness programme

j. Integrate preparedness into national education curricula

k. Establish benchmarks for public sector preparedness, including development of plans

l. Ensure private sector accepts and discharges responsibility for their preparedness

m. Ensure adequate shelter arrangements for persons displaced by disaster

12.3 Key Performance Indicators

a. All necessary hazard management plans in place

b. Systems in place for testing and reviewing plans including worst case scenarios

c. An informed and aware population

d. Communities self-sufficient for initial response

e. Benchmarks established and achieved

13. PUBLIC AWARENESS AND EDUCATION

This is the processes of informing the general population about the hazards affecting the country and how they can act 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 aim to foster changes in behavior leading to a national culture of prevention and mitigation. Activities include information dissemination, education, radio or television broadcasts, use of printed media, as well as the establishment of information centers and networks and community participatory activities.

13.0 Policy Statement

Government will position public awareness and education as the primary tool for achieving an informed population that accepts responsibility for personal safety and is committed to disaster prevention and mitigation.

13.1 Goal

An informed population committed to a culture of prevention and mitigation

13.2 Strategies

a. Create a high level of public awareness and knowledge through ongoing public education and awareness programmes

b. Delineate roles and responsibilities for public awareness, including alerting, warning, mitigation and recovery

c. Integrate media into public awareness programme and define their role

d. Ensure schools' public education programme including drills

e. Ensure availability of adequate public awareness material through waiving of inter-departmental service agreements, fees and other mechanisms as necessary

f. Integrate disaster risk management into education curricula

g. Ensure Education curricula aligned with national policy on disaster risk management

13.3 Key Performance Indicators

a. Disaster risk management principles visible in education curricula

b. Public awareness material freely available in appropriate form

c. Public aware of major hazards and precautionary measures for protection

14. RESPONSE

Disaster Response encompasses those actions taken immediately before, during and after the impact of a hazard to safeguard life and property and to ensure that the immediate effects are minimized.

14.0 Policy Statement

Government will provide the tools and resources needed to ensure swift and efficient responses to threats and emergencies in order to save lives and safeguard property

14.1 Goal

Efficient and effective response results in saving lives, protecting property and minimizing suffering and damage

14.2 Strategies

a. Develop appropriate and effective forecasting and early warning systems

b. Ensure adequate means of communication and warning for public

c. Establish standards for operational efficiency

d. Ensure adequate operational capacity for response across all sectors
a. and levels

e. Ensure existence of coordinating focal point for multi-hazard responses

f. Ensure delineation and documentation of roles and responsibilities

g. Ensure development of standard operating procedures and other appropriate tools for enhancing response

h. Document assessment procedures and ensure immediate post-impact assessment capacity

14.4 Key Performance Indicators

a. Response standards met or exceeded for all responses

b. Warnings result in appropriate action by public

15. DISASTER RELIEF

Disaster relief entails addressing the immediate needs of the affected population by provision of medical care, shelter, psychological and welfare support.

15.0 Policy Statement

Government will provide relief assistance to the most vulnerable, and will recognize the roles of the international community and the private and volunteer sectors in relief operations.

15.1 Goal

Efficient dispensing of relief minimizes suffering and dislocation after a disaster

15.2 Strategies

a. Establish standards for dispensing of relief assistance

b. Ensure adequate provisions for immediate dispensing of post impact assistance

c. Ensure transparent system for reception and distribution of relief supplies

d. Develop holistic approach to welfare management for affected population, including care for special populations such as children, the elderly and persons with disabilities

e. Ensure means of obtaining feedback from affected communities on relief operations

f. Adequate communication to ensure affected communities are kept apprised of all actions being taken

g. Ensure relief operations do not compromise or increase vulnerability to future events

15.3 Key Performance Indicators

a. Relief operations meet or exceed stated standards

b. Special needs populations adequately managed during relief operations

c. Country's resilience not compromised by relief operations

16. RECOVERY (REHABILITATION AND RECONSTRUCTION)

These terms cover short to long term recovery from a disaster. Often, recovery is said to comprise rehabilitation – short term restoration of services, access etc., and longer term reconstruction. Recovery operations need to be carefully planned to ensure that rehabilitation does not cause more damage, e.g. to the environment, and that reconstruction increases resilience.

16.0 Policy Statement

A national recovery plan, which includes mitigation and vulnerability reduction, and permits rapid recovery will guide recovery operations.

16.1 Goal

Recovery completed within shortest timeframe with improved resilience

16.2 Strategies

a. Ensure recovery procedures documented

b. Ensure priorities for recovery identified and agreed on

c. Ensure economic and business continuity

d. Ensure recovery operations include adequate mitigation and prevention provisions

e. Ensure environmental recovery included in recovery and rehabilitation plans and efforts

f. Establish benchmarks for successful recovery programmes

g. Economic Continuity Subcommittee involved in recovery planning and process

h. Establish national fund for disaster recovery

16.3 Key Performance Indicators

a. Recovery plans documented and reflect adequate risk reduction measures

b. Environmental recovery plans documented

c. Benchmarks achieved or exceeded in recovery process

d. Social recovery plans documented

17. POST-IMPACT EVALUATIONS

These evaluations are designed to a) confirm good practices, b) identify variance from standards, c) identify areas in need of improvement and increased focus for mitigation interventions, d) raise confidence levels of the public and business community and e) identify areas where interventions are needed. Evaluations will lead to improvements in the national disaster risk management system and programmes and therefore increased preparedness for any future events.

17.0 Policy Statement

Post-impact evaluations will be done for all major events and results will be made public and inform the revision of plans and procedures.

17.1 Goal

Post-impact assessments improve the quality of the national disaster risk management programme and hazard management capability through feedback loop.

17.2 Strategies

a. Develop, adapt or adopt evaluation tools for emergency management process as well as impact management

b. Undertake post-impact evaluations using developed methodologies

c. Capture and document lessons learnt

d. Involve affected communities in evaluations

e. Use results to modify procedures and structures to improve national disaster risk management plans and programmes

f. Ensure results of evaluation used to inform recovery and rehabilitation processes

17.3 Key Performance Indicators

a. Post-impact evaluations completed for all major or significant events

b. Risk management programme improved by integration of evaluation results

c. Emergency management capacity enhanced by application of lessons learnt

REQUIREMENTS FOR SUCCESSFULLY IMPLEMENTING THE NATIONAL STRATEGIC FRAMEWORK

1. Development of Disaster Risk Management Legislation which will provide the mandate and legal authority for implementing/applying the national strategic framework is required. The legislation should also specify any and all institutions which will be necessary.

2. Updating of all relevant legislation related to matters of the environment, planning, health, safety and national development will be necessary to adequately capture prevention and mitigation aspects, as well as emerging threats. Where necessary, legislation should also speak to roles and responsibilities of positions or posts which are necessary for the success of the risk management programme.

3. Establishment of Institutional Framework – The full time office and other structures will be required to fully implement the disaster risk management programme. The present NHC and sub-committees can be adapted for multi-hazard approaches. The need for other structures, such as a National Mitigation Committee, should be assessed, and the structures established. This will require inclusion of agencies and organisations which may not now be included in the National Hurricane Committee.

4. The full time office's strategic plan will be based on priorities of the National Strategic Framework (NSF), and the agency's corporate plan and work programmes will be derived from these priorities. The NSF should also guide all public sector entities in development and implementation of their disaster risk management programmes.

5. Integration of disaster risk reduction (DRR) into plans/programmes of public sector agencies, as well as into the private sector is important if the national disaster risk management programme is to be successful. There are several regional and international initiatives which are seeking to develop methods for 'mainstreaming' DRR into national sustainable development. There is therefore opportunity for the Cayman Islands to benefit from these initiatives directly – through participation in projects or indirectly, through application of results.

APPENDIX 1 – GLOSSARY OF TERMS

Terminology: Basic terms of disaster risk reduction

The ISDR Secretariat presents these basic definitions on disaster risk reduction in order to promote a common understanding on this subject, for use by the public, authorities and practitioners. The terms are based on a broad consideration of different international sources. This is a continuing effort to be reflected in future reviews, responding to a need expressed in several international venues, regional discussions and national commentary. Feedback from specialists and other practitioners to improve these definitions will be most welcome.

The following terminology is based on the 2009 version. The terms are now defined by a single sentence. The comments paragraph associated with each term is not part of the definition, but is provided to give additional context, qualification and explanation. It should be noted that the terms are not necessarily mutually exclusive, and in some cases may have overlapping meanings.

Acceptable risk
The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Comment: In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or "accepted practice" which are based on known probabilities of hazards and other factors.
30 Aug 2007

Adaptation
The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Comment: This definition addresses the concerns of climate change and is sourced from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The broader concept of adaptation also applies to non-climatic factors such as soil erosion or surface subsidence. Adaptation can occur in autonomous fashion, for example through market changes, or as a result of intentional adaptation policies and plans. Many disaster risk reduction measures can directly contribute to better adaptation.
23 Jan 2009

Biological hazard
Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of biological hazards include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations.
30 Aug 2007

Building code
A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

Comment: Building codes can include both technical and functional standards. They should incorporate the lessons of international experience and should be tailored to national and local circumstances. A systematic regime of enforcement is a critical supporting requirement for effective implementation of building codes.
30 Aug 2007

Capacity
The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Comment: Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity also may be described as capability. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.
23 Jan 2009

Capacity development
The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.
23 Jan 2009

Climate change
(a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".
(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".

Comment: For disaster risk reduction purposes, either of these definitions may be suitable, depending on the particular context. The UNFCCC definition is the more restricted one as it excludes climate changes attributable to natural causes. The IPCC definition can be paraphrased for popular communications as "A change in the climate that persists for decades or longer, arising from either natural causes or human activity."

30 Aug 2007

Contingency planning
A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Comment: Contingency planning results in organized and coordinated courses of action with clearly-identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or disaster events, it allows key actors to envision, anticipate and solve problems that can arise during crises. Contingency planning is an important part of overall preparedness. Contingency plans need to be regularly updated and exercised.
23 Jan 2009

Coping capacity
The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Comment: The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks.
30 Aug 2007

Corrective disaster risk management
Management activities that address and seek to correct or reduce disaster risks which are already present.

Comment: This concept aims to distinguish between the risks that are already present, and which need to be managed and reduced now, and the prospective risks that may develop in future if risk reduction policies are not put in place. See also Prospective risk management.
23 Jan 2009

Critical facilities
The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Comment: Critical facilities are elements of the infrastructure that support essential services in a society. They include such things as transport systems, air and sea ports, electricity, water and communications systems, hospitals and health clinics, and centres for fire, police and public administration services.
23 Jan 2009

Disaster
A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.
30 Aug 2007

Disaster risk
The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Comment: The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped, in broad terms at least.
23 Jan 2009

Disaster risk management
The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Comment: This term is an extension of the more general term "risk management" to address the specific issue of disaster risks. Disaster risk management aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.
30 Aug 2007

Disaster risk reduction
The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is "The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries." The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organisations and civil society actors to assist in the implementation of the Framework. Note that while the term "disaster reduction" is sometimes used, the term "disaster risk reduction" provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.
30 Aug 2007

Disaster risk reduction plan
A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Comment: Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within relevant development plans, resource allocations and programme activities. National level plans needs to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to climate change adaptation plans should be made where possible.
23 Jan 2009

Early warning system
The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of

the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.
30 Aug 2007

Ecosystem services
The benefits that people and communities obtain from ecosystems.

Comment: This definition is drawn from the Millennium Ecosystem Assessment. The benefits that ecosystems can provide include "regulating services" such as regulation of floods, drought, land degradation and disease, along with "provisioning services" such as food and water, "supporting services" such as soil formation and nutrient cycling, and "cultural services" such as recreational, spiritual, religious and other non-material benefits. Integrated management of land, water and living resources that promotes conservation and sustainable use provide the basis for maintaining ecosystem services, including those that contribute to reduced disaster risks.
30 Aug 2007

El Niño-southern oscillation
A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.

Comment: The El Niño part of the El Niño-Southern Oscillation (ENSO) phenomenon refers to the well-above-average ocean temperatures that occur along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while La Niña part refers to the opposite circumstances when well-below-average ocean temperatures occur. The Southern Oscillation refers to the accompanying changes in the global air pressure patterns that are associated with the changed weather patterns experienced in different parts of the world.
30 Aug 2007

Emergency management
The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Comment: A crisis or emergency is a threatening condition that requires urgent action. Effective emergency action can avoid the escalation of an event into a disaster. Emergency management involves plans and institutional arrangements to engage and guide the efforts of government, non-government, voluntary and private agencies in comprehensive and coordinated ways to respond to the entire spectrum of emergency needs. The expression "disaster management" is sometimes used instead of emergency management.
30 Aug 2007

Emergency services
The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Comment: Emergency services include agencies such as civil protection authorities, police, fire, ambulance, paramedic and emergency medicine services, Red Cross and Red Crescent societies, and specialized emergency units of electricity, transportation, communications and other related services organizations.
23 Jan 2009

Environmental degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Comment: Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities. The types of human-induced degradation are varied and include land misuse, soil erosion and loss, desertification, wildland fires, loss of biodiversity, deforestation, mangrove destruction, land, water and air pollution, climate change, sea level rise and ozone depletion.
30 Aug 2007

Environmental impact assessment
Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision-making processes with a view to limiting or reducing the adverse impacts of the project or programme.

Comment: Environmental impact assessment is a policy tool that provides evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and project approval processes and for international development assistance projects. Environmental impact assessments should include detailed risk assessments and provide alternatives, solutions or options to deal with identified problems.
30 Aug 2007

Exposure
People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Comment: Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.
23 Jan 2009

Extensive risk
The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts.

Comment: Extensive risk is mainly a characteristic of rural areas and urban margins where communities are exposed to, and vulnerable to, recurring localised floods, landslides storms or drought. Extensive risk is often associated with poverty, urbanization and environmental degradation. See also "Intensive risk".
23 Jan 2009

Forecast
Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area.

Comment: In meteorology a forecast refers to a future condition, whereas a warning refers to a potentially dangerous future condition.
30 Aug 2007

Geological hazard
Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Geological hazards include internal earth processes, such as earthquakes, volcanic activity and emissions, and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows. Hydrometeorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.
30 Aug 2007

Greenhouse gases
Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

Comment: This is the definition of the Intergovernmental Panel on Climate Change (IPCC). The main greenhouse gases (GHG) are water vapour, carbon dioxide, nitrous oxide, methane and ozone.
30 Aug 2007

Hazard
A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are "… hazards of natural origin and related environmental and technological hazards and risks." Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological hazard; Hydrometeorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.
30 Aug 2007

Hydrometeorological hazard
Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Hydrometeorological hazards include tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heatwaves and cold spells. Hydrometeorological conditions also can be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material
30 Aug 2007

Intensive risk
The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss.

Comment: Intensive risk is mainly a characteristic of large cities or densely populated areas that are not only exposed to intense hazards such as strong earthquakes, active volcanoes, heavy floods, tsunamis, or major storms but also have high levels of vulnerability to these hazards. See also "Extensive risk.
23 Jan 2009

Land-use planning
The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Comment: Land-use planning is an important contributor to sustainable development. It involves studies and mapping; analysis of economic, environmental and hazard data; formulation of alternative land-use decisions; and design of long-range plans 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, including consideration of service routes for transport, power, water, sewage and other critical facilities.
30 Aug 2007

Mitigation
The lessening or limitation of the adverse impacts of hazards and related disasters.

Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "mitigation" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.
30 Aug 2007

National Platform for Disaster Risk Reduction
A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

Comment: This definition is derived from footnote 10 of the Hyogo Framework. Disaster risk reduction requires the knowledge, capacities and inputs of a wide range of sectors and organisations, including United Nations agencies present at the national level, as appropriate. Most sectors are affected directly or indirectly by disasters and many have specific responsibilities that impinge upon disaster risks. National platforms provide a means to enhance national action to reduce disaster risks, and they represent the national mechanism for the International Strategy for Disaster Reduction.
03 Jul 2008

Natural hazard
Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the latent hazard conditions that may give rise to future events. Natural hazard events can be characterized by their magnitude or intensity, speed of onset, duration, and area of extent. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be coupled, as in the flood caused by a hurricane or the tsunami that is created by an earthquake.
30 Aug 2007

Preparedness
The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Comment: Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term "readiness" describes the ability to quickly and appropriately respond when required.

30 Aug 2007

Prevention
The outright avoidance of adverse impacts of hazards and related disasters.

Comment: Prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.
30 Aug 2007

Prospective disaster risk management
Management activities that address and seek to avoid the development of new or increased disaster risks.

Comment: This concept focuses on addressing risks that may develop in future if risk reduction policies are not put in place, rather than on the risks that are already present and which can be managed and reduced now. See also Corrective disaster risk management.
23 Jan 2009

Public awareness
The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

Comment: Public awareness is a key factor in effective disaster risk reduction. Its development is pursued, for example, through the development and dissemination of information through media and educational channels, the establishment of information centres, networks, and community or participation actions, and advocacy by senior public officials and community leaders.
30 Aug 2007

Recovery
The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the "build back better" principle.
30 Aug 2007

Residual risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

Comment: The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms.
23 Jan 2009

Resilience
The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Comment: Resilience means the ability to "resile from" or "spring back from" a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need.
30 Aug 2007

Response
The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Comment: Disaster response is predominantly focused on immediate and short-term needs and is sometimes called "disaster relief". The division between this response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage.
23 Jan 2009

Retrofitting
Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Comment: Retrofitting requires consideration of the design and function of the structure, the stresses that the structure may be subject to from particular hazards or hazard scenarios, and the practicality and costs of different retrofitting options. Examples of retrofitting include adding bracing to stiffen walls, reinforcing pillars, adding steel ties between walls and roofs, installing shutters on windows, and improving the protection of important facilities and equipment.
30 Aug 2007

Risk
The combination of the probability of an event and its negative consequences.

Comment: This definition closely follows the definition of the ISO/IEC Guide 73. The word "risk" has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in "the risk of an accident"; whereas in technical settings the emphasis is usually placed on the consequences, in terms of "potential losses" for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

See other risk-related terms in the Terminology: Acceptable risk; Corrective disaster risk management; Disaster risk; Disaster risk management; Disaster risk reduction; Disaster risk reduction plans; Extensive risk; Intensive risk; Prospective disaster risk management; Residual risk; Risk assessment; Risk management; Risk transfer.
30 Aug 2007

Risk assessment
A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Comment: Risk assessments (and associated risk mapping) include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes known as a risk analysis process.
30 Aug 2007

Risk management
The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Comment: Risk management comprises risk assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimise risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards. Risk management is a core issue for sectors such as water supply, energy and agriculture whose production is directly affected by extremes of weather and climate.
23 Jan 2009

Risk transfer
The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Comment: Insurance is a well-known form of risk transfer, where coverage of a risk is obtained from an insurer in exchange for ongoing premiums paid to the insurer. Risk transfer can occur informally within family and community networks where there are reciprocal expectations of mutual aid by means of gifts or credit, as well as formally where governments, insurers, multi-lateral banks and other large risk-bearing entities establish mechanisms to help cope with losses in major events. Such mechanisms include insurance and re-insurance contracts, catastrophe bonds, contingent credit facilities and reserve funds, where the costs are covered by premiums, investor contributions, interest rates and past savings, respectively.
23 Jan 2009

Socio-natural hazard
The phenomenon of increased occurrence of certain geophysical and hydrometeorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

Comment: This term is used for the circumstances where human activity is increasing the occurrence of certain hazards beyond their natural probabilities. Evidence points to a growing disaster burden from such hazards. Socio-natural hazards can be reduced and avoided through wise management of land and environmental resources.
23 Jan 2009

Structural and non-structural measures
Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;
Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Comment: Common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters. Common non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programmes. Note that in civil and structural engineering, the term "structural" is used in a more restricted sense to mean just the load-bearing structure, with other parts such as wall cladding and interior fittings being termed non-structural.
30 Aug 2007

Sustainable development
Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Comment: This definition coined by the 1987 Brundtland Commission is very succinct but it leaves unanswered many questions regarding the meaning of the word development and the social, economic and environmental processes involved. Disaster risk is associated with unsustainable elements of development such as environmental degradation, while conversely disaster risk reduction can contribute to the achievement of sustainable development, through reduced losses and improved development practices.
30 Aug 2007

Technological hazards
A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.
30 Aug 2007

Vulnerability
The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.
30 Aug 2007

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