

DISASTERS AND ECOSYSTEMS: RESILIENCE IN A CHANGING CLIMATE



TERMINOLOGY SELECTED ECOSYSTEM-BASED DISASTER AND CLIMATE CHANGE TERMINOLOGY

Adaptation - Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned. Examples are raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc.

Adaptation benefits - The avoided damage costs or the accrued benefits following the adoption and implementation of adaptation measures. **Adaptation costs** - Costs of planning, preparing for, facilitating, and implementing adaptation measures, including transition costs.

Adaptive capacity - The whole of capabilities, resources and institutions of a country or region to implement effective adaptation measures.

Biodiversity - The total diversity of all organisms and ecosystems at various spatial scales (from genes to entire biomes).

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. 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. Capacities are the 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 to disasters. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction*.)

Coping capacity - The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters. This capacity may differ according to demography, location, gender and other factors. 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. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction*.)

Climate - Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization. The relevant quantities are most often surface variables such as temperature, precipitation and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. In various parts of this report different averaging periods, such as a period of 20 years, are also used.

Climate change - A change in the state of the climate that can be identified 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 forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. In other words, a

change in the climate that persists for decades or longer, arising from either natural causes or human activity. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction; Intergovernmental Panel on Climate Change.*)

Climate change 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. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned. (Source: UN Framework Convention on Climate Change; Intergovernmental Panel on Climate Change.)

Climate scenario - A plausible and often simplified representation of the future climate, based on an internally consistent set of climatological relationships that has been constructed for explicit use in investigating the potential consequences of anthropogenic climate change, often serving as input to impact models. Climate projections often serve as the raw material for constructing climate scenarios, but climate scenarios usually require additional information such as about the observed current climate. A climate change scenario is the difference between a climate scenario and the current climate.

Climate variability - Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability). (Source: *Intergovernmental Panel on Climate Change.*)

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. 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. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction.*)

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. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction.*)

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. (Source: UNISDR. 2009. *Terminology of Disaster Risk Reduction.*)

Ecosystem - A system of living organisms interacting with each other and 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.

Ecosystem services - The benefits that people and communities obtain from ecosystems. These 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. (Source: *Millennium Ecosystem Assessment. 2005.; UNISDR. 2009. Terminology of Disaster Risk Reduction*)

Environment - The complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon individual organisms and communities, including humans, and ultimately determine their form and survival. It is also the aggregate of social and cultural conditions that influence the life of an individual or community. The environment includes natural resources and ecosystem services that comprise essential life-supporting functions for humans, including clean water, food, materials for shelter, and livelihood generation. (Source: *WWF and American Red Cross. 2010. The Green Recovery and Reconstruction Toolkit*)

Environmental degradation - The reduction of the capacity of the environment to meet social and ecological objectives and needs. 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. (Source: *UNISDR. 2009. Terminology of Disaster Risk Reduction*)

Exposure - People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses. Measures of exposure can include the number of people or types of assets in an area. (Source: *UNISDR. 2009. Terminology of Disaster Risk Reduction*)

Extreme weather event - An event that is rare at a particular place and time of year. Definitions of "rare" vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile of the observed probability density function. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense. Single extreme events cannot be simply and directly attributed to anthropogenic climate change, as there is always a finite chance the event in question might have occurred naturally. When a pattern of extreme weather persists for some time, such as a season, it may be classed as an extreme climate event, especially if it yields an average or total that is itself extreme (e.g., drought or heavy rainfall over a season).

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. Hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. Natural hazards are natural processes or phenomena, such as earthquakes, droughts and tropical cyclones, but their occurrence and scale of impact are often influenced by human-induced activities such as inappropriate land use, poor building codes and environmental degradation. (Source: *UNISDR. 2009. Terminology of Disaster Risk Reduction; PEDRR. 2010. Demonstrating the role of ecosystem-based management for disaster risk reduction*)

(Climate change) Impacts - The effects of climate change on natural and human systems. Depending on the consideration of adaptation, one can distinguish between potential impacts and residual impacts:

– Potential impacts: all impacts that may occur given a projected change in climate, without considering adaptation.

– Residual impacts: the impacts of climate change that would occur after adaptation.

Mitigation - Technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to Climate Change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks.

Natural resources - Natural resources are actual or potential sources of wealth that occur in a natural state, such as timber, water, fertile land, wildlife and minerals. A natural resource qualifies as a renewable resource if it is replenished by natural processes at a rate comparable to its rate of consumption by humans or other users. A natural resource is considered non-renewable when it exists in a fixed amount, or when it can not be regenerated on a scale comparative to its consumption. *(Source: PEDRR. 2010. Demonstrating the role of ecosystem-based management for disaster risk reduction)*

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. 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. *(Source: UNISDR. 2009. Terminology of Disaster Risk Reduction)*

Sustainable ecosystems or healthy ecosystems - Imply that ecosystems are largely intact and functioning, and that human demand for ecosystem services does not impinge upon the capacity of ecosystems to maintain future generations. *(Source: Sudmeier-Rieux, K. and Ash, N. 2009. Environmental guidance note for disaster risk reduction)*

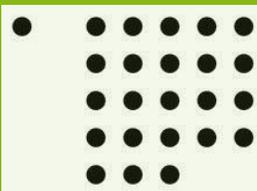
Vulnerability -The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability arises from various physical, social, economic, and environmental factors, such as poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. The losses caused by a hazard will be proportionally much greater for more vulnerable populations, e.g. those living in poverty, with weak structures, and without adequate coping capacities. *(Source: UNISDR. 2009. Terminology of Disaster Risk Reduction)*

SOURCES

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UNISDR (2009) Terminology http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

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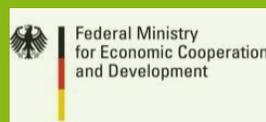
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