



## Key concepts for climate change adaptation

### climate

*simple definition:* Climate is the “average” weather over a long period of time – decades, centuries, millennia.

*full definition:* 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. These 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*. The classical period of time is 30 years, as defined by the World Meteorological Organization (WMO).

### weather

*simple definition:* Weather is something that happens on a daily basis in the atmosphere – air temperature, rain, snow, wind, etc.

*Full definition:* Weather is the state of the atmosphere, to the degree that it is hot or cold, wet or dry, calm or stormy, clear or cloudy. Most weather phenomena occur in the troposphere just below the stratosphere. Weather refers, generally, to day-to-day temperature and precipitation activity.

### climate variability

*simple definition:* Short-term change in climate caused by changes in the ocean and atmosphere. El Niño is an example of climate variability. Climate variability is not the same as climate change. Climate change also changes climate variability.

*full definition:* Climate variability refers to variations in the mean state and other statistics (such as standard deviations, statistics of extremes, etc.) of the *climate* on all temporal and spatial 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).

### climate change

*simple definition:* Change in mean and extremes and variability caused by human interference.

*full definition:* 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 (UNFCCC)

### vulnerability

*simple definition:* The potential to be harmed.

*full definition:* Vulnerability is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.

## impacts

*simple definition:* The manifestation of vulnerability. The damage caused by climate and weather-related hazards.

*full definition:* 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.

## adaptation

*simple definition:* Actions taken to *reduce vulnerability* to actual or expected changes in climate.

*Full definition:* Adaptation is an 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 can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation. (IPCC TAR, 2001 a).

## mitigation

*simple definition:* Actions to reduce the sources or increase the sinks of greenhouse gases.

*full definition:* An anthropogenic intervention to reduce the anthropogenic forcing of the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks.

## mainstreaming

The incorporation of initiatives, measures, strategies to reduce ... vulnerability to climate change into other existing policies, programs, resource management structures, and other livelihood enhancement activities, so that adaptation to climate change becomes part of, or consistent with, other... sectoral programs. (ADB)

## REDD (Reducing Emissions from Deforestation and Forest Degradation)

Actions designed to use market and financial incentives to reduce greenhouse gas emissions from deforestation and forest degradation. Because the goal of REDD is to reduce carbon in the atmosphere, it is considered a mitigation strategy.

## disaster risk reduction (DRR)

Disaster Risk Reduction aims to reduce socio-economic vulnerabilities to disaster as well as dealing with the environmental and other hazards that trigger them. With climate change and the anticipated frequency and severity of extreme weather events and thus potential disaster, DRR has become increasingly important. There is a lot of overlap between DRR and climate change adaptation activities, however, DRR also includes reducing vulnerability to non-climate related events such as earthquakes, tsunamis, and volcanoes.

## maladaptation

An adaptation action that leads to increased vulnerability to climate. Maladaptation often results from short-sighted planning, where short-term benefits are gained, either knowingly or unknowingly, cause the situation to become worse in the future or cause additional problems. Maladaptation can also result from

non-inclusive planning, where one group benefits from the adaptation action at the expense of another, for example, ensuring that people near the source of a river have water in times of drought could mean that people further downstream have less water.

### **community-based adaptation (CbA)**

A community-led process based on communities' priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of climate change. (*Hannah Reid, Mozaharul Alam, Rachel Berger, Terry Cannon, Saleemul Huq, and Angela Milligan, Community-based adaptation to climate change: an overview, 2010*). Most definitions of CBA, like this one, lack a mention of ecosystems.

### **ecosystem-based adaptation (EbA)**

The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. (IUCN) Note the main goal of ecosystem-based adaptation is to help PEOPLE adapt to climate change. Biodiversity and ecosystem services are means by which to help people. This term is often misunderstood and misused in the conservation community.

### **coping**

Coping refers to actions taken in response to an extreme event, like a storm or drought, to ensure survival and often results in a long-term decrease in wellbeing. For example, a farmer may need to sell his cow during a drought to provide income for his family. After the drought his family is poorer than they were before the drought. Coping is what happens in the absence of pro-active adaptation that reduces vulnerability of people and ecosystems to climate and extreme events.

### **resilience building**

Building resilience helps ensure that ecosystems and communities can return to a normal state of wellbeing following an extreme event or other climate-related disturbance. Resilience building is often referred to as "buying time." Many traditional conservation activities help build resilience to a changing climate. However, in many places where an increased frequency and severity of extreme events is anticipated, more pro-active adaptation measures that go beyond traditional conservation will be needed to ensure the wellbeing of ecosystems and communities.

### **development in a changing climate**

The goal of development is to enhance human wellbeing for the world's poor. Adaptation may help maintain current levels of human wellbeing, but this is not enough. In a changing climate, development activities must seek ways to improve human wellbeing AND build resilience to extreme events and other disturbances.

### **conservation in a changing climate**

Traditional conservation strategies assume a stationary climate and have as a goal to restore damaged ecosystems to a previous state or to preserve undamaged ecosystems. However, under conditions of a changing climate it is no longer possible to look to the past as a guide to what the world should look like. New ecosystems will be formed as the climate changes and species migrate. Success for conservation in the future will be to promote flexibility and facilitate change in ecosystems that minimize loss of biodiversity.