

Glossary

adaptation: Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment 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, public and private adaptation, and autonomous and planned adaptation.

anthropogenic emissions:

Emissions of greenhouse gases and aerosols associated with human activities. These include fossil fuel burning for energy, deforestation and land use changes that result in net increase in emissions.

atmosphere: The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen and oxygen, together with a number of trace gases such as argon, helium and radiatively active greenhouse gases such as carbon dioxide and ozone. In addition, the atmosphere contains water vapour, clouds, and aerosols.

biosphere: The part of the Earth's system comprising all ecosystems and living organisms in the atmosphere, on land (terrestrial biosphere), or in the oceans (marine biosphere), including derived dead organic matter such as litter, soil organic matter, and oceanic detritus.

carbon dioxide (CO₂): A naturally occurring gas as well as a by-product of burning fossil fuels and land-use changes and other industrial processes. It is the principal greenhouse gas which affects the Earth's radiative balance and the reference gas against which other greenhouse gases are measured.

chlorofluorocarbons (CFCs):

Greenhouse gases which are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. They are all covered under the 1987 Montreal Protocol. Since they are not destroyed in the lower atmosphere, CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds, including hydrochlorofluorocarbons, covered under the Kyoto Protocol.

Climate: 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 is 30 years as defined by the WMO. These relevant quantities are most often surface variables such as temperature, precipitation and wind.

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 forcings, or to persistent anthropogenic changes in the composition of the atmosphere. The 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'. See also climate variability.

climate variability: Variations in the mean state and other statistics (e.g.

standard deviations, the occurrence of extreme events 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 or to variations in natural or anthropogenic external forcing.

Disability Adjusted Life Year

(DALY): An indicator of life expectancy combining mortality and morbidity into one summary measure of population health to account for the number of years lived in less than optimal health. It is a health measure developed for calculating the global burden of disease which is also used by WHO, the World Bank and other organizations to compare the outcomes of different interventions.

El Niño/Southern Oscillation

(ENSO): El Niño, in its original sense, is a warm water current that periodically flows along the coast of Ecuador and Peru. This event is associated with a fluctuation of the intertropical surface pressure patterns and circulation in the Indian and Pacific Oceans, called the Southern Oscillation. This coupled atmosphere-ocean phenomenon is collectively known as the El Niño Southern Oscillation or ENSO. During an El Niño event, the prevailing trade winds weaken and the equatorial counter current strengthens, causing warm surface waters in the Indonesian area to flow eastward to overlie the cold waters of the Peru current. This event has great impact on the wind, sea surface temperature, and precipitation patterns in the tropical Pacific. It has climatic effects throughout the Pacific region and in many other parts of the world. The opposite of

an El Niño event is called La Niña.

greenhouse effect: Greenhouse gases absorb infrared radiation, emitted by the Earth's surface, the atmosphere itself due to the same gases and by clouds. Atmospheric radiation is emitted to all sides, including downward to the Earth's surface. Thus greenhouse gases trap heat within the surface-troposphere system. This is called the 'natural greenhouse effect'. Atmospheric radiation is strongly coupled to the temperature of the level at which it is emitted. An increase in the concentration of greenhouse gases leads to an increased infrared opacity of the atmosphere and therefore to an effective radiation into space from a higher altitude at a lower temperature. This causes a radiative forcing, an imbalance that can only be compensated for by an increase of the temperature of the surface-troposphere system. This is the 'enhanced greenhouse effect'.

greenhouse gases (GHGs): Those gases in the atmosphere which absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds. Water vapour, carbon dioxide, nitrous oxide, methane and ozone are the primary greenhouse gases in the atmosphere. Moreover, there are a number of entirely human-made gases in the atmosphere, such as the halocarbons and others dealt with under the Montreal and Kyoto Protocols.

impacts: Consequences of climate change on natural systems and human health. Depending on the consideration of adaptation, we can distinguish between potential impacts and residual impacts:

- Potential impacts are all impacts

that may occur given a projected change in climate, with no consideration of adaptation.

- Residual impacts are the impacts of climate change that can occur after adaptation.

Intergovernmental Panel on

Climate Change (IPCC):

A group of experts established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). Its role is to assess the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced climate change, based mainly on peer reviewed and published scientific/technical literature. The IPCC has three Working Groups and a Task Force.

monitoring: Performance and analysis of routine measurements aimed at detecting changes in the environment or health status of populations. Not to be confused with surveillance although surveillance techniques may be used in monitoring.

morbidity: Rate of occurrence of disease or other health disorder within a population, taking account of the age-specific morbidity rates. Health outcomes include: chronic disease incidence/prevalence, hospitalisation rates, primary care consultations and Disability-Adjusted-Life-Years (DALYs).

mortality: Rate of occurrence of death within a population within a specified time period.

ozone: Form of the element oxygen with three atoms instead of the two that characterise normal oxygen molecules. Ozone is an important greenhouse gas. The stratosphere contains 90 % of all the ozone present in the atmosphere which

absorbs harmful ultraviolet radiation. In high concentrations, ozone can be harmful to a wide range of living organisms. Depletion of stratospheric ozone, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B-radiation.

scenarios: A plausible and often simplified description of how the future may develop, based on a coherent and internally consistent set of assumptions about key driving forces and relationships. Scenarios are neither predictions nor forecasts and may sometimes be based on a narrative storyline.

sensitivity: Degree to which a system is affected by climate-related changes, either adversely or beneficially. The effect may be direct (e.g. a change in crop yield in response to temperature change) or indirect (e.g. damages caused by increases in the frequency of coastal flooding).

stratospheric ozone depletion: The reduction of the quantity of ozone contained in the stratosphere due to the release of greenhouse gases as a result of human activity.

stratospheric ozone layer: The stratosphere contains a layer in which the concentration of ozone is greatest, the so-called ozone layer. The layer extends from about 12 to 40 km. This layer is being depleted by human emissions of chlorine and bromine compounds. Every year, during the Southern Hemisphere spring, a very strong depletion of the ozone layer takes place over the Antarctic region, caused by human-made chlorine and bromine compounds in combination with the meteorological conditions of that region. This phenomenon is called the ozone hole.

surveillance: Continuous analysis, interpretation and feedback of systematically collected data for the detection of trends in the occurrence or spread of a disease, based on practical and standardized methods of notification or registration. Sources of data may be related directly to disease or factors influencing disease.

ultraviolet radiation (UVR): Solar radiation within a certain wavelength, depending on the type of radiation (A, B or C). Ozone absorbs strongly in the UV-C (< 280nm) and solar radiation in these wavelengths does not reach the earth's surface. As the wavelength is increased through the UV-B range (280nm to 315nm) and into the UV-A (315nm to 400nm) ozone absorption becomes weaker, until it is undetectable at about 340nm. The fractions of solar energy above the atmosphere in the UV-B and UV-A ranges are approximately 1.5% and 7% respectively.

UN Framework Convention on Climate Change (UNFCCC):

Convention signed at United Nations Conference on Environment and Development in 1992. Governments that become Parties to the Convention agree to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

vulnerability: The degree to which a system is susceptible to, or 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 variation to which a system is exposed, its sensitivity and its adaptive capacity.