



Climate Change Glossary of Terms

First in a series of four fact files exploring key climate change issues

Note: The definitions included in this glossary are quoted from the sources listed at the end of the document. In some cases, we've paraphrased the definition to make it easier to understand.

A

Acclimatisation – Physiological adaptation to climatic variations.

Active layer – The top layer of soil or rock in permafrost that is subjected to seasonal freezing and thawing.

Adaptation – 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, autonomous and planned adaptation.

Autonomous adaptation – Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems. Also referred to as spontaneous adaptation.

Adaptation assessment – The practice of identifying options to adapt to climate change and evaluating them in terms of criteria such as availability, benefits, costs, effectiveness, efficiency and feasibility.

Adaptation benefits – The avoided damage costs or the accrued benefits following the adoption and implementation of adaptation measures.

Adaptation/Adaptive capacity – The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Adaptation costs – Costs of planning, preparing for, facilitating, and implementing adaptation measures, including transition costs.

Aerosol – Solid or liquid particles in the atmosphere; typically between 0.01 and 10 micrometres and staying in the atmosphere for at least several hours.

Afforestation – Direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. See also reforestation and deforestation.

Aggregate impacts – Total impacts integrated across sectors and/or regions. The aggregation of impacts requires knowledge of (or assumptions about) the relative importance of impacts in

different sectors and regions. Measures of aggregate impacts include, for example, the total number of people affected, or the total economic costs.

Albedo – The portion of sunlight reflected by a surface. Ice has a high albedo; the ocean's surface has a low albedo.

Algae – Photosynthetic, often microscopic and planktonic, organisms occurring in marine and freshwater ecosystems.

Algal bloom – A reproductive explosion of algae in a lake, river or ocean.

Alpine – The biogeographic zone made up of slopes above the tree line, characterised by the presence of rosette-forming herbaceous plants and low, shrubby, slow-growing woody plants.

Anomaly – Deviation of a meteorological value such as temperature from a long-term baseline average.

Anthropogenic – Made by people or arising from the activities of people. Example: the carbon dioxide produced by burning fossil fuels.

Aquaculture – The managed cultivation of aquatic plants or animals such as salmon or shellfish held in captivity for the purpose of harvesting.

Aquifer – A stratum of permeable rock that bears water. An unconfined aquifer is recharged directly by local rainfall, rivers and lakes, and the rate of recharge will be influenced by the permeability of the overlying rocks and soils.

Aragonite – A calcium carbonate (limestone) mineral, used by shell- or skeleton-forming, calcifying organisms such as corals (warm-and cold-water corals), some macroalgae, pteropods (marine snails) and non-pteropod molluscs such as bivalves (e.g. clams, oysters), cephalopods (e.g. squids, octopuses). Aragonite is more sensitive to ocean acidification than calcite, also used by many marine organisms. See also calcite and ocean acidification.

Arbovirus – Any of various viruses transmitted by blood-sucking arthropods (e.g. mosquitoes, ticks, etc.) and including the causative agents of dengue fever, yellow fever, and some types of encephalitis.

Arid region – A land region of low rainfall, where 'low' is widely accepted to be <250 mm precipitation per year.

Atmosphere – The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen and oxygen, together with trace gases including carbon dioxide and ozone.

B

Baseline/reference – The baseline (or reference) is the state against which change is measured. It might be a ‘current baseline’, in which case it represents observable, present-day conditions. It might also be a ‘future baseline’, which is a projected future set of conditions excluding the driving factor of interest. Alternative interpretations of the reference conditions can give rise to multiple baselines.

Basin – The drainage area of a stream, river or lake.

BECCS (Bio-energy with carbon capture and storage) – A future greenhouse gas mitigation technology that produces negative carbon dioxide emissions by combining bioenergy (energy from biomass) use with geologic carbon capture and storage. The concept of BECCS is drawn from the integration of trees and crops that extract carbon dioxide (CO₂) from the atmosphere as they grow, the use of this biomass in processing industries or power plants, and the application of carbon capture and storage via CO₂ injection into geological formations.

Benthic community – The community of organisms living on or near the bottom of a water body such as a river, a lake or an ocean.

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

Biofuel – A fuel produced from organic matter or combustible oils produced by plants. Examples of biofuel include alcohol, black liquor from the paper-manufacturing process, wood, and soybean oil.

Biomass – The total mass of living organisms in a given area or volume. (May also be used to refer to organic matter that is used as a fuel or to make fuel, such as corn used to make ethanol).

Biosphere – All ecosystems and living organisms in the Earth’s 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.

Biota – All living organisms of an area; the flora and fauna considered as a unit.

Bog – Peat-accumulating acidic wetland.

Breakwater – A hard engineering structure built in the sea that protects a harbour, anchorage, beach or shore area. A breakwater can be attached to the coast or lie offshore.

C

C3 plants – Plants that produce a three-carbon compound during photosynthesis, including most trees and agricultural crops such as rice, wheat, soybeans, potatoes and vegetables.

C4 plants – Plants, mainly of tropical origin, that produce a four-carbon compound during photosynthesis, including many grasses and agriculturally important crops such as maize, sugar cane, millet and sorghum.

Calcareous organisms – A large and diverse group of organisms, many marine, that use calcite or aragonite to form shells or skeletons. See calcite, aragonite and ocean acidification.

Calcite – A calcium carbonate (limestone) mineral, used by shell- or skeleton-forming, calcifying organisms such as foraminifera, some macroalgae, lobsters, crabs, sea urchins and starfish. Calcite is less sensitive to ocean acidification than aragonite, also used by many marine organisms. See also aragonite and ocean acidification.

Capacity building – In the context of climate change, capacity building is developing the technical skills and institutional capabilities in developing countries and economies in transition to enable their participation in all aspects of adaptation to, mitigation of, and research on climate change, and in the implementation of the Kyoto Mechanisms, etc.

Cap-and-trade policies – The central idea is to control pollution by placing a limit (a cap) on how much can be emitted into the environment, and then providing economic incentives and flexibility for achieving the reductions through something called “emissions trading”.

Carbon credits – A government entity distributes emissions permits to regulated industries, limiting emissions so that the cuts set by law or treaty can be achieved (These permits can also be called “emissions allowances” or “pollution allowances”).

Carbon cycle – The term used to describe the flow of carbon (in various forms, e.g. carbon dioxide) through the atmosphere, ocean, terrestrial biosphere and lithosphere.

Carbon dioxide (CO₂) – A gas consisting of molecules made of one carbon and two oxygen atoms. Carbon dioxide occurs naturally in the atmosphere as a “trace gas” and is also produced by the burning of fossil fuels and biomass, as well as by land-use changes (such as deforestation) and industrial processes. It is the main “anthropogenic greenhouse gas”.

Carbon dioxide fertilisation – The stimulation of plant photosynthesis due to elevated CO₂ concentrations, leading to either enhanced productivity and/or efficiency of primary production. In general, C₃ plants show a larger response to elevated CO₂ than C₄ plants.

Carbon sequestration – The process of increasing the carbon content of a reservoir/pool other than the atmosphere.

Catchment – An area that collects and drains rainwater.

CDM (Clean Development Mechanism) – The CDM allows greenhouse gas emission reduction projects to take place in countries that have no emission targets under the United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol, yet are signatories.

Cholera – A waterborne intestinal infection caused by a bacterium (*Vibrio cholerae*) that results in frequent watery stools, cramping abdominal pain, and eventual collapse from dehydration and shock.

Climate – Climate in a narrow sense is usually defined as the “average weather”. More rigorously, it is a synthesis, characterised by long-term statistics (e.g. mean values, anomalies, extreme values, of temperature, precipitation, etc.) of weather conditions in a given geographical area. A statistical description of climate elements (such as temperature and precipitation) can extend over a period ranging from months to thousands or even millions of years. The classical period is 30 years.

Weather and climate are quite distinct, and here is one way to think about the difference: Climate is what you expect; weather is what you get. So in Copenhagen, the climate would lead you to expect cold and wet conditions in January (because that’s what long-term temperature and precipitation statistics clearly indicate). But it’s certainly possible that the weather might bring unusually warm and dry conditions.

Based on long-term statistics related to phenomena such as El Niño, scientists can make reasonable predictions about climatic trends in some regions (warmer or colder than average; drier or wetter than average) extending out several months. But it goes without saying that it would be utterly impossible to accurately predict what kind of weather to expect on a given day that far in advance.

Climate change – 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 processes or external “forcings”, or to persistent human-caused changes in the composition of the atmosphere or in land use. Climate change is often used interchangeably with global warming, but they are different. Global warming is an increase in the near-surface temperature of the Earth, making it a form of climate change.

Climate change commitment – Due to the thermal inertia of the ocean and slow processes in the biosphere, the cryosphere and land surfaces, the climate would continue to change even if the atmospheric composition was held fixed at today's values. Past change in atmospheric composition leads to a 'committed' climate change that continues for as long as a radiative imbalance persists and until all components of the climate system have adjusted to a new state. The further change in temperature after the composition of the atmosphere is held constant is referred to as the committed warming or warming commitment. Climate change commitment includes other future changes, for example in the hydrological cycle, in extreme weather events, and in sea-level rise.

Climate model – A numerical representation of the climate system based on the physical, chemical and biological properties of its components (e.g. atmosphere, oceans, land surface and ice), their interactions and feedbacks, and accounting for all or some of its known properties. Climate models are typically run on computers and vary in complexity. Simple models of the global climate can be run on a laptop. More complex coupled atmosphere/ocean/sea-ice general circulation models, or AOGCMs, require far more computing power in order to provide a comprehensive representation of the climate system.

Climate prediction – A climate prediction or climate forecast is the result of an attempt to produce an estimate of the actual evolution of the climate in the future, e.g. at seasonal, interannual or long-term time scales. See also: climate projection and climate (change) scenario.

Climate projection – The calculated response of the climate system to emissions or concentration scenarios of greenhouse gases and aerosols, or radiative forcing scenarios, often based on simulations by climate models. Climate projections are distinguished from climate predictions, in that the former critically depend on the emissions/concentration/radiative forcing scenario used, and therefore on highly uncertain assumptions of future socio-economic and technological development.

Climate (change) scenario – A plausible and often simplified representation of the future climate, based on an internally consistent set of climatological relationships and assumptions of radiative forcing, typically constructed for explicit use as input to climate change impact models. A 'climate change scenario' is the difference between a climate scenario and the current climate.

Climate sensitivity – The equilibrium temperature rise that would occur for a doubling of CO₂ concentration above pre-industrial levels.

Climate system – The climate system is defined by the dynamics and interactions of five major components: atmosphere, hydrosphere, cryosphere, land surface and biosphere. Climate system dynamics are driven by both internal and external forcing, such as volcanic eruptions,

solar variations, or human-induced modifications to the planetary radiative balance, for instance via anthropogenic emissions of greenhouse gases and/or land-use changes.

Climate threshold – The point at which external forcing of the climate system, such as the increasing atmospheric concentration of greenhouse gases, triggers a significant climatic or environmental event considered unalterable or recoverable only on very long timescales, such as widespread bleaching of corals or a collapse of oceanic circulation systems.

Climate variability – 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).

Coastal squeeze – The squeeze of coastal ecosystems (e.g. salt marshes, mangroves and mud and sand flats) between rising sea levels and naturally or artificially fixed shorelines, including hard engineering defences.

Coccolithophores – Single-celled microscopic phytoplankton algae that construct shell-like structures from calcite (a form of calcium carbonate).

Committed to extinction – This term describes a species with dwindling population that is in the process of inescapably becoming extinct in the absence of human intervention.

Communicable disease – An infectious disease caused by transmission of an infective biological agent (virus, bacterium, protozoan, or multicellular macroparasite).

Confidence – In this Report, the level of confidence in a statement is expressed using a standard terminology defined in the Introduction. See also uncertainty.

Control run – A model run carried out to provide a ‘baseline’ for comparison with climate-change experiments. The control run uses constant values for the radiative forcing due to greenhouse gases and anthropogenic aerosols appropriate to pre-industrial conditions.

Coral – The term ‘coral’ has several meanings, but is usually the common name for the Order Scleractinia, all members of which have hard limestone skeletons, and which are divided into reef-building and non-reef-building, or cold- and warm-water corals.

Coral bleaching – The paling in colour that results if a coral loses its symbiotic, energy-providing, organisms.

Coral reefs – Rock-like limestone (calcium carbonate) structures built by corals along ocean coasts (fringing reefs) or on top of shallow, submerged banks or shelves (barrier reefs, atolls); most conspicuous in tropical and subtropical oceans.

Cryosphere – The component of the climate system consisting of all snow and ice (including permafrost) on and beneath the surface of the Earth and ocean.

Cryptogams – An outdated but still-used term denoting a group of diverse and taxonomically unrelated organisms, including fungi and lower plants such as algae, lichens, hornworts, liverworts, mosses and ferns.

D

Deforestation – Natural or anthropogenic process that converts forest land to non-forest. See afforestation and reforestation.

Dengue fever – An infectious viral disease spread by mosquitoes, often called breakbone fever because it is characterised by severe pain in the joints and back. Subsequent infections of the virus may lead to dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS), which may be fatal.

Desert – A region of very low rainfall, where ‘very low’ is widely accepted to be <100 mm per year.

Desertification – Land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activities. Further, the United Nations Convention to Combat Desertification (UNCCD) defines land degradation as a reduction or loss in arid, semi-arid, and dry sub-humid areas of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including those arising from human activities and habitation patterns, such as: (i) soil erosion caused by wind and/or water; (ii) deterioration of the physical, chemical, and biological or economic properties of soil; and (iii) long-term loss of natural vegetation.

Detection and attribution – Detection of change in a system (natural or human) is the process of demonstrating that the system has changed in some defined statistical sense, without providing a reason for that change. Attribution of such an observed change in a system to anthropogenic climate change is usually a two-stage process. First, the observed change in the system must be demonstrated to be associated with an observed regional climate change with a specified degree of confidence. Second, a measurable portion of the observed regional climate change, or the associated observed change in the system, must be attributed to anthropogenic climate forcing with a similar degree of confidence. Confidence in such joint attribution statements must be lower than the confidence in either of the individual attribution steps alone due to the combination of two separate statistical assessments.

Diadromous – Fish that travel between saltwater and freshwater.

Discount rate – The degree to which consumption now is preferred to consumption one year hence, with prices held constant, but average incomes rising in line with GDP per capita.

Disturbance regime – Frequency, intensity, and types of disturbances, such as fires, insect or pest outbreaks, floods and droughts.

Downscaling – A method that derives local- to regional-scale (10 to 100 km) information from larger-scale models or data analyses.

Drought – The phenomenon that exists when precipitation is significantly below normal recorded levels, causing serious hydrological imbalances that often adversely affect land resources and production systems.

Dyke – A human-made wall or embankment along a shore to prevent flooding of low-lying land.

Dynamic global vegetation model (DGVM) – Models that simulate vegetation development and dynamics through space and time, as driven by climate and other environmental changes.

E

Ecological community – A community of plants and animals characterised by a typical assemblage of species and their abundances. See also: ecosystem.

Ecological corridor – A thin strip of vegetation used by wildlife, potentially allowing movement of biotic factors between two areas.

Ecological footprint – A measure of how much nature it takes to support people. It is an ecological accounting system. It contrasts how much biologically productive area people use for their consumption to how much biologically productive area is available.

Ecophysiological process – Individual organisms respond to environmental variability, such as climate change, through ecophysiological processes that operate continuously, generally at a microscopic or sub-organ scale. Ecophysiological mechanisms underpin an individual organism's tolerance to environmental stress, and comprise a broad range of responses defining the absolute tolerance limits of individuals to environmental conditions. Ecophysiological responses may scale up to control species geographic ranges.

Ecosystem – The interactive system formed from all living organisms and their abiotic (physical and chemical) environment within a given area. Ecosystems cover a hierarchy of spatial scales and can comprise the entire globe, biomes at the continental scale, or small, well-circumscribed systems such as a pond.

Ecosystem approach – A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. An ecosystem approach is based on the application of appropriate scientific methodologies focused on levels of biological organisation that encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognises that humans, with their cultural diversity, are an integral component of many ecosystems. The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning. Priority targets are conservation of biodiversity and of the ecosystem structure and functioning in order to maintain ecosystem services.

Ecosystem services – Ecological processes or functions having monetary or non-monetary value to individuals or society at large. There are (i) supporting services such as productivity or biodiversity maintenance, (ii) provisioning services such as food, fibre, or fish, (iii) regulating services such as climate regulation or carbon sequestration, and (iv) cultural services such as tourism or spiritual and aesthetic appreciation.

Ecotone – Transition area between adjacent ecological communities (e.g. between forests and grasslands).

El Niño Southern Oscillation (ENSO) – A warm water current that periodically flows along the coast of Ecuador and Peru, associated with a fluctuation in surface pressure and circulation in the Indian and Pacific oceans. The phenomenon typically has climatic effects throughout the Pacific region and many other parts of the world. The opposite of an El Niño event is called La Niña.

Emissions scenario – A plausible representation of the future development of emissions of substances that are potentially radiatively active (e.g. greenhouse gases, aerosols), based on a coherent and internally consistent set of assumptions about driving forces (such as demographic and socio-economic development, technological change) and their key relationships.

Endemic – Restricted or peculiar to a locality or region. With regard to human health, endemic can refer to a disease or agent present or usually prevalent in a population or geographical area at all times.

Ensemble – A group of parallel model simulations used for climate projections. Variation of the results across the ensemble members gives an estimate of uncertainty. Ensembles made with the same model but different initial conditions only characterise the uncertainty associated with internal climate variability, whereas multi-model ensembles including simulations by several models also include the impact of model differences.

Epidemic – Occurring suddenly in incidence rates clearly in excess of normal expectancy, applied especially to infectious diseases but may also refer to any disease, injury, or other health-related event occurring in such outbreaks.

Erosion – The process of removal and transport of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, winds and underground water.

Eutrophication – The process by which a body of water (often shallow) becomes (either naturally or by pollution) rich in dissolved nutrients, with a seasonal deficiency in dissolved oxygen.

Evaporation – The transition process from liquid to gaseous state.

Evapotranspiration – The combined process of water evaporation from the Earth's surface and transpiration from vegetation.

Externalities – Occur when a change in the production or consumption of one individual or firm affects indirectly the well-being of another individual or firm. Externalities can be positive or negative. The impacts of pollution on ecosystems, water courses or air quality represent classic cases of negative externality.

Extinction – The global disappearance of an entire species.

Extirpation – The disappearance of a species from part of its range; local extinction.

Extreme weather event – An event that is rare within its statistical reference distribution at a particular place. Definitions of 'rare' vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile. By definition, the characteristics of what is called 'extreme weather' may vary from place to place. Extreme weather events may typically include floods and droughts.

F

Feedback – A factor in the climate system that either amplifies or diminishes a particular kind of change. For example, when warming due to greenhouse gas emissions causes sea ice to melt in the Arctic, less sunlight is reflected back into space from the highly reflective ice (see the definition of albedo). That means more solar energy is absorbed by the dark ocean, which warms as a result and releases some of that heat into the atmosphere, reinforcing the warming in the Arctic.

Food chain – The chain of trophic relationships formed if several species feed on each other. See food web and trophic level.

Food security – A situation that exists when people have secure access to sufficient amounts of safe and nutritious food for normal growth, development and an active and healthy life. Food insecurity may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level.

Food web – The network of trophic relationships within an ecological community involving several interconnected food chains.

Forcing (or forcing mechanism) – A process that alters the energy balance of the climate system, i.e. changes the relative balance between incoming solar radiation and outgoing infrared radiation from Earth. Such mechanisms include changes in energy coming from the sun, volcanic eruptions, and strengthening of the greenhouse effect by increases in the atmosphere's greenhouse gases.

Forecast – See climate prediction and climate projection.

Forest limit/line – The upper elevational or latitudinal limit beyond which natural tree regeneration cannot develop into a closed forest stand. It is typically at a lower elevation or more distant from the poles than the tree line.

Freshwater lens – A lenticular fresh groundwater body that underlies an oceanic island. It is underlain by saline water.

Functional extinction – This term defines a species that has lost its capacity to persist and to recover because its populations have declined to below a minimum size.

G

Generalist – A species that can tolerate a wide range of environmental conditions.

Geo-engineering – Deliberate efforts to engineer a cooler climate.

Glacier – A mass of land ice flowing downhill and constrained by such topographic features as the sides of a valley or surrounding peaks. A glacier is maintained by accumulation of snow at higher elevations, balanced by melting at lower elevations or discharge into the sea. When melting and discharge exceed accumulation, a glacier retreats. [1]

Globalisation – The growing integration and interdependence of countries worldwide through the increasing volume and variety of cross-border transactions in goods and services, free international capital flows, and the more rapid and widespread diffusion of technology, information and culture.

Global warming - An increase in the near-surface temperature of the Earth. It can be caused by natural influences, but most often the term is used to refer to warming that humans are causing as a result of emissions of greenhouse gases. The terms global warming and climate change are often used interchangeably. But global warming is actually a form of climate change.

Greenhouse effect – The process in which the absorption of infrared radiation by the atmosphere warms the Earth. In common parlance, the term ‘greenhouse effect’ may be used to refer either to the natural greenhouse effect, due to naturally occurring greenhouse gases, or to the enhanced (anthropogenic) greenhouse effect, which results from gases emitted as a result of human activities.

Greenhouse gas - A gas in the atmosphere contributing to the greenhouse effect. Greenhouse gases are transparent to certain wavelengths of incoming solar radiation, allowing them to penetrate deep into the atmosphere or all the way down to the Earth’s surface, where they cause warming. Greenhouse gases prevent resulting infrared radiation from escaping, trapping the heat near the Earth’s surface where it warms the lower atmosphere. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary greenhouse gases in the Earth’s atmosphere. As well as CO₂, N₂O, and CH₄, the Kyoto Protocol deals with the greenhouse gases sulphur hexafluoride (SF₆), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Gross Domestic Product (GDP) – The monetary value of all goods and services produced within a nation.

Gross National Product (GNP) – The monetary value of all goods and services produced in a nation’s economy, including income generated abroad by domestic residents, but without income generated by foreigners.

Gross primary production – The total amount of energy produced by plants or vegetation through photosynthesis.

Groundwater recharge – The process by which external water is added to the zone of saturation of an aquifer, either directly into a formation or indirectly by way of another formation.

Groyne – A low, narrow jetty, usually extending roughly perpendicular to the shoreline, designed to protect the shore from erosion by currents, tides or waves, by trapping sand for the purpose of replenishing or making a beach.

H

Habitat – The locality or natural home in which a particular plant, animal, or group of closely associated organisms lives.

Hantavirus – A virus in the family Bunyaviridae that causes a type of haemorrhagic fever. It is thought that humans catch the disease mainly from infected rodents; either through direct contact with the animals or by inhaling or ingesting dust that contains aerosolised viral particles from their dried urine and other secretions.

Heat island – An urban area characterised by ambient temperatures higher than those of the surrounding non-urban area. The cause is a higher absorption of solar energy by materials of the urban fabric such as asphalt.

Herbaceous – Flowering, non-woody.

Human system – Any system in which human organisations play a major role. Often, but not always, the term is synonymous with ‘society’ or ‘social system’, e.g. agricultural system, political system, technological system, economic system; all are human systems in the sense applied in the Fourth Assessment Report (AR4) of the United Nations Intergovernmental Panel on Climate Change (IPCC).

Hydrographic events – Events that alter the state or current of waters in oceans, rivers or lakes.

Hydrological systems – The systems involved in movement, distribution, and quality of water throughout the Earth, including both the hydrologic cycle and water resources.

Hydrosphere – Surface and subterranean water, such as oceans, seas, rivers, freshwater lakes and underground water. One of the five components of the climate system.

Hypolimnetic – Referring to the part of a lake below the thermocline made up of water that is stagnant and of essentially uniform temperature except during the period of overturn.

Hypoxic events – Events that lead to a deficiency of oxygen.

I

Ice cap – A dome-shaped ice mass covering a highland area that is considerably smaller in extent than an ice sheet.

Ice sheet – A mass of land ice sufficiently deep to cover most of the underlying bedrock topography so that its shape is mainly determined by its own internal dynamics. An ice sheet flows outwards from a high central plateau with a small average surface slope. The margins slope steeply, and the ice is discharged through fast-flowing ice streams or outlet glaciers, in some cases into the sea or into ice-shelves floating on the sea. There are only two large ice sheets in the modern world, on Greenland and Antarctica.

Ice shelf – A floating ice sheet of considerable thickness attached to a coast (usually of great horizontal extent with a level or gently undulating surface); often a seaward extension of ice sheets.

Impact assessment of climate change – The practice of identifying and evaluating, in monetary and/or non-monetary terms, the effects of climate change on natural and human systems.

Impacts of climate change – 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. See also aggregate impacts, market impacts, and non-market impacts.

Indigenous peoples – No internationally accepted definition of indigenous peoples exists. Common characteristics often applied under international law, and by United Nations agencies to distinguish indigenous peoples include: residence within or attachment to geographically distinct traditional habitats, ancestral territories, and their natural resources; maintenance of cultural and social identities, and social, economic, cultural and political institutions separate from mainstream or dominant societies and cultures; descent from population groups present in a given area, most frequently before modern states or territories were created and current borders defined; and self-identification as being part of a distinct indigenous cultural group, and the desire to preserve that cultural identity.

Industrial revolution – A period of rapid industrial growth with far-reaching social and economic consequences, beginning in England during the second half of the 18th century and spreading to Europe and later to other countries including the USA. The industrial revolution

marks the beginning of a strong increase in the combustion of fossil fuels and related emissions of carbon dioxide. In the IPCC's fourth assessment report, the term 'pre-industrial' refers, somewhat arbitrarily, to the period before 1750.

Infectious disease – Any disease caused by microbial agents that can be transmitted from one person to another or from animals to people. This may occur by direct physical contact, by handling of an object that has picked up infective organisms, through a disease carrier, via contaminated water, or by the spread of infected droplets coughed or exhaled into the air.

Infrared radiation – An invisible form of energy emitted by the Earth's surface, the atmosphere and the clouds. It is also known as terrestrial or longwave radiation.

Infrastructure – The basic equipment, utilities, productive enterprises, installations and services essential for the development, operation and growth of an organisation, city or nation.

Integrated assessment – An interdisciplinary process of combining, interpreting and communicating knowledge from diverse scientific disciplines so that all relevant aspects of a complex societal issue can be evaluated and considered for the benefit of decision-making.

Integrated water resources management (IWRM) – The prevailing concept for water management. IWRM is based on four principles that were formulated by the International Conference on Water and the Environment in Dublin, 1992: (1) fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment; (2) water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels; (3) women play a central part in the provision, management and safeguarding of water; (4) water has an economic value in all its competing uses and should be recognised as an economic good.

Invasive species and invasive alien species (IAS) – A species aggressively expanding its range and population density into a region in which it is not native, often through out-competing or otherwise dominating native species.

Irrigation water-use efficiency – The amount of biomass or seed yield produced per unit irrigation water applied, typically about one tonne of dry matter per 100 mm water applied.

Isohyet – A line on a map connecting locations that receive the same amount of rainfall.

J

Joint attribution – Involves both attribution of observed changes to regional climate change and attribution of a measurable portion of either regional climate change or the associated observed changes in the system to anthropogenic causes, beyond natural variability. This process involves statistically linking climate change simulations from climate models with the observed responses in the natural or managed system. Confidence in joint attribution statements must be lower than the confidence in either of the individual attribution steps alone due to the combination of two separate statistical assessments.

K

Keystone species – A species that has a central servicing role affecting many other organisms and whose demise is likely to result in the loss of a number of species and lead to major changes in ecosystem function.

Kyoto Protocol – Adopted at the Third Session of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) in 1997 in Kyoto, Japan, it contains legally binding commitments, in addition to those included in the UNFCCC. Countries included in Annex B of the Protocol (most member countries of the Organisation for Economic Cooperation and Development (OECD) and those with economies in transition) agreed to reduce their anthropogenic greenhouse gas emissions (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) by at least 5% below 1990 levels in the commitment period 2008 to 2012. The Kyoto Protocol entered into force on 16 February 2005.

L

Landslide – A mass of material that has slipped downhill by gravity, often assisted by water when the material is saturated; the rapid movement of a mass of soil, rock or debris down a slope.

La Niña – See El Niño-Southern Oscillation (ENSO).

Large-scale singularities – Abrupt and dramatic changes in the state of given systems, in response to gradual changes in driving forces. For example, a gradual increase in atmospheric greenhouse gas concentrations may lead to such large-scale singularities as slowdown or collapse of the thermohaline circulation, or collapse of the West Antarctic ice sheet. The occurrence, magnitude, and timing of large-scale singularities are difficult to predict.

Last Glacial Maximum – The time of maximum extent of the ice sheets during the last glaciation, approximately 21,000 years ago.

Leaching – The removal of soil elements or applied chemicals by water movement through the soil.

Leaf area index (LAI) – The ratio between the total leaf surface area of a plant and the ground area covered by its leaves.

Legume – Plants that fix nitrogen from the air through a symbiotic relationship with bacteria in their soil and root systems (e.g. soybean, peas, beans, lucerne, clovers).

Likelihood – The likelihood of an occurrence, an outcome or a result, where this can be estimated probabilistically, is expressed in this Report using a standard terminology, defined in the Introduction. See also uncertainty and confidence.

Limnology – Study of lakes and their biota.

Lithosphere (also called the geosphere) – The upper layer of the solid Earth, both continental and oceanic.

Littoral zone – A coastal region; the zone between high and low watermarks.

LULUCF – Stands for “land use, land-use change and forestry”. Under the United Nations Framework on Climate Change, it represents a “greenhouse gas inventory sector that covers

emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities”.

M

Malaria (endemic or epidemic) – Parasitic disease caused by species of the genus *Plasmodium* (Protozoa) and transmitted by mosquitoes of the genus *Anopheles*; produces bouts of high fever and systemic disorders, affects about 300 million and kills approximately two million people worldwide every year.

Market impacts – Impacts that can be quantified in monetary terms, and directly affect Gross Domestic Product – e.g. changes in the price of agricultural inputs and/or goods. See also non-market impacts.

Meningitis – Inflammation of the meninges (part of the covering of the brain), usually caused by bacteria, viruses or fungi.

Microclimate – Local climate at or near the Earth's surface. See also climate.

Millennium Development Goals (MDGs) – A list of 10 goals, including eradicating extreme poverty and hunger, improving maternal health, and ensuring environmental sustainability, adopted in 2000 by the UN General Assembly, i.e. 191 States, to be reached by 2015. The MDGs commit the international community to an expanded vision of development, and have been commonly accepted as a framework for measuring development progress.

Mitigation – A human 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.

Mixed layer – The upper region of the ocean, well mixed by interaction with the overlying atmosphere.

Monsoon – A tropical and subtropical seasonal reversal in both the surface winds and associated precipitation.

Montane – The biogeographic zone made up of relatively moist, cool upland slopes below the subalpine zone that is characterised by the presence of mixed deciduous woodland at lower elevations and coniferous evergreen forests at higher elevations.

Morbidity – Rate of occurrence of disease or other health disorders within a population, taking account of the age-specific morbidity rates. Morbidity indicators include chronic disease incidence/prevalence, rates of hospitalisation, primary care consultations, disability-days (i.e. days of absence from work), and prevalence of symptoms.

Morphology – The form and structure of an organism or land-form, or any of its parts.

Mortality – Rate of occurrence of death within a population; calculation of mortality takes account of age-specific death rates, and can thus yield measures of life expectancy and the extent of premature death.

N

Negative feedback – A factor in the climate system that diminishes a particular kind of change. For example, rising carbon dioxide emissions may exert a kind of fertiliser effect on some vegetation, causing it to grow more quickly. When plants grow, they draw carbon dioxide out of the atmosphere. So in this way, enhanced growth can help diminish warming. One caveat about this example: The concentration of carbon dioxide in the atmosphere isn't the only factor that determines how quickly plants grow. Access to water is another; and since global warming can lead to increased drought, this can weaken the impact of CO₂ fertilisation.

Net biome production (NBP) – The net ecosystem production (NEP) minus carbon losses resulting from disturbances such as fire or insect defoliation.

Net ecosystem production (NEP) – The difference between net primary production (NPP) and heterotrophic respiration (mostly decomposition of dead organic matter) of that ecosystem over the same area. See also: net biome production, or NBP.

Net primary production (NPP) – The gross primary production minus autotrophic respiration, i.e. the sum of metabolic processes for plant growth and maintenance, over the same area.

Nitrogen oxides (NO_x) – Any of several oxides of nitrogen.

Non-linearity – A process is called 'non-linear' when there is no simple proportional relation between cause and effect.

Non-market impacts – Impacts that affect ecosystems or human welfare, but that are not easily expressed in monetary terms, e.g. an increased risk of premature death, or increases in the number of people at risk of hunger. See also: market impacts.

No regrets policy – A policy that would generate net social and/or economic benefits irrespective of whether or not anthropogenic climate change occurs.

Normalised difference vegetation index (NDVI) – A satellite-based remotely sensed measure of the 'greenness' of the vegetation cover.

North Atlantic Oscillation (NAO) – This consists of opposing variations of barometric pressure near Iceland and near the Azores. It is the dominant mode of winter climate variability in the North Atlantic region.

O

Ocean acidification – Increased concentrations of CO₂ in seawater causing a measurable increase in acidity (i.e. a reduction in ocean pH). This may lead to reduced calcification rates of calcifying organisms such as corals, molluscs, algae and crustacea.

Ombrotrophic bog – An acidic peat-accumulating wetland that is rainwater (instead of groundwater) fed and thus particularly poor in nutrients.

Opportunity costs – The cost of an economic activity forgone through the choice of another activity.

Ozone – The triatomic form of oxygen (O₃); a gaseous atmospheric constituent. In the troposphere, it is created both naturally and by photochemical reactions involving gases resulting from human activities (photochemical smog). In high concentrations, tropospheric ozone can be harmful to many living organisms. Tropospheric ozone acts as a greenhouse gas. In the stratosphere, ozone is created by the interaction between solar ultraviolet radiation and molecular oxygen (O₂). Depletion of stratospheric ozone, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet (UV) B radiation.

P

Paleoclimatology – The study of past climates and the causes of past climate changes.

Paludification – The process of transforming land into a wetland such as a marsh, a swamp or a bog.

Particulates – Very small solid exhaust particles emitted during the combustion of fossil and biomass fuels. Particulates may consist of a wide variety of substances. Of greatest concern for health are particulates of less than or equal to 10 nm in diameter, usually designated as PM10.

Peat – Peat is formed from dead plants, typically Sphagnum mosses, that are only partially decomposed due to the permanent submergence in water and the presence of conserving substances such as humic acids.

Peatland – Typically a wetland, such as a mire, that is slowly accumulating peat.

Pelagic community – The community of organisms living in the open waters of a river, a lake or an ocean (in contrast to benthic communities living on or near the bottom of a water body).

Permafrost – Perennially frozen ground that occurs where the temperature remains below 0°C for several years.

Phenology – The study of natural phenomena that recur periodically (e.g. development stages, migration) and their relation to climate and seasonal changes.

Photochemical smog – A mix of photochemical oxidant air pollutants produced by the reaction of sunlight with primary air pollutants, especially hydrocarbons.

Photosynthesis – The synthesis by plants, algae and some bacteria of sugar from sunlight, carbon dioxide and water, with oxygen as the waste product. See also: carbon dioxide fertilisation, C3 plants and C4 plants.

Physiographic – Of, relating to, or employing a description of nature or natural phenomena.

Phytoplankton – The plant forms of plankton. Phytoplankton are the dominant plants in the sea, and are the basis of the entire marine food web. These single-celled organisms are the principal agents of photosynthetic carbon fixation in the ocean.

Plankton – Microscopic aquatic organisms that drift or swim weakly. See also phytoplankton and zooplankton.

Plant functional type (PFT) – An idealised vegetation class typically used in dynamic global vegetation models (DGVM).

Polynya – Areas of permanently unfrozen seawater resulting from warmer local water currents in otherwise sea-ice covered oceans. They are biological hotspots, since they serve as breathing holes or refuges for marine mammals such as whales and seals, and fish-hunting birds.

Population system – An ecological system (not ecosystem) determined by the dynamics of a particular vagile species that typically cuts across several ecological communities and even entire biomes. An example is migratory birds that seasonally inhabit forests as well as grasslands and visit wetlands on their migratory routes.

Positive feedback – A factor in the climate system that amplifies a particular kind of change. For example, when warming due to greenhouse gas emissions causes permafrost to melt in far northern regions such as Siberia, methane may be emitted into the atmosphere. Since methane is a very potent greenhouse gas, this tends to reinforce the warming.

Potential production – Estimated crop productivity under non-limiting soil, nutrient and water conditions.

Primary production – All forms of production accomplished by plants, also called primary producers. See GPP, NPP, NEP and NBP.

Projection – The potential evolution of a quality or set of quantities, often computed with the aid of a model. Projections are distinguished from predictions in order to emphasise that projections involve assumptions – concerning, for example, future socio-economic and technological developments, that may or may not be realised – and are therefore subject to substantial uncertainty. See also climate projection and climate prediction.

Proxy – A proxy indicator is a local record – consisting of such things as tree rings, samples of corals, and chemical signatures recovered from ice cores – that can be used to trace aspects of climate and how it has changed back in time (e.g. the composition of the atmosphere and changes in temperature). They are a substitute for instrumental records of climate factors, which do not extend very far into the past.

Pteropods – Planktonic, small marine snails with swimming organs resembling wings.

Pure rate of time preference – The degree to which consumption now is preferred to consumption one year later (with prices and incomes held constant). It is one component of the discount rate.

R

Radiative forcing – The change in the net vertical irradiance (expressed in Watts per square metre; Wm^{-2}) at the tropopause due to an internal or external change in the forcing of the climate system, such as a change in the concentration of CO₂ or the output of the Sun.

Rangeland – Unmanaged grasslands, shrublands, savannas and tundra.

Recalcitrant – Recalcitrant organic material or recalcitrant carbon stocks resist decomposition.

Reforestation – Planting of forests on lands that have previously contained forests but that have been converted to some other use. For a discussion of the term forest and related terms such as afforestation, reforestation and deforestation, see the IPCC Special Report on Land Use, Land-Use Change, and Forestry (IPCC, 2000).

Reid's paradox – This refers to the apparent contradiction between inferences of high plant migration rates as suggested in the palaeo-record (particularly after the last Ice Age), and the low potential rates of migration that can be inferred through studying the seed dispersal of the plants involved, e.g. in wind-tunnel experiments.

Reinsurance – The transfer of a portion of primary insurance risks to a secondary tier of insurers (reinsurers); essentially 'insurance for insurers'.

Renewable energy – Natural energy that does not have a limited supply. It is generated from natural resources such as sunlight, wind, rain, tides and geothermal heat. Because it is naturally replenished, renewable energy can be used again and again and will never run out.

Reservoir – A component of the climate system, other than the atmosphere, that has the capacity to store, accumulate or release a substance of concern (e.g. carbon or a greenhouse gas). Oceans, soils, and forests are examples of carbon reservoirs. The term also means an artificial or natural storage place for water, such as a lake, pond or aquifer, from which the water may be withdrawn for such purposes as irrigation or water supply.

Resilience – The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning; the capacity for self-organisation, and the capacity to adapt to stress and change.

Respiration – The process whereby living organisms convert organic matter to carbon dioxide, releasing energy and consuming oxygen.

Riparian – Relating to or living or located on the bank of a natural watercourse (such as a river) or sometimes of a lake or a tidewater.

Risk – In the context of climate change, risk is the probability of a particular consequence occurring, such as the degree of warming we might expect if emissions of greenhouse gases are not reduced. The probability component of risk often entails subjective judgment by scientists.

River discharge – Water flow within a river channel, for example expressed in m³/s. A synonym for streamflow.

Runoff – That part of precipitation that does not evaporate and is not transpired.

S

Salinisation – The accumulation of salts in soils.

Salt-water intrusion/encroachment – Displacement of fresh surface water or groundwater by the advance of salt water due to its greater density. This usually occurs in coastal and estuarine areas due to reducing land-based influence (e.g. either from reduced runoff and associated groundwater recharge, or from excessive water withdrawals from aquifers) or increasing marine influence (e.g. relative sea-level rise).

Savanna – Tropical or sub-tropical grassland or woodland biomes with scattered shrubs, individual trees or a very open canopy of trees; all characterised by a dry (arid, semi-arid or semi-humid) climate.

Scenario – A plausible and often simplified description of how the future may develop, based on a coherent and internally consistent set of assumptions about driving forces and key relationships. Scenarios may be derived from projections, but are often based on additional information from other sources, sometimes combined with a 'narrative storyline'. See also climate (change) scenario, emissions scenario and SRES.

Sea-ice biome – The biome formed by all marine organisms living within or on the floating sea ice (frozen seawater) of the polar oceans.

Sea-level rise – An increase in the mean level of the ocean. Eustatic sea-level rise is a change in global average sea level brought about by an increase in the volume of the world ocean. Relative sea-level rise occurs where there is a local increase in the level of the ocean relative to the land, which might be due to ocean rise and/or land level subsidence. In areas subject to rapid land-level uplift, relative sea level can fall.

Sea wall – A human-made wall or embankment along a shore to prevent wave erosion.

Semi-arid regions – Regions of moderately low rainfall, which are not highly productive and are usually classified as rangelands. 'Moderately low' is widely accepted as between 100 and 250 mm precipitation per year. See also arid region.

Sensitivity – Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g. a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g. damages caused by an increase in the frequency of coastal flooding due to sea-level rise).

Silviculture – Cultivation, development and care of forests.

Sink – Any process, activity, or mechanism that removes a greenhouse gas, an aerosol, or a precursor of a greenhouse gas or aerosol from the atmosphere.

Snowpack – A seasonal accumulation of slow-melting snow.

Snow water equivalent – The equivalent volume/mass of water that would be produced if a particular body of snow or ice was melted.

Social cost of carbon (SCC) – The economic value of the extra (or “marginal”) impact caused by the emission of one more tonne of carbon (in the form of carbon dioxide) into the atmosphere at any given point in time. To calculate that economic value, researchers have to add up the extra impacts caused by that tonne of carbon for as long as it remains in the atmosphere.

Socio-economic scenarios – The storylines and associated population, GDP and emissions scenarios associated with the Special Report on Emissions Scenarios (SRES), and the resulting climate change and sea-level rise scenarios. Four families of socio-economic scenario (A1, A2, B1 and B2) represent different world futures in two distinct dimensions: a focus on economic versus environmental concerns, and global versus regional development patterns.

Stakeholder – A person or an organisation that has a legitimate interest in a project or entity, or would be affected by a particular action or policy.

Stratosphere – The atmospheric shell above the troposphere extending to an altitude of about 50 kilometres (where the mesosphere begins).

Streamflow – Water flow within a river channel, for example, expressed in m³/s. A synonym for river discharge.

Sub-alpine – The biogeographic zone below the tree line and above the montane zone that is characterised by the presence of coniferous forest and trees.

Succulent – Succulent plants, e.g. cactuses, possessing organs that store water, thus facilitating survival during drought conditions.

Surface runoff – The water that travels over the land surface to the nearest surface stream; runoff of a drainage basin that has not passed beneath the surface since precipitation.

Sustainable development – Development that meets the cultural, social, political and economic needs of the present generation without compromising the ability of future generations to meet their own needs.

T

Taiga – The northernmost belt of boreal forest adjacent to the Arctic tundra.

Thermal expansion – In connection with sea-level rise, this refers to the increase in volume (and decrease in density) that results from warming water. A warming of the ocean leads to an expansion of the ocean volume and hence an increase in sea level.

Thermocline – The region in the world's ocean, typically at a depth of one kilometre, where temperature decreases rapidly with depth and which marks the boundary between the surface and the ocean.

Thermohaline circulation (THC) – Large-scale, density-driven circulation in the ocean caused by differences in temperature and salinity. In the North Atlantic, the thermohaline circulation consists of warm surface water flowing northward and cold, deep water flowing southward, resulting in a net poleward transport of heat. The surface water sinks in highly restricted regions located in high latitudes. Also called meridional overturning circulation (MOC).

Thermokarst – A ragged landscape full of shallow pits, hummocks and depressions often filled with water (ponds), which results from thawing of ground ice or permafrost. Thermokarst processes are the processes driven by warming that lead to the formation of thermokarst.

Threshold – The level of magnitude of a system process at which sudden or rapid change occurs. A point or level at which new properties emerge in an ecological, economic or other system, invalidating predictions based on mathematical relationships that apply at lower levels.

Trace gas – Any one of the less common gases found in the Earth's atmosphere. Nitrogen, oxygen, and argon make up more than 99 percent of the Earth's atmosphere. Other gases, such as carbon dioxide, water vapour, methane, oxides of nitrogen, ozone, and ammonia, are considered trace gases. Although relatively unimportant in terms of their absolute volume, they have significant effects on the Earth's weather and climate.

Transpiration – The evaporation of water vapour from the surfaces of leaves through stomata.

Tree line – The upper limit of tree growth in mountains or high latitudes. It is more elevated or more poleward than the forest line.

Trophic level – The position that an organism occupies in a food chain.

Trophic relationship – The ecological relationship that results when one species feeds on another.

Troposphere – The lower part of the atmosphere extending from the surface up to a height varying from about seven to nine kilometres in the polar regions to approximately 17 kilometres in the tropics. Changes in the state of the troposphere are commonly referred to as weather.

Tsunami – A large wave produced by a submarine earthquake, landslide or volcanic eruption.

Tundra – A treeless, level, or gently undulating plain characteristic of the Arctic and sub-Arctic regions characterised by low temperatures and short growing seasons.

U

Uncertainty – An expression of the degree to which a value (e.g. the future state of the climate system) is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from quantifiable errors in data to ambiguously defined concepts or terminology, or uncertain projections of human behaviour. Uncertainty can therefore be represented by quantitative measures (e.g. a range of values calculated by various models) or by qualitative statements (e.g. reflecting the judgment of a team of experts).

Undernutrition – The temporary or chronic state resulting from intake of lower than recommended daily dietary energy and/or protein requirements, through either insufficient food intake, poor absorption, and/or poor biological use of nutrients consumed.

Ungulate – A hoofed, typically herbivorous, quadruped mammal (including ruminants, swine, camel, hippopotamus, horse, rhinoceros and elephant).

United Nations Framework Convention on Climate Change (UNFCCC) – The Convention was adopted on 9 May 1992 in New York and signed at the 1992 Earth Summit in Rio de Janeiro by more than 150 countries and the European Community. Its ultimate objective is the 'stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'. It contains commitments for all Parties. Under the Convention, Parties included in Annex I aimed to return greenhouse gas emissions not controlled by the Montreal Protocol to 1990 levels by the year 2000. The Convention entered in force in March 1994.

Upwelling region – A region of an ocean where cold, typically nutrient-rich waters from the bottom of the ocean surface.

Urbanisation – The conversion of land from a natural state or managed natural state (such as agriculture) to cities; a process driven by net rural-to-urban migration through which an increasing percentage of the population in any nation or region comes to live in settlements that are defined as 'urban centres'.

V

Vagile – Able to migrate.

Vascular plants – Higher plants with vascular, i.e. sap-transporting, tissues.

Vector – A blood-sucking organism, such as an insect, that transmits a pathogen from one host to another. See also vector-borne diseases.

Vector-borne diseases – Diseases that are transmitted between hosts by a vector organism (such as a mosquito or tick); e.g. malaria, dengue fever and leishmaniasis.

Vernalisation – The biological requirements of certain crops, such as winter cereals, that need periods of extreme cold temperatures before emergence and/or during early vegetative stages in order to flower and produce seeds. By extension, the act or process of hastening the flowering and fruiting of plants by treating seeds, bulbs or seedlings with cold temperatures so as to induce a shortening of the vegetative period.

Vulnerability – 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.

W

Water consumption – Amount of extracted water irretrievably lost during its use (by evaporation and goods production). Water consumption is equal to water withdrawal minus return flow.

Water productivity – The ratio of crop seed produced per unit water applied. In the case of irrigation, see irrigation water-use efficiency. For rain-fed crops, water productivity is typically 1 t/100 mm.

Water stress – A country is water-stressed if the available freshwater supply relative to water withdrawals acts as an important constraint on development. Withdrawals exceeding 20 percent of renewable water supply have been used as an indicator of water stress. A crop is water-stressed if soil-available water, and thus actual evapotranspiration, is less than potential evapotranspiration demands.

Water-use efficiency – Carbon gain in photosynthesis per unit water lost in evapotranspiration. It can be expressed on a short-term basis as the ratio of photosynthetic carbon gain per unit transpirational water loss, or on a seasonal basis as the ratio of net primary production or agricultural yield to the amount of available water.

Weather – The state of the atmosphere, including temperature, moisture, pressure, wind, etc. mainly with respect to its effects upon life and human activities. As distinguished from climate, weather consists of the short-term (minutes to about 15 days) variations of the atmosphere's state.

Welfare – An economic term used to describe the state of well-being of humans on an individual or collective basis. The constituents of well-being are commonly considered to include materials to satisfy basic needs, freedom and choice, health, good social relations, and security.

Wetland – A transitional, regularly waterlogged area of poorly drained soils, often between an aquatic and a terrestrial ecosystem, fed from rain, surface water or groundwater. Wetlands are characterised by a prevalence of vegetation adapted for life in saturated soil conditions.

Y

Yedoma – Ancient organic material trapped in permafrost that is hardly decomposed.

Z

Zoonoses – Diseases and infections that are naturally transmitted between vertebrate animals and people.

Zooplankton – The animal forms of plankton. They consume phytoplankton or other zooplankton.

Citations and Resources

1. [Climate Change 2001: Working Group I: The Scientific Basis](#)
2. [National Snow and Ice Data Center](#)
3. [Poynter News University 'Reporting on Climate Change' course](#)
4. [UNEP](#)
5. [USEPA](#)