Climate change Terms & Definitions

A/R Projects	Afforestation and Reforestation Projects
AA and AAU	Assigned Amount and Assigned Amount Units. Assigned Amount Unit, emission allowance assigned to industrialised countries prior to the start of the commitment period based on their emission caps and emission reduction targets.
Abatement	Refers to reducing the degree or intensity of greenhouse-gas emissions.
Abiotic	Nonliving. Compare biotic.
Ablation	All processes by which snow and ice are lost from a glacier, floating ice, or snow cover.
Absorption of radiation	The uptake of radiation by a solid body, liquid or gas. The absorbed energy may be transferred or re-emitted.
Accession	An act whereby a State becomes a Party to a treaty already negotiated and signed by other States; has the same legal effect as ratification.
Acclimatization	The physiological adaptation to climatic variations.
Accredited Independent Entity (AIE)	An entity accredited by the JISC, which is responsible for the determination of whether a project and the ensuing reductions of anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks meet the relevant requirements of Article 6 of the Kyoto Protocol and the JI guidelines.
Acid deposition	A complex chemical and atmospheric process whereby recombined emissions of sulfur and nitrogen compounds are redeposited on earth in wet or dry form. See acid rain.
Acid rain	Rainwater that has an acidity content greater than the postulated natural pH of about 5.6. It is formed when sulfur dioxides and nitrogen oxides, as gases or fine particles in the atmosphere, combine with water vapor and precipitate as sulfuric acid or nitric acid in rain, snow, or fog. The dry forms are acidic gases or particulates. See acid deposition.
Acid solution	Any water solution that has more hydrogen ions (H+) than hydroxide ions (OH-); any water solution with a pH less than 7. See basic solution.
Acidic	See acid solution.

Active Layer	The top layer of soil in permafrost that is subjected to seasonal freezing and thawing.
Activities Implemented Jointly (AIJ)	AIJ is a pilot program to test project-based mechanisms for emissions reductions.
	Activities carried out under the Convention to mitigate climate change through partnerships between an investor from a developed country and a counterpart in a host country under a pilot phase that ended in the year 2000. The purpose was to involve private-sector money in the transfer of technology and know-how. See also Joint Implementation
	The pilot phase for joint implementation, as defined in Article 4.2(a) of the United Nations Framework Convention on Climate Change, that allows for project activity among developed countries (and their companies) and between developed and developing countries (and their companies). AIJ is intended to allow Parties to the United Nations Framework Convention on Climate Change to gain experience in jointly implemented project activities. There is no crediting for AIJ activity during the pilot phase. A decision remains to be taken on the future of AIJ projects and how they may relate to the Kyoto Mechanisms. As a simple form of tradable permits, AIJ and other market-based schemes represent important potential mechanisms for stimulating additional resource flows for the global environmental good. See also Clean Development Mechanism, and emissions trading.
Ad hoc Group on Article 13 (AG13)	A subsidiary body (committee) created by COP-1 to explore how to help governments overcome difficulties experienced in meeting their commitments under the Climate Change Convention (1995-1998).
Ad hoc Group on the Berlin Mandate (AGBM)	A subsidiary body created by COP-1 to conduct the talks that led to the adoption of the Kyoto Protocol; the AGBM concluded its work on 30 November 1997.
Ad hoc Working Group on further commitments for Annex I Parties under the Kyoto Protocol (AWG-KP)	The AWG-KP was established by Parties to the Protocol in Montreal in 2005 to consider futher commitments of industrialized countries under the Kyoto Protocol for the period beyond 2012, and is set to complete its work in Copenhagen in 2009.
Ad hoc Working Group on Long-term Cooperative Action (AWG-LCA)	The AWG-LCA was established in Bali in 2007 to conduct negotiations on a strengthened international deal on climate change, set to be concluded in Copenhagen in 2009.
Adaptability	See adaptive capacity.

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.
Adaptation	Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to 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.5
	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:
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 Costs	Costs of planning, preparing for, facilitating, and implementing adaptation measures, including transition costs.
Adaptation Fund	The Adaptation Fund was established to finance concrete adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol. The Fund is to be financed with a share of proceeds from clean development mechanism (CDM) project activities and receive funds from other sources. For more information see: http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php
Adaptation Levy	Levy aims to assist "Least Developed Countries" (LDCs) through Adaptation Fund to adapt to climate change. Levy (2% of the certificates from project) is imposed to all CDM projects except those implemented in LDCs.

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.
Additionality	Under the Kyoto Protocol, certificates from JI and the CDM (see explanations below) will be awarded only to project-based activities where emissions reductions are "additional to those that otherwise would occur". The issue has to be elaborated further by the Parties to the Kyoto Protocol, and on the basis of practical experiences.
	Additionality, the criterion of additionality of emission reductions is a prerequisite for the approval of CDM/JI projects.
	Reduction in emissions by sources or enhancement of removals by sinks that is additional to any that would occur in the absence of a Joint Implementation or a Clean Development Mechanism project activity as defined in the Kyoto Protocol Articles on Joint Implementation and the Clean Development Mechanism. This definition may be further broadened to include financial, investment, and technology additionality. Under financial additionality, the project activity funding shall be additional to existing Global Environmental Facility, other financial commitments of Parties included in Annex I, Official Development Assistance, and other systems of co-operation. Under investment additionality, the value of the Emissions Reduction Unit /Certified Emission Reduction Unit shall significantly improve the financial and/or commercial viability of the project activity. Under technology additionality, the technology used for the project activity shall be the best available for the circumstances of the host Party.
Ad-Hoc Working Group on Further Commitments	As required under Article 3.9 of the Kyoto Protocol, the COP11/MOP1 initiated a process of Ad-Hoc Working Group establishment to develope further commitments for Annex I countries for the period after the first round of Kyoto emission targets expire (2012).
Adiabatic process	A thermodynamic change of state of a system such that no heat or mass is transferred across the boundaries of the system. In an adiabatic process, expansion always results in cooling, and compression in warming.

Adipic Acid	Industrial production of adipic acid causes emissions of nitrous oxide (greenhouse gas) as a byproduct. Adipic acid is used primarily for production of nylon fibers and plastics, plasticizer for polyvinyl chloride, etc.
Adjustment time	See: Lifetime; see also: Response time.
Administrative costs	The costs of activities of the project or sectoral activity directly related and limited to its short-term implementation. They include the costs of planning, training, administration, monitoring, etc.
Aero-Allergens	Allergens present in the air.
Aerosol	A collection of airborne solid or liquid particles, with a typical size between 0.01 and 10 micrometers (μm) and residing in the atmosphere for at least several hours. Aerosols may be of either natural or anthropogenic origin. Aerosols may influence climate in two ways: directly through scattering and absorbing radiation, and indirectly through acting as condensation nuclei for cloud formation or modifying the optical properties and lifetime of clouds. The term has also come to be associated, erroneously, with the propellant used in "aerosol sprays." See climate, particulate matter, sulfate aerosols.3
	Particulate matter, solid or liquid, larger than a molecule but small enough to remain suspended in the atmosphere. Natural sources include salt particles from sea spray, dust and clay particles as a result of weathering of rocks, both of which are carried upward by the wind. Aerosols can also originate as a result of human activities and are often considered pollutants. Aerosols are important in the atmosphere as nuclei for the condensation of water droplets and ice crystals, as participants in various chemical cycles, and as absorbers and scatters of solar radiation, thereby influencing the radiation budget of the Earth's climate system. See climate, particulate matter.
	Solid or liquid particles suspended within the atmosphere (see "sulfate aerosols" and "black carbon aerosols").

	A collection of airborne solid or liquid particles, with a typical size between 0.01 and 10 μm and residing in the atmosphere for at least several hours. Aerosols may be of either natural or anthropogenic origin. Aerosols may influence climate in two ways: directly through scattering and absorbing radiation, and indirectly through acting as condensation nuclei for cloud formation or modifying the optical properties and lifetime of clouds. See: Indirect aerosol effect. The term has also come to be associated, erroneously, with the propellant used in "aerosol sprays".
	A collection of airborne solid or liquid particles, with a typical size between 0.01 and 10 mm that reside in the atmosphere for at least several hours. Aerosols may be of either natural or anthropogenic origin. Aerosols may influence climate in two ways: directly through scattering and absorbing radiation, and indirectly through acting as condensation nuclei for cloud formation or modifying the optical properties and lifetime of clouds.

Afforestation	Planting of new forests on lands that historically have not contained forests. For a discussion of the term forest and related terms such as afforestation, reforestation, and deforestation: see the IPCC Report on Land Use, Land-Use Change and Forestry (IPCC, 2000).
Afforestation and Reforestation (A/R) Projects	Afforestation and reforestation (A/R) projects imply to establish forest on land that has not been forested for a period of at least 50 years (afforestation) or on non-forested land (reforestation) through planting, seeding and/or the promotion of natural seed sources.
Aggregate Impacts	Total impacts summed up 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, change in net primary productivity, number of systems undergoing change, or total economic costs.
Agronomy	The branch of agriculture that deals with the theory and practice of field-crop production and the scientific management of soil.
AIE	See Accredited Independent Entity.
AIJ	See Activities Implemented Jointly.
Air carrier	An operator (e.g., airline) in the commercial system of air transportation consisting of aircraft that hold certificates of, Public Convenience and Necessity, issued by the Department of Transportation, to conduct scheduled or non-scheduled flights within the country or abroad.
Air pollutant	See air pollution.
Air pollution	One or more chemicals or substances in high enough concentrations in the air to harm humans, other animals, vegetation, or materials. Such chemicals or physical conditions (such as excess heat or noise) are called air pollutants.
Alases	Coalescing thaw depressions.
Albedo	Refers to the ratio of light from the sun that is reflected by the Earth's surface to the light received by it. Unreflected light is converted to infrared radiation (i.e., heat), which causes atmospheric warming (see "radiative forcing"). Thus, surfaces with a high albedo (e.g., snow and ice) generally contribute to cooling, whereas surfaces with a low albedo (e.g., forests) generally contribute to warming. Changes in land use that significantly alter the characteristics of land surfaces can therefore influence the climate through changes in albedo.
Algal Blooms	A reproductive explosion of algae in a lake, river, or ocean.
Alkalinity	Having the properties of a base with a pH of more than 7. A common alkaline is baking soda.
Allergens	Antigenic substances capable of producing immediate-type

	hypersensitivity.
Alliance of Small Island States (AOSIS)	An ad hoc coalition of low-lying and island countries. These nations are particularly vulnerable to rising sea levels and share common positions on climate change. The 43 members and observers are American Samoa, Antigua and Barbuda, Bahamas, Barbados, Belize, Cape Verde, Comoros, Cook Islands, Cuba, Cyprus, Dominica, Dominican Republic, Federated States of Micronesia, Fiji, Grenada, Guam, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Nauru, Netherlands Antilles, Niue, Palau, Papua New Guinea, Samoa, Sao Tome and Principe, Seychelles, Singapore, Solomon Islands, St. Kitts & Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Tonga, Trinidad and Tobago, Tuvalu, US Virgin Islands, and Vanuatu.
Allocation	Allocation of emissions permits or allowances among greenhouse gas emitters to establish an emission trading market. The division of permits/allowances can be done through grandfathering method and permit auctioning.
	Allocation is the number of allowances provided to an emitter by the regulatory body during a specific compliance period.
	Under an emissions trading scheme, permits to emit can initially either be given away for free, usually under a 'grandfathering' approach based on past emissions in a base year or an 'updating' approach based on the more recent emissions. The alternative is to auction permits in an initial market offering.
Allocation Plan	National plan of an European Union Member State establishing the rules to issue of allowances for the installations under the EU-Emissions Trading Scheme (EU ETS).
Allowance	One allowance represents the right to emit one tonne of CO2e. Emitters are allocated allowances by the regulating body and can emit an amount of CO2e that corresponds to the number of allowances received. Companies that keep their emissions below the level of their allowances are able to sell their excess allowances. Those facing difficulty in remaining within their emissions limit have a choice between reducing their emissions, buying the extra allowances they need at the market rate, or a combination of the two.
Alpine	The biogeographic zone made up of slopes above timberline and characterized by the presence of rosette-forming herbaceous plants and low shrubby slow-growing woody plants.
Alternative development paths	Refer to a variety of possible scenarios for societal values and consumption and production patterns in all countries, including but not limited to a continuation of today's trends. In this Report, these paths do not include additional climate initiatives which means that no scenarios are included that

	explicitly assume implementation of the UNFCCC or the emission targets of the Kyoto Protocol, but do include assumptions about other policies that influence greenhouse gas emissions indirectly.
Alternative Energy	Energy derived from nontraditional sources (e.g., compressed natural gas, solar, hydroelectric, wind).5
Alternative Risk Transfer	Capital-market alternatives to traditional insurance (e.g., catastrophe bonds).
Altimetry	A technique for the measurement of the elevation of the sea, land or ice surface. For example, the height of the sea surface (with respect to the centre of the Earth or, more conventionally, with respect to a standard "ellipsoid of revolution") can be measured from space by current state-of-the-art radar altimetry with centrimetric precision. Altimetry has the advantage of being a measurement relative to a geocentric reference frame, rather than relative to land level as for a tide gauge, and of affording quasi-global coverage.
Amendment	A modification by the COP to the text of the Convention. If consensus cannot be reached, an amendment must win three-quarters of the votes of all Parties present and casting ballots.
Anadromous Species	A species of fish, such as salmon, that spawn in freshwater then migrate into the ocean to grow to maturity.
Anaerobic	Living, active, or occurring in the absence of free oxygen.
Anaerobic decomposition	The breakdown of molecules into simpler molecules or atoms by microorganisms that can survive in the partial or complete absence of oxygen.
Anaerobic lagoon	A liquid-based manure management system, characterized by waste residing in water to a depth of at least six feet for a period ranging between 30 and 200 days. Bacteria produce methane in the absence of oxygen while breaking down waste.
Anaerobic organism	Organism that does not need oxygen to stay alive.
Ancillary benefits	The ancillary, or side effects, of policies aimed exclusively at climate change mitigation. Such policies have an impact not only on greenhouse gas emissions, but also on resource use efficiency, like reduction in emissions of local and regional air pollutants associated with fossil fuel use, and on issues such as transportation, agriculture, land-use practices, employment, and fuel security. Sometimes these benefits are referred to as “ancillary impacts” to reflect that in some cases the benefits may be negative. From the perspective of policies directed at abating local air pollution, greenhouse gas mitigation may also be considered an ancillary benefit, but these relationships are not considered in this assessment. See also co-benefits.
Annex A	A list in the Kyoto Protocol of the six greenhouse gases and the sources of emissions covered under the Kyoto Protocol. See also "Basket of Gases."
Annex B	A list in the Kyoto Protocol of 38 countries plus the

	European Community that agreed to QELRCs (emission targets), along with the QELRCs they accepted. The list is nearly identical to the Annex I Parties listed in the Convention except that it does not include Belarus or Turkey.
Annex B Countries	Annex B countries are the 39 emissions-capped countries listed in Annex B of the Kyoto Protocol.
Annex B countries/Parties	Group of countries included in Annex B in the Kyoto Protocol that have agreed to a target for their greenhouse gas emissions, including all the Annex I countries (as amended in 1998) but Turkey and Belarus. See also Annex II, Non-Annex I, and Non-Annex B countries/Parties.
Annex B State	Countries listed in Annex B of the Kyoto Protocol who have adopted a greenhouse gas emissions target. The list of Annex B states is largely identical with the list of Annex I states.
Annex I Countries	Annex I countries are the 36 countries and economies in transition listed in Annex I of the UNFCCC. Belarus and Turkey are listed in Annex I but not Annex B; and Croatia, Liechtenstein, Monaco and Slovenia are listed in Annex B but not Annex I. In practice, however, Annex I of the UNFCCC and Annex B of the Kyoto Protocol are often used interchangeably.
Annex I Countries/Parties	Group of countries included in Annex I (as amended in 1998) to the United Nations Framework Convention on Climate Change, including all the developed countries in the Organization of Economic Co-operation and Development, and economies in transition. By default, the other countries are referred to as Non-Annex I countries. Under Articles 4.2 (a) and 4.2 (b) of the Convention, Annex I countries commit themselves specifically to the aim of returning individually or jointly to their 1990 levels of greenhouse gas emissions by the year 2000.
Annex I countries/Parties	Group of countries included in Annex I (as amended in 1998) to the United Nations Framework Convention on Climate Change, including all the developed countries in the Organisation of Economic Co-operation and Development, and Economies in transition. By default, the other countries are referred to as Non-Annex I countries. Under Articles 4.2 (a) and 4.2 (b) of the Convention, Annex I countries commit themselves specifically to the aim of returning individually or jointly to their 1990 levels of greenhouse gas emissions by the year 2000. See also Annex II, Annex B, and Non-Annex B countries.
	The 40 countries plus the European Economic Community listed in Annex I of the UNFCCC that agreed to try to limit their GHG emissions: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, European Economic Community, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, The

	Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United States.
Annex II Countries	Annex II of the UNFCCC includes all original OECD member countries plus the European Union.
Annex II countries	Group of countries included in Annex II to the United Nations Framework Convention on Climate Change, including all developed countries in the Organisation of Economic Co-operation and Development. Under Article 4.2 (g) of the Convention, these countries are expected to provide financial resources to assist developing countries to comply with their obligations, such as preparing national reports. Annex II countries are also expected to promote the transfer of environmentally sound technologies to developing countries. See also Annex I, Annex B, Non-Annex I, and Non-Annex B countries/Parties.
Annex Z	Annex Z of Marrakesh Accords (COP7) consists of the maximum amount of forest management credits for each Annex I country.
Anoxia	A deficiency of oxygen, especially of such severity as to result in permanent damage.
Antarctic "Ozone Hole."	Refers to the seasonal depletion of stratospheric ozone in a large area over Antarctica. See ozone layer.
Antarctic Bottomwater	A type of water in the seas surrounding Antarctica with temperatures ranging from 0 to -0.8°C, salinities from 34.6 to 34.7 PSU, and a density near 27.88. This is the densest water in the free ocean.
Antarctic Circumpolar Current	A Southern Ocean current that flows around the entire globe driven by the circumpolar westerlies.
Antarctic Intermediate Water	Created through large-scale cooling and Ekman convergence in the Southern Ocean.
Anthracite	A hard, black, lustrous coal containing a high percentage of fixed carbon and a low percentage of volatile matter. Often referred to as hard coal.
Anthropogenic	Made by people or resulting from human activities. Usually used in the context of emissions that are produced as a result of human activities.6
Anthropogenic emissions	Emissions of greenhouse gases, greenhouse gas precursors, and aerosols associated with human activities. These include burning of fossil fuels for energy, deforestation and land-use changes that result in net increase in emissions.
Anthropogenic greenhouse emissions	Greenhouse-gas emissions resulting from human activities.
Anticipatory Adaptation	Adaptation that takes place before impacts of climate change are observed. Also referred to as proactive adaptation.
AOGCM	See climate model.
AOSIS	See Alliance of Small Island States.
Apex Consumers	Organisms at the top of food chains; top predators.
Aquaculture	Breeding and rearing fish, shellfish, etc., or growing plants for food in special ponds.

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. A confined aquifer is characterized by an overlying bed that is impermeable and the local rainfall does not influence the aquifer.
Arable land	Land that can be cultivated to grow crops.
Arbovirus	Any of various viruses transmitted by arthropods and including the causative agents of dengue fever, yellow fever, and some types of encephalitis.
Arid Regions	Ecosystems with <250 mm precipitation per year.
Aromatic	Applied to a group of hydrocarbons and their derivatives characterized by the presence of the benzene ring.
Article 4.1	An article of the Convention stipulating general commitments assumed by all Parties, developing or developed.
Article 4.2	An article of the Convention stating the specific commitments of developed-country (Annex I) Parties only -- notably that they would take measures aimed to return greenhouse-gas emissions to 1990 levels by the year 2000.
Article 6 Supervisory Committee	A committee providing international oversight of “track-two” joint implementation projects. Joint implementation projects are carried out by sponsoring and recipient developed countries under Article 6 of the Kyoto Protocol -- with the recipient likely to be a country with an "economy in transition". Track-two is used if one or both of the countries does not meet requirements for the standard (“track one”) joint implementation programme. See track two.
Ash	The mineral content of a product remaining after complete combustion.
Asia-Pacific Partnership (AP6)	International non-treaty agreement among Australia, India, Japan, the People's Republic of China, South Korea, and the United States was announced July 28, 2005 at an Association of South East Asian Nations (ASEAN) Regional Forum meeting. The Partnership will focus on investment and trade in cleaner energy technologies, goods and services in key market sectors.
Asphalt	A dark-brown-to-black cement-like material containing bitumen as the predominant constituent. It is obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products. cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalt.
Assigned Amount	In the Kyoto Protocol, the permitted emissions, in CO2 equivalents, during a commitment period. It is calculated using the Quantified Emission Limitation and Reduction Commitment (QELRC), together with rules specifying how and what emissions are to be counted.

Assigned Amount (AA) and Assigned Amount Units (AAUs)	The assigned amount is the total amount of greenhouse gas that each Annex B country is allowed to emit during the first commitment period (see explanation below) of the Kyoto Protocol. An Assigned Amount Unit (AAU) is a tradable unit of 1 tCO2e.
	A Kyoto Protocol unit equal to 1 metric tonne of CO2 equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading.
	Equal to 1 tonne (metric ton) of CO2-equivalent emissions calculated using the Global Warming Potential.
	Under the Kyoto Protocol, the total amount of greenhouse gas emissions that each Annex B country has agreed that its emissions will not exceed in the first commitment period (2008 to 2012) is the assigned amount. This is calculated by multiplying the country's total greenhouse gas emissions in 1990 by five (for the 5-year commitment period) and then by the percentage it agreed to as listed in Annex B of the Kyoto Protocol (e.g., 92% for the European Union; 93% for the USA).
Atmosphere	The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93% volume mixing ratio), helium, radiatively active greenhouse gases such as carbon dioxide (0.035% volume mixing ratio), and ozone. In addition the atmosphere contains water vapor, whose amount is highly variable but typically 1% volume mixing ratio. The atmosphere also contains clouds and aerosols.3
	The mixture of gases surrounding the Earth. The Earth's atmosphere consists of about 79.1 percent nitrogen (by volume), 20.9 percent oxygen, 0.036 percent carbon dioxide and trace amounts of other gases. The atmosphere can be divided into a number of layers according to its mixing or chemical characteristics, generally determined by its thermal properties (temperature). The layer nearest the Earth is the troposphere, which reaches up to an altitude of about 8 kilometers (about 5 miles) in the polar regions and up to 17 kilometers (nearly 11 miles) above the equator. The stratosphere, which reaches to an altitude of about 50 kilometers (31miles) lies atop the troposphere. The mesosphere, which extends from 80 to 90 kilometers atop the stratosphere, and finally, the thermosphere, or ionosphere, gradually diminishes and forms a fuzzy border with outer space. There is relatively little mixing of gases between layers.
Atmospheric Lifetime	The lifetime of a greenhouse gas refers to the approximate amount of time it would take for the anthropogenic increment to an atmospheric pollutant concentration to

	return to its natural level (assuming emissions cease) as a result of either being converted to another chemical compound or being taken out of the atmosphere via a sink. This time depends on the pollutant's sources and sinks as well as its reactivity. The lifetime of a pollutant is often considered in conjunction with the mixing of pollutants in the atmosphere; a long lifetime will allow the pollutant to mix throughout the atmosphere. Average lifetimes can vary from about a week (sulfate aerosols) to more than a century (chlorofluorocarbons (CFCs), carbon dioxide). See greenhouse gas and residence time.3
Atmospheric lifetime	See lifetime.
Atomic weight	The average weight (or mass) of all the isotopes of an element, as determined from the proportions in which they are present in a given element, compared with the mass of the 12 isotope of carbon (taken as precisely 12.000), that is the official international standard; measured in daltons.
Atoms	Minute particles that are the basic building blocks of all chemical elements and thus all matter.
Attribution	See: Detection and attribution.
Auctioning, See also Allocation	Auctioning means allocation of greenhouse gas emissions among emitters within domestic emissions trading scheme concerned with willingness to pay for permits.
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.
Autotrophic	Organisms independent of external sources of organic carbon (compounds) for provision of their own organic constituents, which they can manufacture entirely from inorganic material. Plants are autotrophic (photoautotrophs) using the energy of sunlight to produce organic carbon compounds from inorganic carbon and water in the process of photosynthesis.
Autotrophic respiration	Respiration by photosynthetic organisms (plants).
Average cost	Total cost divided by the number of units of the item for which the cost is being assessed. With greenhouse gases, for example, it would be the total cost of a programme divided by the physical quantity of emissions avoided.
Aviation Gasoline	All special grades of gasoline for use in aviation reciprocating engines, as given in the American Society for Testing and Materials (ASTM) specification D 910. Includes all refinery products within the gasoline range that are to be marketed straight or in blends as aviation gasoline without further processing (any refinery operation except mechanical blending). Also included are finished components in the gasoline range, which will be used for blending or compounding into aviation gasoline.
TOP	

Bacteria	One-celled organisms. Many act as decomposers that break down dead organic matter into substances that dissolve in water and are used as nutrients by plants.
Banking	Parties to the Kyoto Protocol may bank some emissions allowances or credits (maximum limit of 2,5% of country's target) to use them in subsequent commitment periods.
	Emission reductions not used in one commitment period can be saved or 'banked' for future use in a subsequent compliance period.
Barrel (bbl)	A liquid-volume measure equal to 42 United States gallons at 60 degrees Fahrenheit; used in expressing quantities of petroleum-based products.
Base Year	Targets for reducing GHG emissions are often defined in relation to a base year. In the Kyoto Protocol, 1990 is the base year for most countries for the major GHGs; 1995 can be used as the base year for some of the minor GHGs.
Baseflow	Sustained flow in a river or stream that is primarily produced by groundwater runoff, delayed subsurface runoff, and/or lake outflow.
Baseline	Estimated emissions in the reference scenario.
Baseline and Baseline Scenario	The baseline represents forecasted emissions under a business-as-usual (BAU) scenario, often referred to as the 'baseline scenario' , i.e. expected emissions if the emission reduction activities were not implemented.
	The baseline describes the GHG emissions that would occur in the absence of a GHG reduction project (i.e. business as usual scenario).
	The baseline (or reference) is any datum 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.
Baselines	The baseline estimates of population, GDP, energy use and hence resultant greenhouse gas emissions without climate policies, determine how big a reduction is required, and also what the impacts of climate change without policy will be.
Basic solution	Water solution with more hydroxide ions (OH-) than hydrogen ions (H+); water solutions with pH greater than 7. See acid solution, alkalinity.
Basin	The drainage area of a stream, river, or lake.
Basket of Gases	This refers to the group six of greenhouse gases regulated under the Kyoto Protocol. They are listed in Annex A of the Kyoto Protocol and include: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6).
BAU	See Business As Usual Scenario.
Benthic Organisms	The biota living on, or very near, the bottom of the sea, river, or lake.

Berlin Mandate	Adopted at COP-1, the mandate that launched negotiations leading to the adoption of the Kyoto Protocol.
	Decision of the Parties reached at the first session of the Conference of the Parties to the UNFCCC (COP-1) in 1995 in Berlin that the commitments made by Annex I countries were inadequate and thus needed to be strengthened.
Biodegradable	Material that can be broken down into simpler substances (elements and compounds) by bacteria or other decomposers. Paper and most organic wastes such as animal manure are biodegradable. See nonbiodegradable.
Biodiversity	The variety of organisms found within a specified geographic region.
	The numbers and relative abundances of different genes (genetic diversity), species, and ecosystems (communities) in a particular area. See also functional diversity.
Biodiversity Hot Spots	Areas with high concentrations of endemic species facing extraordinary habitat destruction.
Biofuel	Gas or liquid fuel made from plant material (biomass). Includes wood, wood waste, wood liquors, peat, railroad ties, wood sludge, spent sulfite liquors, agricultural waste, straw, tires, fish oils, tall oil, sludge waste, waste alcohol, municipal solid waste, landfill gases, other waste, and ethanol blended into motor gasoline.
Biofuels	A fuel produced from dry organic matter or combustible oils produced by plants. Examples of biofuel include alcohol (from fermented sugar), black liquor from the paper manufacturing process, wood, and soybean oil.
Biogeochemical Cycle	Movements through the Earth system of key chemical constituents essential to life, such as carbon, nitrogen, oxygen, and phosphorus.6
	Natural processes that recycle nutrients in various chemical forms from the environment, to organisms, and then back to the environment. Examples are the carbon, oxygen, nitrogen, phosphorus, and hydrologic cycles.
Biological oxygen demand (BOD)	Amount of dissolved oxygen needed by aerobic decomposers to break down the organic materials in a given volume of water at a certain temperature over a specified time period. See BOD5.
Biomass	Total dry weight of all living organisms that can be supported at each tropic level in a food chain. Also, materials that are biological in origin, including organic material (both living and dead) from above and below ground, for example, trees, crops, grasses, tree litter, roots, and animals and animal waste.7
Biomass energy	Energy produced by combusting biomass materials such as wood. The carbon dioxide emitted from burning biomass will not increase total atmospheric carbon dioxide if this consumption is done on a sustainable basis (i.e., if in a given period of time, regrowth of biomass takes up as much carbon dioxide as is released from biomass combustion).

	Biomass energy is often suggested as a replacement for fossil fuel combustion.
Biomass fuels or biofuels	A fuel produced from dry organic matter or combustible oils produced by plants. These fuels are considered renewable as long as the vegetation producing them is maintained or replanted, such as firewood, alcohol fermented from sugar, and combustible oils extracted from soy beans. Their use in place of fossil fuels cuts greenhouse gas emissions because the plants that are the fuel sources capture carbon dioxide from the atmosphere.
Biome	A grouping of similar plant and animal communities into broad landscape units that occur under similar environmental conditions.
Biosphere	The part of the Earth 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.3
	The living and dead organisms found near the earth's surface in parts of the lithosphere, atmosphere, and hydrosphere. The part of the global carbon cycle that includes living organisms and biogenic organic matter.
Biota	All living organisms of an area; the flora and fauna considered as a unit.
Biotic	Living. Living organisms make up the biotic parts of ecosystems. See abiotic.
Bitumen	Gooey, black, high-sulfur, heavy oil extracted from tar sand and then upgraded to synthetic fuel oil. See tar sand.
Bituminous coal	A dense, black, soft coal, often with well-defined bands of bright and dull material. The most common coal, with moisture content usually less than 20 percent. Used for generating electricity, making coke, and space heating.
Black Carbon	Operationally defined species based on measurement of light absorption and chemical reactivity and/or thermal stability; consists of soot, charcoal, and/or possible light-absorbing refractory organic matter. (Source: Charlson and Heintzenberg, 1995, p. 401.)3
Black Carbon Aerosols	Particles of carbon in the atmosphere produced by inefficient combustion of fossil fuels or biomass. Black carbon aerosols absorb light from the sun, shading and cooling the Earth’s surface, but contribute to significant warming of the atmosphere (see “radiative forcing“).
BOD5	The biochemical oxygen demand of wastewater during decomposition occurring over a 5-day period. A measure of the organic content of wastewater. See biological oxygen demand.
Bog	A poorly drained area rich in accumulated plant material, frequently surrounding a body of open water and having a characteristic flora (such as sedges, heaths, and sphagnum).
Bonn agreements	Informal term for a political deal reached at COP-6 in Bonn,

	Germany, in 2001, by which governments agreed on the most politically controversial issues under the Buenos Aires Plan of Action. The Bonn agreements paved the way for the Marrakech Accords later in the same year.
Bonn fund	A special UNFCCC fund for contributions from the Government of Germany to cover costs of UNFCCC events held in Bonn.
Boreal Forest	Forests of pine, spruce, fir, and larch stretching from the east coast of Canada westward to Alaska and continuing from Siberia westward across the entire extent of Russia to the European Plain.
Borehole	Any exploratory hole drilled into the Earth or ice to gather geophysical data. Climate researchers often take ice core samples, a type of borehole, to predict atmospheric composition in earlier years. See ice core.
Brazilian proposal	A proposal by the delegation of Brazil made in May 1997 as part of the negotiations on the Kyoto Protocol. It included a formula to set differentiated emission reduction targets for Parties based to the cumulative impact of Parties' historic emissions on the global average surface temperature.
Breakwater	An offshore structure (such as a wall or jetty) that, by breaking the force of the wave, protects a harbor, anchorage, beach, or shore area.
British thermal unit (Btu)	The quantity of heat required to raise the temperature of one pound of water one degree of Fahrenheit at or near 39.2 degrees Fahrenheit.
Bryd-Hagel Resolution	In June 1997, anticipating the December 1997 meeting in Kyoto, Senator Robert C. Byrd (D-WV) introduced, with Sen. Chuck Hagel (R-NE) and 44 other cosponsors, a resolution stating that the impending Kyoto Protocol (or any subsequent international climate change agreement) should not - "(A) mandate new commitments to limit or reduce GHG emissions for the Annex I Parties [i.e. industrialized countries], unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce GHG emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States..."
Bubble	A bubble is a regulatory concept whereby two or more emission sources are treated as if they were a single emission source.
	An option in the Kyoto Protocol that allows a group of countries to meet their targets jointly by aggregating their total emissions. The member states of the European Union are utilizing this option.
Bundling,	see also DebundlingCombination of several small-scale project activities to form a single project activity or portfolio to decrease transaction costs per unit of emission reductions.
Bunker fuel	Fuel supplied to ships and aircraft for international transportation, irrespective of the flag of the carrier,

	consisting primarily of residual and distillate fuel oil for ships and jet fuel for aircraft.
Bunker fuels	A term used to refer to fuels consumed for international marine and air transport.
Burden	The total mass of a gaseous substance of concern in the atmosphere.
Bureau	A body responsible for directing the work of the COP. Its 10 members are delegates elected by each of five regional groups. The Bureau includes the COP President, six Vice Presidents, the Chairs of SBI and SBSTA, and a rapporteur. Each of the Convention's subsidiary bodies also has a Bureau.
Business As Usual Scenario (BAU)	A business as usual scenario is a policy neutral reference case of future emissions, i.e. projections of future emission levels in the absence of changes in current policies, economics and technology.
TOP	
C3 plants	Plants that produce a three-carbon compound during photo-synthesis; including most trees and agricultural crops such as rice, wheat, soyabeans, potatoes and vegetables.
C4 plants	Plants that produce a four-carbon compound during photo-synthesis; mainly of tropical origin, including grasses and the agriculturally important crops maize, sugar cane, millet and sorghum.
CACAM	Negotiating coalition of countries of Central Asia and the Caucasus, Albania, and the Republic of Moldova.
Cap and Trade	A cap and trade system is an emissions trading system, where total emissions are limited or 'capped'. The Kyoto Protocol is a cap and trade system in the sense that emissions from Annex B countries are capped and that excess permits might be traded. However, normally cap and trade systems will not include mechanisms such as the CDM, which will allow for more permits to enter the system, i.e. beyond the cap.
	In a cap-and-trade system, the government sets the total amount of a pollutant that can be put into the environment by an entire industry or class of emitters. The government establishes emission allowances, which can be bought and sold among companies in the industry. The only requirements are that sources completely and accurately measure and report all emissions and then turn in the same number of allowances as emissions at the end of the compliance period.
Capacity building	In the context of climate change, the process of developing the technical skills and institutional capability in developing countries and economies in transition to enable them to address effectively the causes and results of climate change.
Capacity Factor	The ratio of the electrical energy produced by a generating

	unit for a given period of time to the electrical energy that could have been produced at continuous full- power operation during the same period.
Capital Stock	Existing investments in energy plant and equipment that may or may not be modified once installed.
Carbon black	An amorphous form of carbon, produced commercially by thermal or oxidative decomposition of hydrocarbons and used principally in rubber goods, pigments, and printer's ink.
Carbon Cycle	All parts (reservoirs) and fluxes of carbon. The cycle is usually thought of as four main reservoirs of carbon interconnected by pathways of exchange. The reservoirs are the atmosphere, terrestrial biosphere (usually includes freshwater systems), oceans, and sediments (includes fossil fuels). The annual movements of carbon, the carbon exchanges between reservoirs, occur because of various chemical, physical, geological, and biological processes. The ocean contains the largest pool of carbon near the surface of the Earth, but most of that pool is not involved with rapid exchange with the atmosphere.6
	The term used to describe the flow of carbon (in various forms, e.g. as carbon dioxide) through the atmosphere, ocean, terrestrial biosphere and lithosphere.
	All carbon reservoirs and exchanges of carbon from reservoir to reservoir by various chemical, physical, geological, and biological processes. Usually thought of as a series of the four main reservoirs of carbon interconnected by pathways of exchange. The four reservoirs, regions of the Earth in which carbon behaves in a systematic manner, are the atmosphere, terrestrial biosphere (usually includes freshwater systems), oceans, and sediments (includes fossil fuels). Each of these global reservoirs may be subdivided into smaller pools, ranging in size from individual communities or ecosystems to the total of all living organisms (biota).
Carbon Dioxide (CO2)	A naturally occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1. See climate change and global warming.5
	CO2 is a colorless, odorless, non-poisonous gas that is a normal part of the ambient air. Of the six greenhouse gases normally targeted, CO2 contributes the most to human-induced global warming. Human activities such as fossil fuel combustion and deforestation have increased atmospheric concentrations of CO2 by approximately 30 percent since the industrial revolution. CO2 is the standard used to determine the "global warming potentials" (GWPs) of other gases. CO2 has been assigned a 100-year GWP of 1 (i.e., the warming effects over a 100-year time frame relative

	to other gases).
Carbon Dioxide Capture and Storage (CCS)	Process consisting of the separation of CO2 from industrial and energy-related sources, transport to a storage location and long-term isolation from the atmosphere.
Carbon Dioxide Equivalent (CO2e)	A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMTCO2Eq)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP. The use of carbon equivalents (MMTCE) is declining.
	This is a measurement unit used to indicate the global warming potential (GWP) of greenhouse gases. Carbon dioxide is the reference gas against which other greenhouse gases are measured.
	CO2e is an abbreviation of 'carbon dioxide equivalent' and is the internationally recognised measure of greenhouse emissions. CO2 is not a potent greenhouse gas compared to the others. However, because CO2 is produced in such huge quantities, its effect is much greater than all the other greenhouse gasses combined. Methane (CH4), for example is 21 has a global warming potential of 21 (is 21 times more potent than CO2). Thus 1 tonne of CH4 equals 21 tonnes CO2e. GHG emissions are measured in tonnes CO2e.
	Carbon Dioxide Equivalent (CO2e). The emissions of a gas, by weight, multiplied by its "global warming potential."
Carbon Dioxide Fertilization	The enhancement of the growth of plants as a result of increased atmospheric CO2 concentration. Depending on their mechanism of photosynthesis, certain types of plants are more sensitive to changes in atmospheric CO2 concentration.3
	The enhancement of the growth of plants as a result of increased atmospheric carbon dioxide concentration. Depending on their mechanism of photosynthesis, certain types of plants are more sensitive to changes in atmospheric CO2 concentration. In particular, C3 plants generally show a larger response to CO2 than C4 plants.
Carbon equivalent	A metric measure used to compare the emissions of the different greenhouse gases based upon their global warming potential (GWP). Greenhouse gas emissions in the United States are most commonly expressed as "million metric tons of carbon equivalents" (MMTCE). Global warming potentials are used to convert greenhouse gases to carbon dioxide equivalents. See global warming potential, greenhouse gas.
Carbon Flux	Transfer of carbon from one carbon pool to another in units of measurement of mass per unit area and time (e.g., t C).
Carbon Intensity	The amount of carbon by weight emitted per unit of energy consumed. A common measure of carbon intensity is weight

	of carbon per British thermal unit (Btu) of energy. When there is only one fossil fuel under consideration, the carbon intensity and the emissions coefficient are identical. When there are several fuels, carbon intensity is based on their combined emissions coefficients weighted by their energy consumption levels.1
Carbon market	A popular but misleading term for a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called "carbon-dioxide equivalents."
Carbon Market Forecaster	This computer model provides the foundation for the estimation of the present value of carbon permits. Carbon Market Forecaster uses input data from a large number of sources: historical trends, various top-down models, bottom-up studies, expert group surveys and forecasts. The model is highly flexible and is updated continuously.
Carbon Neutral	Zero CO2 emissions from sources, which are currently not addressed, or only inadequately addressed, by climate policies (e.g. private households, public administrations, most small and medium sized businesses, air travel). Carbon neutrality is a voluntary market mechanism to encourage the reduction of emissions.
Carbon pool	The reservoir containing carbon as a principal element in the geochemical cycle.
Carbon sequestration	The process of removing carbon from the atmosphere and depositing it in a reservoir.
	The uptake and storage of carbon. Trees and plants, for example, absorb carbon dioxide, release the oxygen and store the carbon. Fossil fuels were at one time biomass and continue to store the carbon until burned. See sinks.6
	The process of removing additional carbon from the atmosphere and depositing it in other "reservoirs," principally through changes in land use. In practical terms, carbon sequestration occurs mostly through the expansion of forests.
Carbon Sinks	Processes that remove more carbon dioxide from the atmosphere than they release. Both the terrestrial biosphere and oceans can act as carbon sinks.
	Carbon reservoirs and conditions that take-in and store more carbon (i.e., carbon sequestration) than they release. Carbon sinks can serve to partially offset greenhouse gas emissions. Forests and oceans are large carbon sinks. See carbon sequestration.
Carbon Taxes	A surcharge on the carbon content of oil, coal, and gas that discourages the use of fossil fuels and aims to reduce carbon dioxide emissions.

Carbon tetrachloride (CCl4)	A compound consisting of one carbon atom and four chlorine atoms. It is an ozone depleting substance. Carbon tetrachloride was widely used as a raw material in many industrial applications, including the production of chlorofluorocarbons, and as a solvent. It was discovered to be carcinogenic. See ozone depleting substance.
Carbon Trading	See Emission Trading
Carbonaceous aerosol	Aerosol consisting predominantly of organic substances and various forms of black carbon. (Source: Charlson and Heintzenberg, 1995, p. 401.)
Carrying Capacity	The number of individuals in a population that the resources of a habitat can support.
Catchment	An area that collects and drains rainwater.
CBD	Convention on Biological Diversity.
CC:TRAIN	Training methodology for assessing vulnerability to climate change.
CDM	Clean Development Mechanism
CDM EB	See Clean Development Mechanism Executive Board.
CDM Executive Board	A 10-member panel elected at COP-7 which supervises the CDM and has begun operation in advance of the Protocol's entry into force.
CDM Registry	At its thirteenth meeting the Executive Board designated the UNFCCC Secretariat as the CDM registry administrator. In carrying out this task the secretariat has put into production a version of the CDM registry, which, while capable of communicating with the ITL, is operating temporarily as a stand alone system. This version of the CDM registry is being used to issue CERs from registered CDM project activities (CDM Registry).
CER	Certified Emission Reduction, the type of emission reduction certificate generated by CDM projects.
CERs	See Certified Emission Reductions.
Certification	The certification process is the phase of a CDM or JI project when permits are issued on the basis of calculated emissions reductions and verification, possibly by a third party.
Certified Emission Reduction (CER) Certified Emission Reductions (CERs)	A unit equal to one metric tonne of carbon dioxide equivalent, resulting from a CDM project, which may be used by Annex I countries towards meeting their binding emission reduction and limitation commitments under the Kyoto Protocol.
	A Kyoto Protocol unit equal to 1 metric tonne of CO2 equivalent. CERs are issued for emission reductions from CDM project activities. Two special types of CERs called temporary certified emission reduction (tCERs) and long-term certified emission reductions (lCERs) are issued for emission removals from afforestation and reforestation CDM projects.
	CERs are permits generated through the CDM.
	Reductions of greenhouse gases achieved by a Clean Development Mechanism (CDM) project. A CER can be

	sold or counted toward Annex I countries' emissions commitments. Reductions must be additional to any that would otherwise occur.
CFC	Chlorofluorocarbon.
CG-11	Central Group 11 (negotiating coalition of Central European Annex I parties).
CGE	Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention.
CH4	Methane.
Chagas' Disease	A parasitic disease caused by the Trypanosoma cruzi and transmitted by triatomine bugs in the Americas, with two clinical periods: acute (fever, swelling of the spleen, edemas) and chronic (digestive syndrome, potentially fatal heart condition).
Chair (or Chairman, Chairperson, etc.)	National delegates elected by participating governments to lead the deliberations of the Convention's subsidiary bodies. Different chairs may be elected for other informal groups. The Chair is responsible for facilitating progress towards an agreement and serves during the inter-sessional period until the next COP.
Charcoal	Material resulting from charring of biomass, usually retaining some of the microscopic texture typical of plant tissues; chemically it consists mainly of carbon with a disturbed graphitic structure, with lesser amounts of oxygen and hydrogen. See: Black carbon; Soot particles. (Source: Charlson and Heintzenberg, 1995, p. 402.)
Chemical reaction	Interaction between chemicals in which there is a change in the chemical composition of the elements or compounds involved.
Chlorofluorocarbons (CFCs)	Greenhouse gases covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. 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 and hydrofluorocarbons, which are greenhouse gases covered under the Kyoto Protocol. See hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, ozone depleting substance.5
	CFCs are synthetic industrial gases composed of chlorine, fluorine, and carbon. They have been used as refrigerants, aerosol propellants, cleaning solvents and in the manufacture of plastic foam. There are no natural sources of CFCs. CFCs have an atmospheric lifetime of decades to centuries, and they have 100-year "global warming potentials" thousands of times that of CO2, depending on the gas. In addition to being greenhouse gases, CFCs also contribute to ozone depletion in the stratosphere and are controlled under the Montreal Protocol.

	Organic compounds made up of atoms of carbon, chlorine, and fluorine. An example is CFC-12 (CCl_2F_2), used as a refrigerant in refrigerators and air conditioners and as a foam blowing agent. Gaseous CFCs can deplete the ozone layer when they slowly rise into the stratosphere, are broken down by strong ultraviolet radiation, release chlorine atoms, and then react with ozone molecules. See Ozone Depleting Substance.
Cholera	An intestinal infection that results in frequent watery stools, cramping abdominal pain, and eventual collapse from dehydration.
Clean Development Mechanism (CDM)	The CDM is a mechanism for project-based emission reduction activities in developing countries. Certificates will be generated through the CDM from projects that lead to certifiable emissions reductions that would otherwise not occur.
	A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.
	A procedure under the Kyoto Protocol under which developed countries may finance greenhouse-gas emissions-avoiding projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.
	One of the three market mechanisms established by the Kyoto Protocol. The CDM is designed to promote sustainable development in developing countries and assist Annex I Parties in meeting their greenhouse gas emissions reduction commitments. It enables industrialized countries to invest in emission reduction projects in developing countries and to receive credits for reductions achieved.
Clean Development Mechanism (CDM) Executive Board (EB)	The CDM EB is accountable to the Conference of the Parties to the Kyoto Protocol (see below). It registers validated project activities as CDM projects, issues certified emission reductions to relevant projects participants, and manages series of technical panels and working groups meetings (see Methodologies Panel).
Clear Skies Act (Clear Skies Initiative)	Establishes in the United States federally enforceable emissions limits (or "caps") for three pollutants - SO_2, NO_x, and mercury for a period of 2008-2018. Clear Skies' NO_x and SO_2 requirements affect all fossil fuel-fired electric generators greater than 25 megawatts (MW) that sell electricity.
Clearing house	A service which facilitates and simplifies transactions among multiple parties.
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 of years. The classical period is 3 decades, as defined by the World Meteorological Organization (WMO). 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. See weather.3
Climate	The long-term average weather of a region including typical weather patterns, the frequency and intensity of storms, cold spells, and heat waves. Climate is not the same as weather.
	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 of years. The classical period is 3 decades, as defined by the World Meteorological Organization (WMO). 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.
Climate Cent	Levy on all imports of petrol and diesel at a rate of 1.5 cents per litre introduced as a voluntary measure of the Swiss industry. This will generate around 100 million Swiss Francs annually, which will go towards closing the gap in CO2 emissions reductions.
Climate Change	Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from:
	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere in addition to natural climate variability over comparable time periods.
	Refers to changes in long-term trends in the average climate, such as changes in average temperatures. In IPCC usage, climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. In UNFCC usage, climate change refers to a change in climate that is attributable directly or indirectly to human activity that alters atmospheric composition.
	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 or in land use. Note that the Framework Convention on Climate Change (UNFCCC), in its Article 1, 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". The

	UNFCCC thus makes a distinction between "climate change" attributable to human activities altering the atmospheric composition, and "climate variability" attributable to natural causes. See also: Climate variability.
	Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), which 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 Feedback	An interaction mechanism between processes in the climate system is called a climate feedback, when the result of an initial process triggers changes in a second process that in turn influences the initial one. A positive feedback intensifies the original process, and a negative feedback reduces it. See climate, climate change, radiative forcing.3
	An interaction mechanism between processes in the climate system is called a climate feedback, when the result of an initial process triggers changes in a second process that in turn influences the initial one. A positive feedback intensifies the original process, and a negative feedback reduces it.
	An atmospheric, oceanic, terrestrial, or other process that is activated by direct climate change induced by changes in radiative forcing. Climate feedbacks may increase (positive feedback) or diminish (negative feedback) the magnitude of the direct climate change.
Climate Lag	The delay that occurs in climate change as a result of some factor that changes only very slowly. For example, the effects of releasing more carbon dioxide into the atmosphere may not be known for some time because a large fraction is dissolved in the ocean and only released to the atmosphere many years later. See climate, climate change.
	The delay that occurs in climate change as a result of some factor that changes very slowly. For example, the effects of releasing more carbon dioxide into the atmosphere may not be known for some time because a large fraction is dissolved in the ocean and only released to the atmosphere many years later.
Climate Model	A quantitative way of representing the interactions of the atmosphere, oceans, land surface, and ice. Models can range from relatively simple to quite comprehensive. See General Circulation Model.6
Climate model (hierarchy)	A numerical representation of the climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes, and accounting for all or some of its known properties. The climate system can be represented by models of varying

	complexity, i.e. for any one component or combination of components a hierarchy of models can be identified, differing in such aspects as the number of spatial dimensions, the extent to which physical, chemical or biological processes are explicitly represented, or the level at which empirical parametrizations are involved. Coupled atmosphere/ocean/sea-ice General Circulation Models (AOGCMs) provide a comprehensive representation of the climate system. There is an evolution towards more complex models with active chemistry and biology. Climate models are applied, as a research tool, to study and simulate the climate, but also for operational purposes, including monthly, seasonal and interannual climate predictions.
Climate prediction	A climate prediction or climate forecast is the result of an attempt to produce a most likely description or 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	A projection of the response of the climate system to emission or concentration scenarios of greenhouse gases and aerosols, or radiative forcing scenarios, often based upon simulations by climate models. Climate projections are distinguished from climate predictions in order to emphasise that climate projections depend upon the emission/concentration/ radiative forcing scenario used, which are based on assumptions, concerning, e.g., future socio-economic and technological developments, that may or may not be realised, and are therefore subject to substantial uncertainty.
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 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 Sensitivity	In IPCC Reports, equilibrium climate sensitivity refers to the equilibrium change in global mean surface temperature following a doubling of the atmospheric (equivalent) CO2 concentration. More generally, equilibrium climate sensitivity refers to the equilibrium change in surface air temperature following a unit change in radiative forcing (degrees Celsius, per watts per square meter, °C/Wm-2). In practice, the evaluation of the equilibrium climate sensitivity requires very long simulations with Coupled General Circulation Models (Climate model). The effective climate sensitivity is a related measure that circumvents this requirement. It is evaluated from model output for evolving non-equilibrium conditions. It is a measure of the strengths of the feedbacks at a particular time and may vary with forcing history and climate state. See climate, radiative forcing.3
Climate Sensitivity	The average global air surface temperature change resulting from a doubling of pre-industrial atmospheric CO2 concentrations. The IPCC estimates climate sensitivity at 1.5-4.5oC (2.7-8.1oF).
Climate sensitivity	In IPCC Reports, equilibrium climate sensitivity refers to the equilibrium change in global mean surface temperature following a doubling of the atmospheric (equivalent) CO2 concentration. More generally, equilibrium climate sensitivity refers to the equilibrium change in surface air temperature following a unit change in radiative forcing (°C/Wm-2). In practice, the evaluation of the equilibrium climate sensitivity requires very long simulations with Coupled General Circulation Models (Climate model). The effective climate sensitivity is a related measure that circumvents this requirement. It is evaluated from model output for evolving non-equilibrium conditions. It is a measure of the strengths of the feedbacks at a particular time and may vary with forcing history and climate state. Details are discussed in Section 9.2.1 of Chapter 9 in this Report.
Climate sensitivity	The equilibrium response of the climate to a change in radiative forcing; for example, a doubling of the carbon dioxide concentration. See radiative forcing.
Climate system	The climate system is the highly complex system consisting of five major components: the atmosphere, the hydrosphere, the cryosphere, the land surface and the biosphere, and the interactions between them. The climate system evolves in time under the influence of its own internal dynamics and because of external forcings such as volcanic eruptions, solar variations and human-induced forcings such as the changing composition of the atmosphere and land-use change.
Climate System	The climate system is the highly complex system consisting of five major components: the atmosphere, the hydrosphere, the cryosphere, the land surface, and the biosphere, and the interactions between them. The climate system evolves in

	time under the influence of its own internal dynamics and because of external forcings such as volcanic eruptions, solar variations and human-induced forcings such as the changing composition of the atmosphere and land use.
Climate System (or Earth System)	The five physical components (atmosphere, hydrosphere, cryosphere, lithosphere, and biosphere) that are responsible for the climate and its variations.6
Climate system (or Earth system)	The atmosphere, the oceans, the biosphere, the cryosphere, and the geosphere, together make up the climate system.
Climate Variability	Refers to changes in patterns, such as precipitation patterns, in the weather and climate.
Climate variability	Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence 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). See also: Climate change.
Climate Variability	Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence 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). See also climate change.
Cloud condensation nuclei	Airborne particles that serve as an initial site for the condensation of liquid water and which can lead to the formation of cloud droplets. See also: Aerosols.
CMS	Convention on the Conservation of Migratory Species of Wild Animals.
CO2 fertilisation	See Carbon dioxide (CO2) fertilisation
CO_2e	Carbon dioxide equivalent.
Coal	A black or brownish black solid, combustible substance formed by the partial decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal, subbituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value. Coal rank indicates the progressive alteration, or coalification, from lignite to anthracite. See anthracite, bituminous coal, subbituminous coal, lignite.
Coal coke	A hard, porous product made from baking bituminous coal in ovens at temperatures as high as 2,000 degrees Fahrenheit. It is used both as a fuel and as a reducing agent in smelting iron ore in a blast furnace.
Coal gasification	Conversion of solid coal to synthetic natural gas (SNG) or a gaseous mixture that can be burned as a fuel.
Coal liquefaction	Conversion of solid coal to a liquid fuel such as synthetic crude oil or methanol.

Coal Mine Methane	Coal mine methane is the subset of CBM that is released from the coal seams during the process of coal mining. For more information, visit the Coalbed Methane Outreach program site.
Coal Mine Methane/Coalbed Methane	Coalbed methane is methane contained in coal seams, and is often referred to as virgin coalbed methane, or coal seam gas. Coal mine methane is the subset of coalbed methane that is released during the process of coal mining.
Coalbed Methane	Coalbed methane is methane contained in coal seams, and is often referred to as virgin coalbed methane, or coal seam gas. For more information, visit the Coalbed Methane Outreach program site.
Coalbed methane	Methane that is produced from coalbeds in the same manner as natural gas produced from other strata. Methane is the principal component of natural gas.
Co-Benefit	The benefits of policies that are implemented for various reasons at the same time – including climate change mitigation – acknowledging that most policies designed to address greenhouse gas mitigation also have other, often at least equally important, rationales (e.g., related to objectives of development, sustainability, and equity). The term co-impact is also used in a more generic sense to cover both the positive and negative side of the benefits.5
Co-control benefit	It is the additional benefit derived from an environmental policy that is designed to control one type of pollution, while reducing the emissions of other pollutants as well. For example, a policy to reduce carbon dioxide emissions might reduce the combustion of coal, but when coal combustion is reduced, so too are the emissions of particulates and sulfur dioxide. The benefits associated with reductions in emissions of particulates and sulfur dioxide are the co-control benefits of reductions in carbon dioxide.
Cogeneration	The production of electricity using waste heat (as in steam) from an industrial process or the use of steam from electric power generation as a source of heat
	Production of two useful forms of energy such as high-temperature heat and electricity from the same process.
Combustion	Chemical oxidation accompanied by the generation of light and heat.
Commitment Period	The five-year Kyoto Protocol Commitment Period is scheduled to run from calendar year 2008 to calendar year-end 2012.
	The period under the Kyoto Protocol during which Annex I Parties' GHG emissions, averaged over the period, must be within their emission targets. The first commitment period runs from January 1, 2008 to December 31, 2012.
Commitment Period Reserve	To avoid “over-sell” and thus non-compliance with targets, Annex I Parties to hold a minimum level of AAUs, CERs, ERUs and/or RMUs in a commitment period reserve that cannot be traded.

Committee of the Whole	Often created by a COP to aid in negotiating text. It consists of the same membership as the COP. When the Committee has finished its work, it turns the text over to the COP, which finalizes and then adopts the text during a plenary session.
Common Reporting Format (CRF)	Standardized format for reporting estimates of greenhouse-gas emissions and removals and other relevant information by Annex I Parties.
Communicable Disease	An infectious disease caused by transmission of an infective biological agent (virus, bacterium, protozoan, or multicellular macroparasite).
Community Independent Transaction Log (CITL)	Central Administrator programme started at January 1, 2005 according to EU Directive 2003/87/EC, which underline the necessity to maintain an independent transaction log recording the issue, transfer and cancellation of allowances within European Union.
Compliance	Achievement by a Party its quantified emission limitation and reduction commitments under the Kyoto Protocol.
	Fulfilment by countries/businesses/individuals of emission and reporting commitments under the UNFCCC and the Kyoto Protocol.
Compliance Committee	A committee that helps facilitate, promote and enforce on compliance with the provisions of the Kyoto Protocol. It has 20 members with representation spread among various regions, small-island developing states, Annex I and non-Annex I parties, and functions through a plenary, a bureau, a facilitative branch and an enforcement branch.
Compost	Partially decomposed organic plant and animal matter that can be used as a soil conditioner or fertilizer.
Composting	Partial breakdown of organic plant and animal matter by aerobic bacteria to produce a material that can be used as a soil conditioner or fertilizer. See compost.
Compound	Combination of two or more different chemical elements held together by chemical bonds. See element. See inorganic compound, organic compound.
Concentration	Amount of a chemical in a particular volume or weight of air, water, soil, or other medium. See parts per billion, parts per million.
Conference of Parties (COP)	The supreme body of the UNFCCC. It currently meets once a year to review the Convention's progress. Credit An emission reduction in excess of the required amount. Although credits are named differently by mechanism (CER for CDM projects; ERU for JI projects, etc.), they can be sold to enable emissions trading.
	The supreme body of the United Nations Framework Convention on Climate Change (UNFCCC). It comprises more than 180 nations that have ratified the Convention. Its first session was held in Berlin, Germany, in 1995 and it is expected to continue meeting on a yearly basis. The COP's role is to promote and review the implementation of the

	Convention. It will periodically review existing commitments in light of the Convention's objective, new scientific findings, and the effectiveness of national climate change programs. See United Nations Framework Convention on Climate Change.
	The COP is the supreme body of the United Nations Framework Convention on Climate Change (UNFCCC). The Sixth Conference of the Parties under the UN Framework Convention on Climate Change (COP-6) took place in The Hague 13-24 November 2000. The negotiations in The Hague did not yield decisions on rules for the flexible mechanisms, due to disputes between the EU and the USA on how to account for activities related to so-called carbon sinks. COP6 was therefore formally not ended before agreement was reached at the second part of the conference (COP-6bis) in Bonn, Germany, in July 2001. COP-7 was held 29 October-9 November, 2001, in Marrakech, Morocco. COP-8 was held in New Delhi, India, in October/November 2002, while COP-9 took place in December 2003 in Milan, Italy. COP-10 was held in December 2004 in Buenos Aires, Argentina, and COP-11 in Montreal, Canada in November/December 2005, this also was the first Meeting of the Parties to the Kyoto Protocol (MOP-1). The last conference (COP -12) was held in Nairobi in November 2006. The next one is due in December 2007.
Conference of the Parties serving as the Meeting of the Parties (CMP)	The Convention's supreme body is the COP, which serves as the meeting of the Parties to the Kyoto Protocol. The sessions of the COP and the CMP are held during the same period to reduce costs and improve coordination between the Convention and the Protocol.
Conference room papers (CRPs)	A category of in-session documents containing new proposals or outcomes of in-session work. CRPs are for use only during the session concerned. Consultative Group of Experts on National Communications from non-Annex I Parties. A panel established to improve the preparation of national communications from developing countries. National communications are an obligation of Parties to the Climate Change Convention.
Conifer	See coniferous trees.
Coniferous trees	Cone-bearing trees, mostly evergreens, that have needle-shaped or scale-like leaves. They produce wood known commercially as softwood. See deciduous trees.
Contact group	An open-ended meeting that may be established by the COP, a subsidiary body or a Committee of the Whole wherein Parties may negotiate before forwarding agreed text to a plenary for formal adoption. Observers generally may attend contact group sessions.
Conversion:	Tg = 109 kg = 106 metric tons = 1 million metric tons
Cooling degree days	The integral over a day of the temperature above 18°C (e.g. a day with an average temperature of 20°C counts as 2

	cooling degree days). See also: Heating degree days.
	The number of degrees per day that the average daily temperature is above 65° Fahrenheit. The daily average temperature is the mean of the maximum and minimum temperatures for a 24 hour period.
COP	Conference of the Parties, the annual conference of the parties to the UNFCCC.
COP/MOP	Conference of the Parties serving as a Meeting of the Parties to the Protocol, the annual conference of the parties to the Kyoto Protocol.
Coping Range	The variation in climatic stimuli that a system can absorb without producing significant impacts.
Coral Bleachin	The paling in color of corals resulting from a loss of symbiotic algae. Bleaching occurs in response to physiological shock in response to abrupt changes in temperature, salinity, and turbidity.
Cordillera	An individual mountain chain with closely connected, distinct summits. In South America, "cordillera" refers to an individual mountain range.
Countries with Economies in Transition (EIT)	Countries that are in the transition from a planned economy to a market-based economy, i.e. the Central and East European countries, Russia, and the former republics of the Soviet Union.
	Those Central and East European countries and former republics of the Soviet Union in transition from state-controlled to market economies.
Crediting Period	The crediting period is the duration when a project generates carbon credits. The crediting period shall not extend beyond the operational lifetime of the project. For CDM projects crediting period continues either a 7-year period, which can be renewed twice to make a total of 21 years, or a one-off 10-year period; for JI projects crediting period overlaps with the first commitment period under the Kyoto Protocol (2008-2012). The JI projects starting as of 2000 may be eligible as JI projects if they meet the requirements of the JI guidelines. The end of the crediting period can be after 2012 subject to the approval by the host Party.
Crop residue	Organic residue remaining after the harvesting and processing of a crop.
Crop rotation	Planting the same field or areas of fields with different crops from year to year to reduce depletion of soil nutrients. A plant such as corn, tobacco, or cotton, which remove large amounts of nitrogen from the soil, is planted one year. The next year a legume such as soybeans, which add nitrogen to the soil, is planted.
Crude oil	A mixture of hydrocarbons that exist in liquid phase in underground reservoirs and remain liquid at atmospheric pressure after passing through surface separating facilities. See petroleum.
Cryosphere	One of the interrelated components of the Earth's system,

	the cryosphere is frozen water in the form of snow, permanently frozen ground (permafrost), floating ice, and glaciers. Fluctuations in the volume of the cryosphere cause changes in ocean sea level, which directly impact the atmosphere and biosphere.6
	The component of the climate system consisting of all snow, ice and permafrost on and beneath the surface of the earth and ocean. See: Glacier; Ice sheet.
Cryptosporidiosis	An opportunistic infection caused by an intestinal parasite common in animals. Transmission occurs through ingestion of food or water contaminated with animal feces. The parasite causes severe chronic diarrhea, especially in people with HIV.
CSD	United Nations Commission on Sustainable Development.
TOP	
Debundling	(see also Bundling) Debundling is defined as the fragmentation of a large project activity into smaller parts.
Deciduous trees	Trees such as oaks and maples that lose their leaves during part of the year. See coniferous trees.
Decision	A formal agreement that (unlike a resolution) leads to binding actions. It becomes part of the agreed body of decisions that direct the work of the COP.
Declaration	A non-binding political statement made by ministers attending a major meeting (e.g. the Geneva Ministerial Declaration of COP-2).
Decomposition	The breakdown of matter by bacteria and fungi. It changes the chemical composition and physical appearance of the materials.
Deepwater Formation	Occurs when seawater freezes to form sea ice. The local release of salt and consequent increase in water density leads to the formation of saline coldwater that sinks to the ocean floor. See Antarctic bottomwater.
Deforestation	Those practices or processes that result in the conversion of forested lands for non-forest uses. This is often cited as one of the major causes of the enhanced greenhouse effect for two reasons: 1) the burning or decomposition of the wood releases carbon dioxide; and 2) trees that once removed carbon dioxide from the atmosphere in the process of photosynthesis are no longer present.7
	Conversion of forest to non-forest. For a discussion of the term forest and related terms such as afforestation, reforestation, and deforestation: see the IPCC Report on Land Use, Land-Use Change and Forestry (IPCC, 2000).
	Those practices or processes that result in the conversion of forested lands for non-forest uses. This is often cited as one of the major causes of the enhanced greenhouse effect for two reasons. 1) the burning or decomposition of the wood releases carbon dioxide; and 2) trees that once removed

	carbon dioxide from the atmosphere in the process of photosynthesis are no longer present.
Degradable	See biodegradable.
Dengue Fever	An infectious viral disease spread by mosquitoes, often called breakbone fever because it is characterized by severe pain in 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	An ecosystem with <100 mm precipitation 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 UNCCD (The United Nations Convention to Combat Desertification) 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 processes 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. Conversion of forest to non-forest.
Designated National Authority (DNA)	To participate in CDM, a Party needs to appoint a Designated National Authority. The DNA issues the Letter of Approval (LoA) needed for registration of a project. A project will need both a host country approval as well as investor country approval.
	An office, ministry, or other official entity appointed by a Party to the Kyoto Protocol to review and give national approval to projects proposed under the Clean Development Mechanism.
Designated Operational Entity (DOE)	See also Accredited A domestic legal entity or an international organization accredited and designated by the CDM EB. The DOE validates and requests registration of a proposed CDM projects activity as well as verifies emission reductions of a registered CDM project activity.
Detection and attribution	Climate varies continually on all time scales. Detection of climate change is the process of demonstrating that climate has changed in some defined statistical sense, without providing a reason for that change. Attribution of causes of climate change is the process of establishing the most likely causes for the detected change with some defined level of confidence.
Determination, See also Validation and Verification	The process of independent evaluation of a JI project by an accredited Independent Entity whether the Project Design Document (PDD) fulfill all requirements to JI projects under Article 6 of the Kyoto Protocol and the JI guidelines.Determinations of reductions in anthropogenic

	emissions by sources or enhancements of anthropogenic removals by sinks pursuant to paragraph 37 of the JI guidelines are also referred to as verifications as for JI projects.
Developed Countries	Industrialised countries per Annex I, Annex B of the Kyoto Protocol.
Developing Countries	Countries (non-Annex I) in the process of industrialisation with constrained resources to address their economic and environmental problems.
DFP	Designated Focal Point, the competent national authority in the approval of JI projects.
Diatom	A class of unicellular algae (Bacillariophyceae) that are widespread on soil surfaces and in freshwater and marine systems, especially cold waters of relatively low salinity. These have cell sizes ranging from 5 to 2000 µm.
Directive on Landfill of Waste	The objective of the Council Directive 99/31/EC is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste and landfills.
Directive on Large Combustion Plants	EU Directive 2001/80/ established national emission ceilings on four pollutants (sulphur dioxide, NOx, volatile organic compounds and ammonia) and limits for emissions from large combustion plants within European Union.
Discounting	The process that reduces future costs and benefits to reflect the time value of money and the common preference of consumption now rather than later.
Distillate fuel oil	A general classification for the petroleum fractions produced in conventional distillation operations. Included are products known as No. 1, No. 2, and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. Used primarily for space heating, on and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.
Disturbance Regime	Frequency, intensity, and types of disturbances, such as fires, inspect or pest outbreaks, floods, and droughts.
Diurnal temperature range	The difference between the maximum and minimum temperature during a day.
DNA	Designated National Authority, the competent national authority in the approval of CDM projects.
Dobson Unit (DU)	A unit to measure the total amount of ozone in a vertical column above the Earth's surface. The number of Dobson Units is the thickness in units of 10-5 m, that the ozone column would occupy if compressed into a layer of uniform density at a pressure of 1013 hPa, and a temperature of 0°C. One DU corresponds to a column of ozone containing 2.69 x1020 molecules per square meter. A typical value for the amount of ozone in a column of the Earth's atmosphere, although very variable, is 300 DU.
Documents	Documents fall into different categories. Official documents are available to everyone and feature the logos of the United

	Nations and the Climate Change Convention. They carry a reference number, such as FCCC/CP/1998/1. Pre-session documents are available before a meeting, often in all six UN languages. In-session documents are distributed on-site (see CRPs, L docs, Misc. docs, and non-papers). Informal documents are often distributed outside the meeting room by observers.
DOE	Designated Operational Entity, an independent auditor accredited by the CDM Executive Board to assess eligibility and compliance of CDM projects with the prescribed criteria.
Domestic Offset Project	A domestic offset project is a climate change project conducted in an industrialised country without the involvement of a foreign project partner.
Domestic Project	JI project developed in the absence of another Annex 1 Party participation.
Double Counting	Projects within installations covered by the EU Emission Trading Scheme can not be put forward as Joint Implementation projects because allocation of European Union Allowances (EUAs) and generation of Emission Reduction Units (ERUs) in the same installation would lead to double counting.
Downscaling	Reducing the scale of a model from a global to regional level.
Drafting group	A smaller group established by the President or a Chair of a Convention body to meet separately and in private to prepare draft text -- text which must still be formally approved later in a plenary session. Observers generally may not attend drafting group meetings.
Drought	The phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect land resource production systems.
TOP	
Early Crediting	Early credits can be given for projects implemented between 2000 and 2008 to achieve compliance in the first commitment period.
	A provision that allows crediting of emission reductions achieved prior to the start of a legally imposed emission control period. These credits can then be used to assist in achieving compliance once a legally imposed system begins.
Eccentricity	The extent to which the Earth's orbit around the Sun departs from a perfect circle.
Economy	System of production, distribution, and consumption of economic goods.
Ecosystem	Any natural unit or entity including living and non-living parts that interact to produce a stable system through cyclic exchange of materials.6

	A community of organisms and its physical environment.
	A system of interacting living organisms together with 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.
	A distinct system of interacting living organisms, together with 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.
	The complex system of plant, animal, fungal, and microorganism communities and their associated non-living environment interacting as an ecological unit. Ecosystems have no fixed boundaries; instead their parameters are set to the scientific, management, or policy question being examined. Depending upon the purpose of analysis, a single lake, a watershed, or an entire region could be considered an ecosystem.
Ecosystem Services	Ecological processes or functions which have value to individuals or society.
Ecotone	Transition area between adjacent ecological communities (e.g., between forests and grasslands), usually involving competition between organisms common to both.
Edaphic	Of or relating to the soil; factors inherent in the soil.
Effective Rainfall	The portion of the total rainfall that becomes available for plant growth.
EIT	See Countries with Economies in Transition.
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, disrupting the local fishery. This oceanic event is associated with a fluctuation of the intertropical surface pressure pattern and circulation in the Indian and Pacific Oceans, called the Southern Oscillation. This coupled atmosphere-ocean phenomenon is collectively known as El Niño-Southern Oscillation. During an El Niño event, the prevailing trade winds weaken and the equatorial countercurrent 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.4
Element	Chemicals such as hydrogen (H), iron (Fe), sodium (Na), carbon (C), nitrogen (N), or oxygen (O), whose distinctly different atoms serve as the basic building blocks of all matter. There are 92 naturally occurring elements. Another

	15 have been made in laboratories. Two or more elements combine to form compounds that make up most of the world's matter. See compound.
Emission Cap	A regulatory ceiling on emissions that can be released within a certain timeframe.
Emission Reduction Purchase Agreement (ERPA)	Binding purchase agreement signed between buyer (of CERs or ERUs) and seller.
Emission Reduction Unit (ERU)	Permits achieved through a Joint Implementation project.
	A Kyoto Protocol unit equal to 1 metric tonne of CO2 equivalent. ERUs are generated for emission reductions or emission removals from joint implementation project.
	An emission reduction resulting from a Joint Implementation (JI) project under the Kyoto Protocol.
Emission 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. Concentration scenarios, derived from emission scenarios, are used as input into a climate model to compute climate projections. In IPCC (1992) a set of emission scenarios was presented which were used as a basis for the climate projections in IPCC (1996). These emission scenarios are referred to as the IS92 scenarios. In the IPCC Special Report on Emission Scenarios (Nakic´enovic´ et al., 2000) new emission scenarios, the so called SRES scenarios, were published some of which were used, among others, as a basis for the climate projections presented in Chapter 9 of this Report. For the meaning of some terms related to these scenarios, see SRES scenarios.
Emission Targets	Emission limits imposed on emitters by a regulatory body.
Emissions	Releases of gases to the atmosphere (e.g., the release of carbon dioxide during fuel combustion). Emissions can be either intended or unintended releases. See fugitive emissions.
Emissions Cap	A mandated restraint in a scheduled timeframe that puts a "ceiling" on the total amount of anthropogenic greenhouse gas emissions that can be released into the atmosphere. This can be measured as gross emissions or as net emissions (emissions minus gases that are sequestered).
Emissions coefficient/factor	A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., grams of carbon dioxide emitted per barrel of fossil fuel consumed).
Emissions Factor	A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., grams of carbon dioxide emitted per barrel of fossil fuel consumed).7
Emissions Reduction Unit	Emissions reductions generated by projects in Annex B

(ERU)	countries that can be used by another Annex B country to help meet its commitments under the Kyoto Protocol. Reductions must be additional to those that would otherwise occur.
Emissions Reductions (ERs)	Emissions reductions generated by a project that have not undergone a validation/verification process, but are contracted for purchase.
Emissions to Cap (E-t-C):	Emissions-to-cap (E-t-C) is calculated by subtracting the seasonally adjusted cap from emissions (actual or forecasted). This metric gives an indication of whether the market (for a specific period) is producing more or less than the seasonally adjusted cap for that same period. More specifically, if not taking CERs into account, a positive (negative) E-t-C means that the market is fundamentally short (long), suggesting a buy (sell) signal.
Emissions Trading	Emissions Trading allows for transfer of AAUs across international borders or emission allowances between companies covered by a Cap and Trade scheme. However, it is a general term often used for the three Kyoto mechanisms:JI, CDM and emissions trading.
	One of the three Kyoto mechanisms, by which an Annex I Party may transfer Kyoto Protocol units to or acquire units from another Annex I Party. An Annex I Party must meet specific eligibility requirements to participate in emissions trading.
	Mechanism through which parties with emissions commitments may trade units of their emissions allowances with other parties. The aim is to improve the overall flexibility and economic efficiency of reducing emissions. Parties with excess emission reductions can sell them to parties who find it less expensive to purchase emission reductions from the market than to reduce emissions at their facility.
	A market mechanism that allows emitters (countries, companies or facilities) to buy emissions from or sell emissions to other emitters. Emissions trading is expected to bring down the costs of meeting emission targets by allowing those who can achieve reductions less expensively to sell excess reductions (e.g. reductions in excess of those required under some regulation) to those for whom achieving reductions is more costly.
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.
Endorheic Lake	A lake with no outflow; also known as a closed lake.
Energy	The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be

	changed to another form for useful work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks.
Energy balance	Averaged over the globe and over longer time periods, the energy budget of the climate system must be in balance. Because the climate system derives all its energy from the Sun, this balance implies that, globally, the amount of incoming solar radiation must on average be equal to the sum of the outgoing reflected solar radiation and the outgoing infrared radiation emitted by the climate system. A perturbation of this global radiation balance, be it human induced or natural, is called radiative forcing.
Energy conservation	Reduction or elimination of unnecessary energy use and waste. See energy-efficiency.
Energy Intensity	The ratio of energy consumption to a measure of the demand for services (e.g., number of buildings, total floorspace, floorspace-hours, number of employees, or constant dollar value of Gross Domestic Product for services).2
	Ratio between the consumption of energy to a given quantity of output; usually refers to the amount of primary or final energy consumed per unit of gross domestic product.
	Ability of a form of energy to do useful work. High-temperature heat and the chemical energy in fossil fuels and nuclear fuels are concentrated high quality energy. Low-quality energy such as low-temperature heat is dispersed or diluted and cannot do much useful work.
Energy Resources	The available supply and price of fossil and alternative resources will play a huge role in estimating how much a greenhouse gas constraint will cost. In the U.S. context, natural gas supply (and thus price) is particularly important, as it is expected to be a transition fuel to a lower carbon economy.
Energy-efficiency	The ratio of the useful output of services from an article of industrial equipment to the energy use by such an article; for example, vehicle miles traveled per gallon of fuel (mpg).
Enhanced Greenhouse Effect	The concept that the natural greenhouse effect has been enhanced by anthropogenic emissions of greenhouse gases. Increased concentrations of carbon dioxide, methane, and nitrous oxide, chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3), and other photochemically important gases caused by human activities such as fossil fuel consumption, trap more infra-red radiation, thereby exerting a warming influence on the climate. See greenhouse gas, anthropogenic, greenhouse effect, climate, global warming.7
Enhanced oil recovery	Removal of some of the heavy oil left in an oil well after

	primary and secondary recovery. See primary oil recovery, secondary oil recovery.
Enteric fermentation	A digestive process by which carbohydrates are broken down by microorganisms into simple molecules for absorption into the bloodstream of an animal.
Entry into force	The point at which an intergovernmental agreement becomes legally binding -- occurring at a pre-stated interval after a pre-stated and required number of ratifications by countries has been achieved. The Climate Change Convention required 50 ratifications to enter into force. It now enters into force for each new Party 90 days after that Party ratifies the Convention.
	The point at which international climate change agreements become binding. The United Nations Framework Convention on Climate Change (UNFCCC) has entered into force. In order for the Kyoto Protocol to do so as well, 55 Parties to the Convention must ratify (approve, accept, or accede to) the Protocol, including Annex I Parties accounting for 55 percent of that group's carbon dioxide emissions in 1990. As of June 2003, 110 countries had ratified the Protocol, representing 43.9 percent of Annex I emissions.
Environment	All external conditions that affect an organism or other specified system during its lifetime.
Environmental Integrity Group	A coalition or negotiating alliance consisting of Mexico, the Republic of Korea, and Switzerland.
Enzootic	A disease affecting the animals in an area. It corresponds to an endemic disease among humans.
Epidemic	Occurring suddenly in numbers clearly in excess of normal expectancy, said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks.
Equilibrium and transient climate experiment	An equilibrium climate experiment is an experiment in which a climate model is allowed to fully adjust to a change in radiative forcing. Such experiments provide information on the difference between the initial and final states of the model, but not on the time-dependent response. If the forcing is allowed to evolve gradually according to a prescribed emission scenario, the time dependent response of a climate model may be analysed. Such experiment is called a transient climate experiment. See: Climate projection.
Equivalent CO2 (carbon dioxide)	The concentration of CO2 that would cause the same amount of radiative forcing as a given mixture of CO2 and other greenhouse gases.
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.
ERU	Emission Reduction Unit, the type of emission reduction certificate generated by JI projects.

ESCAP	Economic and Social Commission for Asia and the Pacific.
Ethanol (C2H5OH)	Otherwise known as ethyl alcohol, alcohol, or grain spirit. A clear, colorless, flammable oxygenated hydrocarbon with a boiling point of 78.5 degrees Celsius in the anhydrous state. In transportation, ethanol is used as a vehicle fuel by itself (E100), blended with gasoline (E85), or as a gasoline octane enhancer and oxygenate (10 percent concentration).
EU Allowance	An emissions permit issued under the EU Emissions Trading Scheme (ETS).
EU Emissions Trading Directive	Directive establishing a scheme for greenhouse gas emissions allowance trading with the EU.
EU ETS	See European Union Emissions Trading Scheme
EU Linking Directive	Directive regulating the integration of the CDM and JI project-based mechanisms into the EU Emissions Trading Scheme.
European Community	As a regional economic integration organization, the European Community can be and is a Party to the UNFCCC; however, it does not have a separate vote from its members (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom).
European Union (EU)	As a regional economic integration organization, the EU is a Party to both the Convention and the Kyoto Protocol. However, it does not have a separate vote from its member states. Because the EU signed the Convention when it was known as the EEC (European Economic Community), the EU retains this name for all formal Convention-related purposes. Members are Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.
European Union Allowances (EUA)	EU Allowances, the tradable unit under the EU ETS. Equals 1 tonne of CO2.
European Union Emissions Trading Scheme (EU ETS)	Trading Scheme within the European Union. The first compliance phase is from 2005 to 2007, while the second compliance phase continues from 2008 to 2012.
Eustatic sea-level change	A change in global average sea level brought about by an alteration to the volume of the world ocean. This may be caused by changes in water density or in the total mass of water. In discussions of changes on geological time-scales, this term sometimes also includes changes in global average sea level caused by an alteration to the shape of the ocean basins. In this Report the term is not used with that sense.
Eustatic Sea-Level Rise	See sea-level rise.
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 process by which a liquid becomes a gas.
Evapotranspiration	The combined process of evaporation from the Earth's surface and transpiration from vegetation.3
Evapotranspiration	The process by which water re-enters the atmosphere through evaporation from the ground and transpiration by plants.
	The loss of water from the soil by evaporation and by transpiration from the plants growing in the soil, which rises with air temperature.
Executive Board of the Clean Development Mechanism	A 10-member panel elected at COP-7 which supervises the CDM and has begun operation in advance of the Protocol's entry into force.
Exoheic Lake	A lake drained by outflowing rivers.
Exotic Species	See introduced species.
Expert Group on Technology Transfer (EGTT)	An expert group established at COP7 with the objective of enhancing the implementation of Article 4.5 of the Convention, by analyzing and identifying ways to facilitate and advance technology transfer activities under the Convention
Expert review teams	Groups of experts, nominated by Parties, who review national reports submitted by Annex I Parties to the UNFCCC, and the Kyoto Protocol.
Exposure	The nature and degree to which a system is exposed to significant climatic variations.
Exposure Unit	An activity, group, region, or resource that is subjected to climatic stimuli.
External forcing	See: Climate system.
Externalities	By-products of activities that affect the well-being of people or the environment, where those impacts are not reflected in market prices. The costs (or benefits) associated with externalities do not enter cost-accounting schemes.
Extinction	The complete disappearance of an entire species.
Extirpation	The disappearance of a species from part of its range; local extinction.
Extreme weather event	An extreme weather event is 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. An extreme climate event is an average of a number of weather events over a certain period of time, an average which is itself extreme (e.g. rainfall over a season).
	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. An "extreme climate event" is an average of a number of weather events over a certain period

	of time, an average which is itself extreme (e.g., rainfall over a season).
Extrinsic Incubation Period	In blood-feeding anthropod vectors, the time between acquisition of the infectious blood meal and the time when the anthropod becomes capable of transmitting the agent. In the case of malaria, the life stages of the plasmodium parasite spent within the female mosquito vector (i.e., outside the human host).
TOP	
Faculae	Bright patches on the Sun. The area covered by faculae is greater during periods of high solar activity.
Family (Scenario)	Scenarios that have a similar demographic, societal, economic and technical-change storyline. Four scenario families comprise the SRES scenario set: A1, A2, B1 and B2.
FAO	Food and Agriculture Organization of the United Nations.
Feedback	A process that triggers changes in a second process that in turn influences the original one; a positive feedback intensifies the original process, and a negative feedback reduces it.
Feedback Mechanisms	Factors which increase or amplify (positive feedback) or decrease (negative feedback) the rate of a process. An example of positive climatic feedback is the ice-albedo feedback. See climate feedback.6
Feedlot	Confined outdoor or indoor space used to raise hundreds to thousands of domesticated livestock. See rangeland.
Fen	Low land covered wholly or partly with water unless artificially drained.
Fertilization, carbon dioxide	An expression (sometimes reduced to 'fertilization') used to denote increased plant growth due to a higher carbon dioxide concentration.
Fertilizer	Substance that adds inorganic or organic plant nutrients to soil and improves its ability to grow crops, trees, or other vegetation. See organic fertilizer.
Fiber	Wood, fuelwood (either woody or non-woody).
Financial additionality	CDM projects have to be financially additional, which means that the projects that Annex I countries support within the framework of the CDM should not be financed by official development aid, but that additional funding is to be made available for such projects.
Financial Mechanism	Developed country Parties (Annex II Parties) are required to provide financial resources to assist developing country Parties implement the Convention. To facilitate this, the Convention established a financial mechanism to provide funds to developing country Parties. The Parties to the Convention assigned operation of the financial mechanism to the Global Environment Facility (GEF) on an on-going basis, subject to review every four years. The financial

	mechanism is accountable to the COP.
Flaring	The burning of waste gases through a flare stack or other device before releasing them to the air.
Flexibility Mechanisms	The Kyoto Protocol (and the EU ETS through a linking directive) has provisions that allow for flexibility in choosing amongst emission reductions: [•Clean Development Mechanism (CDM) – Developed nations with reduction commitments investing in emission reduction projects in developing nations. •Emission Trading – Trading of allowances. •Joint Implementation (JI) – Developed nations investing in emission reduction projects in other developing nations.]
Fluidized bed combustion (FBC)	Process for burning coal more efficiently, cleanly, and cheaply. A stream of hot air is used to suspend a mixture of powdered coal and limestone during combustion. About 90 to 98 percent of the sulfur dioxide produced during combustion is removed by reaction with limestone to produce solid calcium sulfate.
Fluorocarbons	Carbon-fluorine compounds that often contain other elements such as hydrogen, chlorine, or bromine. Common fluorocarbons include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). See chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, ozone depleting substance.6
Flux adjustment	To avoid the problem of coupled atmosphere-ocean general circulation models drifting into some unrealistic climate state, adjustment terms can be applied to the atmosphere-ocean fluxes of heat and moisture (and sometimes the surface stresses resulting from the effect of the wind on the ocean surface) before these fluxes are imposed on the model ocean and atmosphere. Because these adjustments are precomputed and therefore independent of the coupled model integration, they are uncorrelated to the anomalies which develop during the integration. In Chapter 8 of this Report it is concluded that present models have a reduced need for flux adjustment.
Focal Point	Contact person within the government of country that has signed UNFCCC for communication according to UNFCCC.
Food Insecurity	A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity may be chronic, seasonal, or transitory.
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 solar irradiance, volcanic eruptions, and enhancement of the natural greenhouse effect by emissions of greenhouse gases. See radiation, infrared radiation, radiative forcing.
Forecast	See climate prediction and climate projection.
Forest	A vegetation type dominated by trees. Many definitions of the term forest are in use throughout the world, reflecting wide differences in bio-geophysical conditions, social structure, and economics. For a discussion of the term forest and related terms such as afforestation, reforestation, and deforestation: see the IPCC Report on Land Use, Land-Use Change and Forestry (IPCC, 2000).
Forest management	A system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner.
Forward Contract	Purchase or sale of a emission reductions at the current price, with delivery and payment scheduled for a specified future date.
Fossil CO2 (carbon dioxide) emissions	Emissions of CO2 resulting from the combustion of fuels from fossil carbon deposits such as oil, gas and coal.
Fossil fuel	A general term for buried combustible geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years. See coal, petroleum, crude oil, natural gas.
Fossil fuel combustion	Burning of coal, oil (including gasoline), or natural gas. The burning needed to generate energy release carbon dioxide by-products that can include unburned hydrocarbons, methane, and carbon monoxide. Carbon monoxide, methane, and many of the unburned hydrocarbons slowly oxidize into carbon dioxide in the atmosphere. Common sources of fossil fuel combustion include cars and electric utilities.
Fossil Fuels	Carbon-based fuels that include coal, petroleum, natural gas and oil.
Framework Convention on Climate Change	See: United Nations Framework Convention on Climate Change (UNFCCC).
Freon	See chlorofluorocarbon.
Freshwater Lens	A lenticular fresh groundwater body that underlies an oceanic island. It is underlain by saline water.
Friends of the chair	Delegates called upon by the Chair (who takes into account the need for political balance among various interests) to assist in carrying out specific tasks.
Fugitive emissions	Unintended gas leaks from the processing, transmission, and/or transportation of fossil fuels, CFCs from refrigeration leaks, SF6 from electrical power distributor, etc.
Fugitive fuel emissions	Greenhouse-gas emissions as by-products or waste or loss in the process of fuel production, storage, or transport, such as

	methane given off during oil and gas drilling and refining, or leakage of natural gas from pipelines.
Functional Diversity	The number of functionally different organisms in an ecosystem (also referred to as "functional types" and "functional groups").
Fungibility	Possibility to exchange different types of reduction credits achieved under different mechanism (e.g. ERUs on AAUs etc.).
TOP	
G77	See Group of 77.
Gasohol	Vehicle fuel consisting of a mixture of gasoline and ethyl or methyl alcohol; typically 10 to 23 percent ethanol by volume.
GATT	General Agreement on Tariffs and Trade.
GCOS	Global Climate Observing System.
GDP	Gross Domestic Product, a measure of overall economic activity.
General Circulation	The large scale motions of the atmosphere and the ocean as a consequence of differential heating on a rotating Earth, aiming to restore the energy balance of the system through transport of heat and momentum.
General Circulation Model (GCM)	A global, three-dimensional computer model of the climate system which can be used to simulate human-induced climate change. GCMs are highly complex and they represent the effects of such factors as reflective and absorptive properties of atmospheric water vapor, greenhouse gas concentrations, clouds, annual and daily solar heating, ocean temperatures and ice boundaries. The most recent GCMs include global representations of the atmosphere, oceans, and land surface. See climate modeling.6
General Circulation Model (GCM)	A computer model of the basic dynamics and physics of the components of the global climate system (including the atmosphere and oceans) and their interactions which can be used to simulate climate variability and change.
General Equilibrium Analysis	An approach that considers simultaneously all the markets in an economy, allowing for feedback effects between individual markets.
Geoid	The surface which an ocean of uniform density would assume if it were in steady state and at rest (i.e. no ocean circulation and no applied forces other than the gravity of the Earth). This implies that the geoid will be a surface of constant gravitational potential, which can serve as a reference surface to which all surfaces (e.g., the Mean Sea Surface) can be referred. The geoid (and surfaces parallel to the geoid) are what we refer to in common experience as "level surfaces".

Geomorphic	Pertaining to the form of the Earth or its surface features.
Geosequestration	See also Carbon Dioxide Capture and Storage, Ocean SequestrationCarbon dioxide capture and storage system that seeks put CO2 under ground in old oil and gas fields, non commercial coal fields and saline aquifers.
Geosphere	The soils, sediments, and rock layers of the Earth's crust, both continental and beneath the ocean floors.
Geothermal energy	Heat transferred from the earth's molten core to under-ground deposits of dry steam (steam with no water droplets), wet steam (a mixture of steam and water droplets), hot water, or rocks lying fairly close to the earth's surface.
Glacier	A multi-year surplus accumulation of snowfall in excess of snowmelt on land and resulting in a mass of ice at least 0.1 km2 in area that shows some evidence of movement in response to gravity. A glacier may terminate on land or in water. Glacier ice is the largest reservoir of fresh water on Earth, and second only to the oceans as the largest reservoir of total water. Glaciers are found on every continent except Australia.6
Global Environment Facility (GEF)	The GEF is an independent financial organization that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. The Parties to the Convention assigned operation of the financial mechanism to the Global Environment Facility (GEF) on an on-going basis, subject to review every four years. The financial mechanism is accountable to the COP. For more information see: http://www.thegef.org/.
Global surface temperature	The global surface temperature is the area-weighted global average of (i) the sea-surface temperature over the oceans (i.e. the subsurface bulk temperature in the first few meters of the ocean), and (ii) the surface-air temperature over land at 1.5 m above the ground.
Global Warming	Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases from human activities. See climate change, greenhouse effect, enhanced greenhouse effect, radiative forcing, troposphere.
Global Warming Potential (GWP)	The global warming potential is the impact a greenhouse gas (GHG) has to global warming. By definition, CO2 is used as reference case, hence it always has the GWP of 1. GWP changes with time, and the IPCC has suggested using 100-year GWP for comparison purposes. Below is a list of 100-year GWPs: Carbon dioxide (CO2) GWP: 1 [Methane (CH4) GWP: 21] [Nitrous oxide (N2O) GWP: 310] [Hydrofluorcarbons (HFCs) GWP: GWP: 150 – 11 700]

	[Perfluorcarbons (PFCs) GWP: 6500 – 9 200] [Sulphur hexafluoride (SF6) GWP: 23 900] See also Carbon Dioxide Equivalent.
	An index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.
	Global Warming Potential (GWP) is defined as the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas. The GWP-weighted emissions of direct greenhouse gases in the U.S. Inventory are presented in terms of equivalent emissions of carbon dioxide (CO2), using units of teragrams of carbon dioxide equivalents (Tg CO2 Eq.).
	A factor describing the degree of harm to the atmosphere of one unit of a given GHG relative to one unit of CO2. As evidenced by the GWPs below, reducing 1 tonne of CH4 has the same positive effect on the environment as reducing 21 tonnes of CO2. Although SF6, HFCs and PFCs are more powerful GHGs, they are less prevalent. [•Carbon dioxide (CO2) GWP = 1 •Methane (CH4) GWP = 21 •Nitrous Oxide (N2O) GWP = 310 •Sulphur hexafluoride (SF6) GWP = 23,900 •HFCs and PFCs GWPs vary depending on makeup]
	A system of multipliers devised to enable warming effects of different gases to be compared. The cumulative warming effect, over a specified time period, of an emission of a mass unit of CO2 is assigned the value of 1. Effects of emissions of a mass unit of non-CO2 greenhouse gases are estimated as multiples. For example, over the next 100 years, a gram of methane (CH4) in the atmosphere is currently estimated as having 23 times the warming effect as a gram of carbon dioxide; methane's 100-year GWP is thus 23. Estimates of GWP vary depending on the time-scale considered (e.g., 20-, 50-, or 100-year GWP), because the effects of some GHGs are more persistent than others.
	An index, describing the radiative characteristics of well mixed greenhouse gases, that represents the combined effect of the differing times these gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation. This index approximates the time-integrated warming effect of a unit mass of a given greenhouse gas in today's atmosphere, relative to that of carbon dioxide.
Gold Standard	Initiated by WWF, SSN and Helio International the Gold Standard for CDM projects was launched in 2003 after a wide-ranging stakeholder consultation among key actors of the carbon market as well as governments. It offers project developers a tool with which they can ensure that the CDM and JI deliver credible projects with real environmental

	benefits and, in so doing, give confidence to host countries and the public that projects represent new and additional investments in sustainable energy services.
GOOS	Global Ocean Observing System.
Grandfathering	See also Allocation Method for allocation of emissions, where permits are allocated, usually free of charge, to emitters and firms on the basis of historical emissions.
Grassland	Terrestrial ecosystem (biome) found in regions where moderate annual average precipitation (25 to 76 centimeters or 10 to 30 inches) is enough to support the growth of grass and small plants but not enough to support large stands of trees.
Grazing Land Management	The system of practices on land used for livestock production aimed at manipulating the amount and type of vegetation and livestock produced
Green Investment Scheme (GIS)	The purpose of Green Investment Schemes is to promote the environmental effectiveness of AAUs transfers, by earmarking revenues from these transfers for environmentally-related purposes in the seller countries.
Greenhouse Effect	Trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. See greenhouse gas, anthropogenic, climate, global warming.7
	A natural layer of heat-trapping gases including water vapor, carbon dioxide (CO2) and methane (CH4) surrounds the earth and produces a greenhouse effect. These gases keep the earth warm enough to support life. Burning large amounts of fossil fuels is dramatically increasing the concentration of these gases. Like the glass in a greenhouse, these gases collect in the atmosphere and prevent the earth's excess heat from escaping. As the gases thicken, the earth's temperature increases.
	The insulating effect of atmospheric greenhouse gases (e.g., water vapor, carbon dioxide, methane, etc.) that keeps the Earth's temperature about 60"F warmer than it would be otherwise.
	Greenhouse gases effectively absorb infrared radiation, emitted by the Earth's surface, by 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. In the troposphere the temperature generally decreases with height.

	Effectively, infrared radiation emitted to space originates from an altitude with a temperature of, on average, -19°C, in balance with the net incoming solar radiation, whereas the Earth's surface is kept at a much higher temperature of, on average, +14°C. 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 effectively absorb infrared radiation emitted by the Earth's surface, by 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. In the troposphere, the temperature generally decreases with height. Effectively, infrared radiation emitted to space originates from an altitude with a temperature of on average -19°C, in balance with the net incoming solar radiation, whereas the Earth's surface is kept at a much higher temperature of on average 14°C. 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 called the "enhanced greenhouse effect."
Greenhouse gas	Greenhouse gases are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds. This property causes the greenhouse effect. Water vapour (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) and ozone (O3) are the primary greenhouse gases in the Earth's atmosphere. Moreover there are a number of entirely human-made greenhouse gases in the atmosphere, such as the halocarbons and other chlorine and bromine containing substances, dealt with under the Montreal Protocol. Beside CO2, N2O and CH4, the Kyoto Protocol deals with the greenhouse gases sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).
Greenhouse Gas (GHG)	Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide

	(N2O), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). See carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride.7
Greenhouse Gas Emission Reduction	A reduction in emissions of greenhouse gases in an effort to combat global warming and climate change. Greenhouse gas reductions are measured in tonnes of carbon dioxide equivalent (CO2e).
Groin	A low, narrow jetty, usually extending roughly perpendicular to the shoreline, designed to protect the shore from erosion by currents, tides, or waves, or to trap sand for the purpose of building up or making a beach.
Gross Primary Production	The amount of carbon fixed from the atmosphere through photosynthesis.
Gross Primary Production (GPP)	The amount of carbon fixed from the atmosphere through photosynthesis.
Grounding line/zone	The junction between ice sheet and ice shelf or the place where the ice starts to float.
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.
Group (Scenario)	Scenarios within a family that reflect a consistent variation of the storyline. The A1 scenario family includes four groups designated as A1T, A1C, A1G and A1B that explore alternative structures of future energy systems. In the Summary for Policymakers of Nakic´enovic´ et al. (2000), the A1C and A1G groups have been combined into one 'Fossil Intensive' A1FI scenario group. The other three scenario families consist of one group each. The SRES scenario set reflected in the Summary for Policymakers of Nakic´enovic´ et al. (2000) thus consist of six distinct scenario groups, all of which are equally sound and together capture the range of uncertainties associated with driving forces and emissions.
Group of 77 (G-77) and China	A large negotiating alliance of developing countries that focuses on numerous international topics, including climate change. The G-77 was founded in 1967 under the auspices of the United Nations Conference on Trade and Development (UNCTAD). It seeks to harmonize the negotiating positions of its 131 member states.
GRULAC	Group of Latin American and Caribbean States.
GTOS	Global Terrestrial Observing System.
GWP	See Global Warming Potential.
GWP	Global warming potential.
TOP	

Habitat	The particular environment or place where an organism or species tends to live; a more locally circumscribed portion of the total environment.
Halocarbons	Compounds containing either chlorine, bromine or fluorine and carbon. Such compounds can act as powerful greenhouse gases in the atmosphere. The chlorine and bromine containing halocarbons are also involved in the depletion of the ozone layer.3
Halocline	A layer in the ocean in which the rate of salinity variation with depth is much larger than layers immediately above or below it.
Halons	Compounds, also known as bromofluorocarbons, that contain bromine, fluorine, and carbon. They are generally used as fire extinguishing agents and cause ozone depletion. Bromine is many times more effective at destroying stratospheric ozone than chlorine. See ozone depleting substance.
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 their dried urine.
Heat	Form of kinetic energy that flows from one body to another when there is a temperature difference between the two bodies. Heat always flows spontaneously from a hot sample of matter to a colder sample of matter. This is one way to state the second law of thermodynamics. See temperature.
Heat content	The amount of heat per unit mass released upon complete combustion.
Heat Island	An area within an urban area characterized by ambient temperatures higher than those of the surrounding area because of the absorption of solar energy by materials like asphalt.
Heath	Any of the various low-growing shrubby plants of open wastelands, usually growing on acidic, poorly drained soils.
Heating degree days	The integral over a day of the temperature below 18°C (e.g. a day with an average temperature of 16°C counts as 2 heating degree days). See also: Cooling degree days.
Herbaceous	Flowering, non-woody plants.
Heterotrophic respiration	The conversion of organic matter to CO2 by organisms other than plants.
Heterotrophic Respiration	The release of CO2 from decomposition of organic matter.
HFC	Hydrofluorocarbons.
HFC-23 (Trifluoromethane)	About 98% of HFC-23 emissions are created as a byproduct in the production of HCFC-22 and generally are vented to the atmosphere. HCFC-22 is used mostly as the refrigerant for stationary refrigeration and air conditioning.
HGWP (High Global Warming Potential)	Some industrially produced gases such as sulfur hexafluoride (SF6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs) have extremely high GWPs.

	Emissions of these gases have a much greater effect on global warming than an equal emission (by weight) of the naturally occurring gases. Most of these gases have GWPs of 1,300 - 23,900 times that of CO2. These GWPs can be compared to the GWPs of CO2, CH4, and N2O which are presently estimated to be 1, 23 and 296, respectively.
Higher heating value	Quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel assuming that the produced water vapor is completely condensed and the heat is recovered; also known as gross calorific value. See lower heating value.
Highland Malaria	Malaria that occurs around the altitudinal limits of its distribution.
Histosol	Wet organic soils, such as peats and mucks.
Host Country	A host country is the country where a JI or CDM project is physically located. A project has to be approved by host country to receive CERs or ERUs.
Host Country	The country where an emissions reduction project is physically located.
hot air	Refers to the concern that some governments will be able to meet their targets for greenhouse-gas emissions under the Kyoto Protocol with minimal effort and could then flood the market with emissions credits, reducing the incentive for other countries to cut their own domestic emissions.
Hot Air	Excess permits that have occurred due to economic collapse or declined production for reasons not directly related to intentional efforts to curb emissions.
	A concern that some governments will have excess emission reductions with no effort because their economies have greatly decreased since the 1990 baseline year under the Kyoto Protocol. In theory they could then flood the market for emissions credits, reducing the incentive for other countries to cut their own domestic emissions.
	A situation in which emissions (of a country, sector, company or facility) are well below a target due to the target being above emissions that materialized under the normal course of events (i.e. without deliberate emission reduction efforts). Hot air can result from over-optimistic projections of growth. Emissions are often projected to grow roughly in proportion to GDP, and GDP is often projected to grow at historic rates. If a recession occurs and fuel use declines, emissions may be well below targets since targets are generally set in relation to emission projections. If emission trading is allowed, an emitter could sell the difference between actual emissions and emission targets. Such emissions are considered hot air because they do not represent reductions from what would have occurred in the normal course of events.
Human Settlement	A place or area occupied by settlers.
Human System	Any system in which human organizations 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 TAR.
Hydrocarbons	Substances containing only hydrogen and carbon. Fossil fuels are made up of hydrocarbons. Some hydrocarbon compounds are major air pollutants.
Hydrochlorofluorocarbons (HCFCs)	Compounds containing hydrogen, fluorine, chlorine, and carbon atoms. Although ozone depleting substances, they are less potent at destroying stratospheric ozone than chlorofluorocarbons (CFCs). They have been introduced as temporary replacements for CFCs and are also greenhouse gases. See ozone depleting substance.
Hydrochlorofluorocarbons (HCFCs)	Compounds containing hydrogen, fluorine, chlorine, and carbon atoms. Although ozone depleting substances, they are less potent at destroying stratospheric ozone than chlorofluorocarbons (CFCs). They have been introduced as temporary replacements for CFCs and are also greenhouse gases. See ozone depleting substance.
Hydroelectric power plant	Structure in which the energy of fading or flowing water spins a turbine generator to produce electricity.
Hydrofluorocarbons (HFCs)	Compounds containing only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are powerful greenhouse gases with global warming potentials ranging from 140 (HFC-152a) to 11,700 (HFC-23).
	HFCs are synthetic industrial gases, primarily used in refrigeration and semi-conductor manufacturing as commercial substitutes for chlorofluorocarbons (CFCs). There are no natural sources of HFCs. The atmospheric lifetime of HFCs is decades to centuries , and they have 100-year "global warming potentials" thousands of times that of CO2, depending on the gas. HFCs are among the six greenhouse gases to be curbed under the Kyoto Protocol.
	Compounds containing only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are powerful greenhouse gases with high global warming potentials.
Hydrologic Cycle	The process of evaporation, vertical and horizontal transport of vapor, condensation, precipitation, and the flow of water from continents to oceans. It is a major factor in determining climate through its influence on surface vegetation, the clouds, snow and ice, and soil moisture. The hydrologic

	cycle is responsible for 25 to 30 percent of the mid-latitudes' heat transport from the equatorial to polar regions.6
Hydropower	Electrical energy produced by falling or flowing water. See hydroelectric power plant.
Hydrosphere	The component of the climate system comprising liquid surface and subterranean water, such as: oceans, seas, rivers, fresh water lakes, underground water etc.3
Hypolimnion	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.
TOP	
ICAO	International Civil Aviation Organization.
ICCP	International Climate Change Partnership.
Ice cap	A dome shaped ice mass covering a highland area that is considerably smaller in extent than anice sheet.
Ice Cap	A dome-shaped ice mass covering a highland area that is considerably smaller in extent than ice sheets.
Ice Core	A cylindrical section of ice removed from a glacier or an ice sheet in order to study climate patterns of the past. By performing chemical analyses on the air trapped in the ice, scientists can estimate the percentage of carbon dioxide and other trace gases in the atmosphere at a given time.
Ice Jam	An accumulation of broken river or sea ice caught in a narrow channel.
Ice sheet	A mass of land ice which is sufficiently deep to cover most of the underlying bedrock topography, so that its shape is mainly determined by its internal dynamics (the flow of the ice as it deforms internally and slides at its base). 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, the Antarctic ice sheet being divided into East and West by the Transantarctic Mountains; during glacial periods there were others.
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.
ICLEI	International Council of Local Environmental Initiatives.
IE	Independent Entity, an accredited entity which assesses eligibility and compliance of JI projects with the prescribed criteria.
IEA	International Energy Agency.
IET	See Emissions Trading.

IGO	Intergovernmental organization.
Illustrative Scenario	A scenario that is illustrative for each of the six scenario groups reflected in the Summary for Policymakers of Nakic´enovic´ et al. (2000). They include four revised 'scenario markers' for the scenario groups A1B, A2, B1, B2, and two additional scenarios for the A1FI and A1T groups. All scenario groups are equally sound.
Immunosuppression	Reduced functioning of an individual's immune system.
IMO	International Maritime Organization.
Impact Assessment (Climate)	The practice of identifying and evaluating the detrimental and beneficial consequences of climate change on natural and human systems.
Impacts (Climate)	Consequences of climate change on natural and human systems. Depending on the consideration of adaptation, one can distinguish between potential impacts and residual impacts.
Implementation	Actions (legislation or regulations, judicial decrees, or other actions) that governments take to translate international accords into domestic law and policy.
INC	Intergovernmental Negotiating Committee for the UNFCCC (1990-1995).
Incentive-based Regulation	A regulation that uses the economic behavior of firms and households to attain desired environmental goals. Incentive-based programs involve taxes on emissions or tradable emission permits. The primary strength of incentive-based regulation is the flexibility it provides the polluter to find the least costly way to reduce emissions.
In-depth review (IDR)	A process by which an Annex I Party's implementation of the Convention and/or the Kyoto Protocol is technically assessed by international teams of experts.
Indigenous Peoples	People whose ancestors inhabited a place or a country when persons from another culture or ethnic background arrived on the scene and dominated them through conquest, settlement, or other means and who today live more in conformity with their own social, economic, and cultural customs and traditions than those of the country of which they now form a part (also referred to as "native," "aboriginal," or "tribal" peoples)
Indirect aerosol effect	Aerosols may lead to an indirect radiative forcing of the climate system through acting as condensation nuclei or modifying the optical properties and lifetime of clouds. Two indirect effects are distinguished: First indirect effect : A radiative forcing induced by an increase in anthropogenic aerosols which cause an initial increase in droplet concentration and a decrease in droplet size for fixed liquid water content, leading to an increase of cloud albedo. This effect is also known as the Twomey effect. This is sometimes referred to as the cloud albedo effect. However this is highly misleading since the second indirect effect also alters cloud albedo. Second indirect effect: A radiative

	forcing induced by an increase in anthropogenic aerosols which cause a decrease in droplet size, reducing the precipitation efficiency, thereby modifying the liquid water content, cloud thickness, and cloud life time. This effect is also known as the cloud life time effect or Albrecht effect.
Industrial revolution	A period of rapid industrial growth with far-reaching social and economic consequences, beginning in England during the second half of the eighteenth century and spreading to Europe and later to other countries including the United States. The invention of the steam engine was an important trigger of this development. The industrial revolution marks the beginning of a strong increase in the use of fossil fuels and emission of, in particular, fossil carbon dioxide. In this Report the terms pre-industrial and industrial refer, somewhat arbitrarily, to the periods before and after 1750, respectively.
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 United States. The industrial revolution marks the beginning of a strong increase in the use of fossil fuels and emission of in particular fossil carbon dioxide. In the TAR, the terms "pre-industrial" and "industrial" refer, somewhat arbitrarily, to the periods before and after 1750, respectively.
Infectious Diseases	Any disease that can be transmitted from one person to another. This may occur by direct physical contact, by common handling of an object that has picked up infective organisms, through a disease carrier, or by spread of infected droplets coughed or exhaled into the air.
Informal contact group	A group of delegates instructed by the President or a Chair to meet in private to discuss a specific matter in an effort to consolidate different views, reach a compromise, and produce an agreed proposal, often in the form of a written text.
Infrared Radiation	Radiation emitted by the Earth's surface, the atmosphere and the clouds. It is also known as terrestrial or long-wave radiation. Infrared radiation has a distinctive range of wavelengths ("spectrum") longer than the wavelength of the red color in the visible part of the spectrum. The spectrum of infrared radiation is practically distinct from that of solar or short-wave radiation because of the difference in temperature between the Sun and the Earth-atmosphere system. See radiation, greenhouse effect, enhanced greenhouse effect, global warming.3
Infrastructure	The basic equipment, utilities, productive enterprises, installations, and services essential for the development, operation, and growth of an organization, city, or nation.
Inorganic compound	Combination of two or more elements other than those used to form organic compounds. See organic compound.
Inorganic fertilizer	See synthetic fertilizer.

Insolvency	Inability to meet financial obligations; bankruptcy.
Integrated assessment	A method of analysis that combines results and models from the physical, biological, economic and social sciences, and the interactions between these components, in a consistent framework, to evaluate the status and the consequences of environmental change and the policy responses to it.
Integrated Assessment	A method of analysis that combines results and models from the physical, biological, economic, and social sciences, and the interactions between these components, in a consistent framework to evaluate the status and the consequences of environmental change and the policy responses to it.
Integrated Pollution Prevention and Control (IPCC) Directive	IPCC Directive based on minimising pollution from various industrial sources throughout the European Union. Operators of industrial installations covered by Annex I of the IPPC Directive are required to obtain an authorisation (environmental permit) from the authorities in the EU countries. About 50.000 installations are covered by the IPPC Directive in the EU.
Intergenerational Equity	The fairness of the distribution of the costs and benefits of a policy when costs and benefits are borne by different generations. In the case of a climate change policy the impacts of inaction in the present will be felt in future generations.
Intergovernmental Negotiating Committee (INC)	A committee created to draft the Convention. The INC met in five sessions between February 1991 and May 1992. After the text of the Convention was adopted in 1992, the INC met six further times to prepare for COP-1. It completed its work in February 1995.
Intergovernmental Panel on Climate Change (IPCC)	IPCC was established by World Meteorological Organisation (WMO) and the United Nations Environmental Programme (UNEP) in 1988 to assess scientific, technical and socio- economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. It is open to all Members of the UN and of WMO (www.ipcc.ch).
Intergovernmental Panel on Climate Change (IPCC)	Established in 1988 by the World Meteorological Organization and the UN Environment Programme, the IPCC surveys world-wide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent of the Convention.
	The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers.

	Leading experts on climate change and environmental, social, and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories.
Internal variability	See: Climate variability.
International Climate Change Partnership	Global coalition of companies and trade associations committed to constructive participation in international policy making on climate change.
International Emissions Trading (IET)	See Emissions Trading.
International Transaction Log (ITL)	A planned centralized database of all tradable credits under the Kyoto Protocol and the application that verifies all international transactions and their compliance with Kyoto rules and policies.
Introduced Species	A species occurring in an area outside its historically known natural range as a result of accidental dispersal by humans (also referred to as "exotic species" or "alien species").
Invasive Species	An introduced species that invades natural habitats.
Inverse modelling	A mathematical procedure by which the input to a model is estimated from the observed outcome, rather than vice versa. It is, for instance, used to estimate the location and strength of sources and sinks of CO2 from measurements of the distribution of the CO2 concentration in the atmosphere, given models of the global carbon cycle and for computing atmospheric transport.
IOC	Intergovernmental Oceanographic Commission.
IPCC	See Intergovernmental Panel on Climate Change.
ISO	International Standards Organization.
Isostatic land movements	Isostasy refers to the way in which the lithosphere and mantle respond to changes in surface loads. When the loading of the lithosphere is changed by alterations in land ice mass, ocean mass, sedimentation, erosion or mountain building, vertical isostatic adjustment results, in order to balance the new load.
Issuance	Issuance refers to the instruction by the CDM Executive Board to the CDM registry administrator to issue a specified quantity of CERs for a project activity into the pending account of the Executive Board in the CDM registry.
IUCN	World Conservation Union.
TOP	

Jet fuel	Includes both naphtha-type and kerosene-type fuels meeting standards for use in aircraft turbine engines. Although most jet fuel is used in aircraft, some is used for other purposes such as generating electricity.
JI	See Joint Implementation.
JI Coordination Unit (JIKO)	Joint Implementation Coordination Unit (JIKO) at the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The ministry's contact point for climate change projects conducted using the CDM and JI mechanisms.
JISC	See Joint Implementation Supervisory Committee.
Joint Implementation (JI)	Joint Implementation is a mechanism for transfer of emissions permits from one Annex B country to another. JI generates ERUs on the basis of emission reduction projects leading to quantifiable emissions reductions.
	A mechanism under the Kyoto Protocol through which a developed country can receive "emissions reduction units" when it helps to finance projects that reduce net greenhouse-gas emissions in another developed country (in practice, the recipient state is likely to be a country with an "economy in transition"). An Annex I Party must meet specific eligibility requirements to participate in joint implementation.
	A mechanism under the Kyoto Protocol through which a developed country can receive "emissions reduction units" when it helps to finance projects that reduce net greenhouse-gas emissions in another developed country. The emission reductions produced from JI projects are called Emission Reduction Units (ERUs).
	One of the three market mechanisms established by the Kyoto Protocol. Joint Implementation occurs when an Annex B country invests in an emissions reduction or sink enhancement project in another Annex B country to earn emission reduction units (ERUs).
Joint Implementation Supervisory Committee (JISC)	Joint Implementation Supervisory Committee (JISC) supervises the verification of ERUs generated by JI projects following the verification procedure under the JISC.
Joint Implementation Supervisory Committee (JISC)	Oversees the JI Track 2 process.
Joint Liaison Group (JLG)	Group of representatives of UNFCCC, CBD, and UNCCD Secretariats set up to explore common activities to confront problems related to climate change, biodiversity and desertification.
Joule	The energy required to push with a force of one Newton for one meter.
JUSSCANNZ	An acronym representing non-EU industrialized countries which occasionally meet to discuss various issues related to climate change. The members are Japan, the United States, Switzerland, Canada, Australia, Norway, and New Zealand. Iceland, Mexico, and the Republic of Korea may also attend

	JUSSCANZ meetings.
JUSSCANNZ Group	Active group during the Kyoto Protocol negotiations (JUSSCANNZ is an acronym for Japan, the USA, Switzerland, Canada, Australia, Norway and New Zealand). Later Umbrella Group (see Umbrella Group) derived from the JUSSCANNZ Group.
JWG	Joint working group.
TOP	
Kerogen	Solid, waxy mixture of hydrocarbons found in oil shale, with a fine grained sedimentary rock. When the rock is heated to high temperatures, the kerogen is vaporized. The vapor is condensed and then sent to a refinery to produce gasoline, heating oil, and other products. See oil shale, shale oil.
Kerosene	A petroleum distillate that has a maximum distillation temperature of 401 degrees Fahrenheit at the 10 percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Used in space heaters, cookstoves, and water heaters, and suitable for use as an illuminant when burned in wick lamps.
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.
Klimarappen	See Climate Cent
Kyoto Mechanisms	See Flexible Mechanisms
Kyoto mechanisms	Three procedures established under the Kyoto Protocol to increase the flexibility and reduce the costs of making greenhouse-gas emissions cuts; they are the Clean Development Mechanism, Emissions Trading and Joint Implementation.
Kyoto Mechanisms	The Kyoto Protocol creates three market-based mechanisms that have the potential to help countries reduce the cost of meeting their emissions reduction targets. These mechanisms are Joint Implementation (Article 6), the Clean Development Mechanisms (Article 17).
Kyoto Protocol	The Kyoto Protocol originated at COP-3 to the UNFCCC in Kyoto, Japan, December 1997. It specifies emission obligations for the Annex B countries and defines the three so-called Kyoto mechanisms: JI, CDM and emissions trading. It entered into force on 16 February 2005.
Kyoto Protocol	The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Third Session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change, 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 OECD countries and countries 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 has not yet entered into force (April 2001).
	The Kyoto Protocol was 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 OECD countries and EITs) agreed to reduce their anthropogenic GHG 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 has not yet entered into force (as of June 2001).
TOP	
L. docs	In-session documents that contain draft reports and texts for adoption by the COP or its subsidiary bodies. Usually such documents are available in all six UN languages.
La Niña	See El Niño-Southern Oscillation (ENSO).
Land Use	The total of arrangements, activities, and inputs undertaken in a certain land-cover type (a set of human actions). The social and economic purposes for which land is managed (e.g., grazing, timber extraction, conservation).
Land Use, Land Use Change and Forestry (LULUCF)	See also articles on Afforestation and Reforestation Projects, Forest Management, Revegetation, and Grazing Land Management.The land-use, land-use change and forestry (LULUCF) sector was included under the Kyoto Protocol to take into consideration certain human-induced activities that remove greenhouse gases from the atmosphere, also known as carbon "sinks". The following activities referred to in Article 3, paragraphs 3 and 4 of the Kyoto Protocol, as defined in paragraph 1 of the annex to decision 16/CMP.1: afforestation, reforestation, deforestation (The direct human-induced conversion of forested land to non-forested land), revegetation, forest management, cropland management (The system of practices on land on which agricultural crops are grown and on land that is set aside or temporarily not being used for crop production) and grazing land management.
Land Use, Land-Use Change and Forestry (LULUCF)	Land uses and land-use changes can act either as sinks or as emission sources. It is estimated that approximately one-fifth of global emissions result from LULUCF activities. The Kyoto Protocol allows Parties to receive emissions credit for certain LULUCF activities that reduce net emissions.

Land use, land-use change, and forestry (LULUCF)	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.
Landfill	Land waste disposal site in which waste is generally spread in thin layers, compacted, and covered with a fresh layer of soil each day.7
	Land waste disposal site in which waste is generally spread in thin layers, compacted, and covered with a fresh layer of soil each day.
Land-use change	A change in the use or management of land by humans, which may lead to a change in land cover. Land cover and land-use change may have an impact on the albedo, evapotrans-piration, sources and sinks of greenhouse gases, or other properties of the climate system and may thus have an impact on climate, locally or globally. See also: the IPCC Report on Land Use, Land-Use Change, and Forestry (IPCC, 2000).
Large-Scale Singularities	Abrupt and dramatic changes in systems in response to smooth 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.
Leaching	The removal of soil elements or applied chemicals through percolation.
Leakage	Decrease or increase of greenhouse gas-related benefits outside the boundaries set for defining a project's net greenhouse gas impacts that result from project activities.
	That portion of cuts in greenhouse-gas emissions by developed countries -- countries trying to meet mandatory limits under the Kyoto Protocol -- that may reappear in other countries not bound by such limits. For example, multinational corporations may shift factories from developed countries to developing countries to escape restrictions on emissions.
	The increase in greenhouse gas emissions occurring outside project boundaries and which can be traced to the project activity. This leakage must be included in the calculation of the emission reductions achieved or of the amount of carbon stored.
Least Developed Countries (LDCs)	The World's poorest countries. The criteria currently used by the Economic and Social Council (ECOSOC) for designation as an LDC include low income, human resource weakness and economic vulnerability. Currently 50 countries have been designated by the UN General Assembly as LDCs.
Least Developed Countries Expert Group (LEG)	A panel of 12 experts which provides advice to LDCs on the preparation and implementation of national adaptation programmes of action (NAPAs) -- plans for addressing the

	urgent and immediate needs of those countries to adapt to climate change.
Least Developed Country Fund (LDCF)	The LDCF is a fund established to support a work programme to assist Least Developed Country Parties to carry out, inter alia, the preparation and implementation of national adaptation programmes of action (NAPAs). The Global Environment Facility, as the entity that operates the financial mechanism of the Convention, has been entrusted to operate this fund. For more information see: http://unfccc.int/cooperation_and_support/financial_mechanism/least_developed_country_fund/items/3660.php
Legume	Plants that are able to fix nitrogen from the air through a symbiotic relationship with soil bacteria (e.g., peas, beans, alfalfa, clovers).
Letter of Approval (LoA)	The letter provides formal approval of the project as a JI or CDM project by the Parties involved.
Letter of Endorsement (LoE)	The letter means confirmation to the project sponsor of the preparedness of the host country to endorse the further development of the project in question.
Letter of 'No Objection' (LoNo)	The Letter may be requested on the basis of a Project Identification Note (PIN) in order to gain assurance from the host country to issue the Letter of Endorsement (LoE).
Lifetime	Lifetime is a general term used for various time-scales characterising the rate of processes affecting the concentration of trace gases. The following lifetimes may be distinguished: Turnover time (T) is the ratio of the mass M of a reservoir (e.g., a gaseous compound in the atmosphere) and the total rate of removal S from the reservoir: T = M/S. For each removal process separate turnover times can be defined. In soil carbon biology this is referred to as Mean Residence Time (MRT). Adjustment time or response time (Ta) is the time-scale characterising the decay of an instantaneous pulse input into the reservoir. The term adjustment time is also used to characterise the adjustment of the mass of a reservoir following a step change in the source strength. Half-life or decay constant is used to quantify a first-order exponential decay process. See: Response time, for a different definition pertinent to climate variations. The term lifetime is sometimes used, for simplicity, as a surrogate for adjustment time. In simple cases, where the global removal of the compound is directly proportional to the total mass of the reservoir, the adjustment time equals the turnover time: T = Ta. An example is CFC-11 which is removed from the atmosphere only by photochemical processes in the stratosphere. In more complicated cases, where several reservoirs are involved or where the removal is not proportional to the total mass, the equality T = Ta no longer holds. Carbon dioxide (CO2) is an extreme example. Its turnover time is only about 4 years because of the rapid exchange between atmosphere and the ocean and terrestrial biota. However, a

	large part of that CO2 is returned to the atmosphere within a few years. Thus, the adjustment time of CO2 in the atmosphere is actually determined by the rate of removal of carbon from the surface layer of the oceans into its deeper layers. Although an approximate value of 100 years may be given for the adjustment time of CO2 in the atmosphere, the actual adjustment is faster initially and slower later on. In the case of methane (CH4) the adjustment time is different from the turnover time, because the removal is mainly through a chemical reaction with the hydroxyl radical OH, the concentration of which itself depends on the CH4 concentration. Therefore the CH4 removal S is not proportional to its total mass M.
Lifetime (atmospheric)	The lifetime of a greenhouse gas refers to the approximate amount of time it would take for the anthropogenic increment to an atmospheric pollutant concentration to return to its natural level (assuming emissions cease) as a result of either being converted to another chemical compound or being taken out of the atmosphere via a sink. This time depends on the pollutant's sources and sinks as well as its reactivity. The lifetime of a pollutant is often considered in conjunction with the mixing of pollutants in the atmosphere; a long lifetime will allow the pollutant to mix throughout the atmosphere. Average lifetimes can vary from about a week (e.g., sulfate aerosols) to more than a century (e.g., CFCs, carbon dioxide). See residence time.
Light-duty vehicles	Automobiles and light trucks combined.
Lignite	A brownish-black coal of low rank with high inherent moisture and volatile matter content, used almost exclusively for electric power generation. Also referred to as brown coal.
Limnology	Study of lakes and their biota.
Linking Directive	The EU Emissions Trading Directive 2003/87/EC and its amendment arrange the use of project credits in Phase I (2005-2007) of the EU ETS, as well as provisions relating to project approval processes and authorisation to participate in the flexible mechanisms. They also contain additional provisions relating to the establishment of the national emissions inventory.
Linking Directive	EU Linking Directive
Liquefied natural gas (LNG)	Natural gas converted to liquid form by cooling to a very low temperature.
Liquefied petroleum gas (LPG)	Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.
Lithosphere	The upper layer of the solid Earth, both continental and oceanic, which comprises all crustal rocks and the cold, mainly elastic, part of the uppermost mantle. Volcanic activity, although part of the lithosphere, is not considered

	as part of the climate system, but acts as an external forcing factor. See: Isostatic land movements.
Litter	Undecomposed plant residues on the soil surface. See decomposition.
Littoral Zone	A coastal region; the shore zone between high and low watermarks.
LoA	See Letter of Approval.
Local Agenda 21	Local Agenda 21s are the local plans for environment and development that each local authority is meant to develop through a consultative process with their populations, with particular attention paid to involving women and youth. Many local authorities have developed Local Agenda 21s through consultative processes as a means of reorienting their policies, plans, and operations towards the achievement of sustainable development goals. The term comes from Chapter 28 of Agenda 21--the document formally endorsed by all government representatives attending the UN Conference on Environment and Development (also known as the Earth Summit) in Rio de Janeiro in 1992.
LoE	See Letter of Endorsement.
Long-term Certified Emission Reductions (lCERs)	See also Temporary Certified Emission Reductions (tCERs)Credits issued for an afforestation or reforestation project activity that expires at the end of its crediting period. lCERs are issued for the net anthropogenic greenhouse gas removals by sinks achieved by the project activity during each verification period.
Longwave Radiation	The radiation emitted in the spectral wavelength greater than 4 micrometers corresponding to the radiation emitted from the Earth and atmosphere. It is sometimes referred to as 'terrestrial radiation' or 'infrared radiation,' although somewhat imprecisely. See infrared radiation.6
LoNo	See Letter of 'No Objection'.
LOSU (Level of Scientific Understanding)	This is an index on a 4-step scale (High, Medium, Low and Very Low) designed to characterise the degree of scientific understanding of the radiative forcing agents that affect climate change. For each agent, the index represents a subjective judgement about the reliability of the estimate of its forcing, involving such factors as the assumptions necessary to evaluate the forcing, the degree of knowledge of the physical/ chemical mechanisms determining the forcing and the uncertainties surrounding the quantitative estimate.
Lower heating value	Quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel assuming that the produced water remains as a vapor and the heat of the vapor is not recovered; also known as net calorific value. See higher heating value.
Lubricant	A substance used to reduce friction between bearing surfaces or as a process material, either incorporated into other materials used as aids in manufacturing processes or as

	carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve useful properties. Does not include by-products of lubricating oil from solvent extraction or tars derived from de-asphalting. Lubricants include all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. Lubricant categories are paraffinic and naphthenic.
LULUCF	See Land Use, Land Use Change and Forestry.
TOP	
Maladaptation	Any changes in natural or human systems that inadvertently increase vulnerability to climatic stimuli; an adaptation that does not succeed in reducing vulnerability but increases it instead.
Malaria	Endemic or epidemic parasitic disease caused by species of the genus Plasmodium (protozoa) and transmitted by mosquitoes of the genus Anopheles; produces high fever attacks and systemic disorders, and kills approximately 2 million people every year.
Manure	Dung and urine of animals that can be used as a form of organic fertilizer.
Marginal Abatement Cost (MAC)	The marginal abatement cost in the context of the carbon market is the cost of reducing emissions with one additional unit. Aggregated marginal costs over a number of projects or activities define the marginal abatement cost curve.
Marker (Scenario)	A scenario that was originally posted in draft form on the SRES website to represent a given scenario family. The choice of markers was based on which of the initial quantifications best reflected the storyline, and the features of specific models. Markers are no more likely than other scenarios, but are considered by the SRES writing team as illustrative of a particular storyline. They are included in revised form in Nakic´enovic´ et al. (2000). These scenarios have received the closest scrutiny of the entire writing team and via the SRES open process. Scenarios have also been selected to illustrate the other two scenario groups (see also ‘Scenario Group' and ‘Illustrative Scenario').
Market Benefits	Benefits of a climate policy that can be measured in terms of avoided market impacts such as changes in resource productivity (e.g., lower agricultural yields, scarcer water resources) and damages to human-built environment (e.g., coastal flooding due to sea-level rise).
Market Impacts	Impacts that are linked to market transactions and directly affect gross domestic product (GDP, a country's national accounts)--for example, changes in the supply and price of agricultural goods. See also non-market impacts.
Marrakesh Accords	Accords include the detailed modalities and procedures of the international climate change policy regime developed at

	COP-7 (seventh Conference of the Parties). Marrakesh Accords cover significant principles for technology transfer, accounting, flexible mechanisms implementation etc.
	Agreements reached at COP-7 which set various rules for "operating" the more complex provisions of the Kyoto Protocol. Among other things, the accords include details for establishing a greenhouse-gas emissions trading system; implementing and monitoring the Protocol's Clean Development Mechanism; and setting up and operating three funds to support efforts to adapt to climate change.
Mass balance	The application of the principle of the conservation of matter.
Mass Movement	Applies to all unit movements of land material propelled and controlled by gravity.
Mauna Loa Record	The record of measurement of atmospheric CO2 concentrations taken at Mauna Loa Observatory, Mauna Loa, Hawaii, since March 1958. This record shows the continuing increase in average annual atmospheric CO2 concentrations.
Mean Sea Level	See: Relative Sea Level.
Meeting	A formal gathering that occurs during a "session." Each session of the COP, for example, is divided into a number of meetings. A meeting is generally scheduled from 10 a.m. to 1 p.m. or from 3 p.m. to 6 p.m.
Meeting of Parties (MOP)	MOP is the Supreme Body of the Kyoto Protocol. The first Meeting of Parties to the Kyoto Protocol firstly was held in Montreal in December 2005 during the 11th Conference of Parties.
Memorandum of Understanding (MoU)	An MoU is an agreement between two parties that aims to formally recognise a joint desire to ultimately conclude an agreement or to achieve goals jointly. It may or may not have legal backing of sanction, depending upon how it is constructed. MoUs between host and investor country are often used as a basis for CDM/JI projects.
Meningitis	Inflammation of the meninges (part of the covering of the brain).
Metazoan	An animal whose body consists of many cells. See also protozoan
Methane (CH4)	A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 23 times that of carbon dioxide (CO2). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. The GWP is from the IPCC's Third Assessment Report (TAR). For more information visit EPA's Methane site.
Methanol (CH3OH)	A colorless poisonous liquid with essentially no odor and little taste. It is the simplest alcohol with a boiling point of 64.7 degrees Celsius. In transportation, methanol is used as

	a vehicle fuel by itself, or blended with gasoline.
Methanotrophic	Having the biological capacity to oxidize methane to CO2 and water by metabolism under aerobic conditions.
Methodologies Panel (Meth Panel)	The Methodologies Panel was established to develop recommendations to the Executive Board on guidelines for methodologies for baselines and monitoring plans and prepare recommendations on submitted proposals for new baseline and monitoring methodologies.
Metric Ton	Common international measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 2205 lbs or 1.1 short tons. See short ton.7
	Common international measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 1000 kilograms, 2204.6 pounds, or 1.1023 short tons.
Microbial Loop	Complex food web involving bacteria, single-celled animals and plants, viruses, and dissolved and particulate organic material. Dissolved and particulate material, released from organisms, is utilized by bacteria, which are grazed by protozoa which in turn are grazed by metazoa. Around 50% (often more) of primary production passes through the microbial loop rather than along the classical food chain of phyto plankton to herbivore.
Microclimate	Local climate at or near the Earth's surface. See also climate.
Microwave Sounding Units (MSU)	Sensors carried aboard Earth orbiting satellites that have been used since 1979 to monitor tropospheric temperatures.
Mineral	Any naturally occurring inorganic substance found in the earth's crust as a crystalline solid.
Miscellaneous documents (misc. docs)	Documents issued on plain paper with no UN masthead. They generally contain views or comments published as received from a delegation without formal editing.
Mitigation	In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere.
	A human intervention to reduce the sources or enhance the sinks of greenhouse gases.
	An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.
Mixed Layer	The upper region of the ocean well-mixed by interaction with the overlying atmosphere.
Mixing ratio	See: Mole fraction.
MMTCO2Eq	MMTCO2Eq = (million metric tons of a gas) * (GWP of the gas)
Model hierarchy	See: Climate model.
Mole fraction	Mole fraction, or mixing ratio, is the ratio of the number of moles of a constituent in a given volume to the total number

	of moles of all constituents in that volume. It is usually reported for dry air. Typical values for long-lived greenhouse gases are in the order of mmol/mol (parts per million: ppm), nmol/mol (parts per billion: ppb), and fmol/mol (parts per trillion: ppt). Mole fraction differs from volume mixing ratio, often expressed in ppmv etc., by the corrections for non-ideality of gases. This correction is significant relative to measurement precision for many greenhouse gases. (Source: Schwartz and Warneck, 1995).
Molecule	Chemical combination of two or more atoms of the same chemical element (such as O2) or different chemical elements (such as H2O).
Monitoring	Monitoring refers to the collection and archiving of all relevant data necessary for determining the baseline, measuring anthropogenic emissions by sources of greenhouse gases (GHG) within the project boundary of a project activity and leakage, as applicable.
Monitoring	Documentation of CDM/JI project implementation.
Monsoon	Wind in the general atmospheric circulation typified by a seasonal persistent wind direction and by a pronounced change in direction from one season to the next.
Montane	The biogeographic zone made up of relatively moist, cool upland slopes below timberline and characterized by the presence of large evergreen trees as a dominant lifeform.
Montreal Protocol	The Montreal Protocol on Substances that Deplete the Ozone Layer, and international agreement adopted in Montreal in 1987.
Montreal Protocol	(on Substances that Deplete the Ozone Layer) An international agreement that entered into force in January 1989 to phase out the use of ozone-depleting compounds such as methyl chloroform, carbon tetrachloride, and CFCs. CFCs are potent greenhouse gases which are not regulated by the Kyoto Protocol since they are covered by the Montreal Protocol.
Montreal Protocol	The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted in Montreal in 1987, and subsequently adjusted and amended in London (1990), Copenhagen (1992), Vienna (1995), Montreal (1997) and Beijing (1999). It controls the consumption and production of chlorine- and bromine-containing chemicals that destroy stratospheric ozone, such as CFCs, methyl chloroform, carbon tetrachloride, and many others.
Montreal Protocol on Substances that Deplete the Ozone Layer	The Montreal Protocol and its amendments control the phaseout of ozone depleting substances production and use. Under the Protocol, several international organizations report on the science of ozone depletion, implement projects to help move away from ozone depleting substances, and provide a forum for policy discussions. See ozone depleting substance, ozone layer.
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, rates of hospitalization, primary care consultations, disability-days (i.e., days when absent from work), and prevalence of symptoms.
Morphology	The form and structure of an organism or any of its parts.
Mortality	Rate of occurrence of death within a population within a specified time period; calculation of mortality takes account of age-specific death rates, and can thus yield measures of life expectancy and the extent of premature death.
Motor gasoline	A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, obtained by blending appropriate refinery streams to form a fuel suitable for use in spark-ignition engines. Motor gasoline includes both leaded and unleaded grades of finished gasoline, blending components, and gasohol.
Mount Pinatubo	A volcano in the Philippine Islands that erupted in 1991. The eruption of Mount Pinatubo ejected enough particulate and sulfate aerosol matter into the atmosphere to block some of the incoming solar radiation from reaching Earth's atmosphere. This effectively cooled the planet from 1992 to 1994, masking the warming that had been occurring for most of the 1980s and 1990s.6
Municipal Solid Waste (MSW)	Residential solid waste and some non-hazardous commercial, institutional, and industrial wastes. This material is generally sent to municipal landfills for disposal. See landfill.
Municipal solid waste (MSW)	Residential solid waste and some non-hazardous commercial, institutional, and industrial wastes. This material is generally sent to municipal landfills for disposal. See landfill.
TOP	
N.N.	Not named
N20	Nitrous oxide.
Nanoplankton	Phytoplankton whose lengths range from 10-50 µm.
Naphtha	A generic term applied to a petroleum fraction with an approximate boiling range between 122 and 400 degrees Fahrenheit.
National Action Plans	Plans submitted to the Conference of the Parties (COP) by all Parties outlining the steps that they have adopted to limit their anthropogenic GHG emissions. Countries must submit these plans as a condition of participating in the UN Framework Convention on Climate Change and, subsequently, must communicate their progress to the COP regularly.
National adaptation programmes of action	Documents prepared by least developed countries (LDCs) identifying urgent and immediate needs for adapting to

(NAPAs)	climate change. The NAPAs are then presented to the international donor community for support.
National Allocation Plan (NAP)	Allocation of emission allowances at the national level to individual sites under European Union Emission Trading Scheme.
National Authorities and Designated National Authorities	The national authority is the official body representing the Government which takes part in the arrangement of CDM/JI projects. For JI host countries, the national authority approves the projects and issues the emission reduction units. For CDM host countries, the designated national authority issues a non-objection letter necessary for the project approval, if it agrees that a project is in line with its sustainable development objectives.
National communication	A document submitted in accordance with the Convention (and the Protocol) by which a Party informs other Parties of activities undertaken to address climate change. Most developed countries have now submitted their fourth national communications; most developing countries have completed their first national communication and are in the process of preparing their second.
National delegation	One or more officials empowered to represent and negotiate on behalf of a government.
Natural Gas	Underground deposits of gases consisting of 50 to 90 percent methane (CH4) and small amounts of heavier gaseous hydrocarbon compounds such as propane (C3H8) and butane (C4H10).
Natural gas liquids (NGLs)	Those hydrocarbons in natural gas that are separated as liquids from the gas. Includes natural gas plant liquids and lease condensate.
Negative Feedback	A process that results in a reduction in the response of a system to an external influence. For example, increased plant productivity in response to global warming would be a negative feedback on warming, because the additional growth would act as a sink CO2, reducing the atmospheric CO2 concentration.
Negotiated Greenhouse Agreement (NGA)	The New Zealand Government has been prepared to negotiate a full or partial exemption from the proposed emissions charge through NGA, because the international competitiveness of some New Zealand firms or industry groupings could be at risk from the emissions charge during the first commitment period of the Kyoto Protocol.
Net Biome Production (NBP)	Net gain or loss of carbon from a region. NBP is equal to the Net Ecosystem Production minus the carbon lost due to a disturbance, e.g. a forest fire or a forest harvest.
Net Ecosystem Production (NEP)	Net gain or loss of carbon from an ecosystem. NEP is equal to Net Primary Production minus the carbon lost through heterotrophic respiration.
Net Primary Production (NPP)	The increase in plant biomass or carbon of a unit of a landscape. NPP is equal to the Gross Primary Production minus carbon lost through autotrophic respiration.

Nitrogen cycle	Cyclic movement of nitrogen in different chemical forms from the environment, to organisms, and then back to the environment.
Nitrogen fertilisation	Enhancement of plant growth through the addition of nitrogen compounds. In IPCC Reports, this typically refers to fertilisation from anthropogenic sources of nitrogen such as human-made fertilisers and nitrogen oxides released from burning fossil fuels.
Nitrogen fixation	Conversion of atmospheric nitrogen gas into forms useful to plants and other organisms by lightning, bacteria, and blue-green algae; it is part of the nitrogen cycle.
Nitrogen Oxides (NOx)	Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules. Nitrogen oxides are produced in the emissions of vehicle exhausts and from power stations. In the atmosphere, nitrogen oxides can contribute to formation of photochemical ozone (smog), can impair visibility, and have health consequences; they are thus considered pollutants.6
	A powerful greenhouse gas with a global warming potential of 296 times that of carbon dioxide (CO2). Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning. The GWP is from the IPCC's Third Assessment Report (TAR).6
	Greenhouse gas with a Global Warming Potential of 310. Results from the burning fossil fuels and the manufacture of fertiliser.
	N2O is among the six greenhouse gases to be curbed under the Kyoto Protocol. N2O is produced by natural processes, but there are also substantial emissions from human activities such as agriculture and fossil fuel combustion. The atmospheric lifetime of N2O is approximately 100 years, and its 100-year GWP is currently estimated to be 296 times that of CO2.
	A powerful greenhouse gas with a global warming potential evaluated at 310. Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
No Regrets Policy	One that would generate net social benefits whether or not there is anthropogenic climate change.
Non-Annex B Parties	Countries that are not listed in Annex B of the Kyoto Protocol.
Non-Annex I countries	Annex I is an Annex in the UNFCCC listing those countries that are signatories to the Convention and committed to emission reductions. The non-Annex I countries are developing countries, and they have no emission reduction targets.
Non-Annex I Parties	Refers to countries that have ratified or acceded to the

	United Nations Framework Convention on Climate Change that are not included in Annex I of the Convention.
Nonbiodegradable	Substance that cannot be broken down in the environment by natural processes. See biodegradable.
Non-governmental organizations (NGOs)	Organizations that are not part of a governmental structure. They include environmental groups, research institutions, business groups, and associations of urban and local governments. Many NGOs attend climate talks as observers. To be accredited to attend meetings under the Convention, NGOs must be non-profit.
Nonlinearities	Occur when changes in one variable cause a more than proportionate impact on another variable.
Non-linearity	A process is called "non-linear" when there is no simple proportional relation between cause and effect. The climate system contains many such non-linear processes, resulting in a system with a potentially very complex behaviour. Such complexity may lead to rapid climate change.
	A process is called "non-linear" when there is no simple proportional relation between cause and effect.
Non-Market Benefits	Benefits of a climate policy that can be measured in terms of avoided non-market impacts such as human-health impacts (e.g., increased incidence of tropical diseases) and damages to ecosystems (e.g., loss of biodiversity).
Non-Market Impacts	Impacts that affect ecosystems or human welfare, but that are not directly linked to market transactions--for example, an increased risk of premature death. See also market impacts.
Non-Methane Volatile Organic Compounds (NMVOCs)	Organic compounds, other than methane, that participate in atmospheric photochemical reactions.
Non-methane volatile organic compounds (NMVOCs)	Organic compounds, other than methane, that participate in atmospheric photochemical reactions.
Non-paper	An in-session document issued informally to facilitate negotiations. A non-paper does not have an official document symbol. It may have an identifying number or carry the name of its author.
Non-Party	A state that has not ratified the Convention but attends meetings as an observer.
Non-Party	A state that has not ratified the UNFCCC. Non-parties may attend talks as observers.
Non-point source	Large land area such as crop fields and urban areas that discharge pollutant into surface and underground water over a large area. See point source.
Non-Point-Source Pollution	Pollution from sources that cannot be defined as discrete points, such as areas of crop production, timber, surface mining, disposal of refuse, and construction. See also point-source pollution.
No-regrets options	Technology for reducing greenhouse-gas emissions whose other benefits (in terms of efficiency or reduced energy costs) are so extensive that the investment is worth it for

	those reasons alone. For example, combined-cycle gas turbines -- in which the heat from the burning fuel drives steam turbines while the thermal expansion of the exhaust gases drives gas turbines -- may boost the efficiency of electricity generating plants by 70 per cent.
North Atlantic Oscillation (NAO)	The North Atlantic Oscillation consists of opposing variations of barometric pressure near Iceland and near the Azores. On average, a westerly current, between the Icelandic low pressure area and the Azores high pressure area, carries cyclones with their associated frontal systems towards Europe. However, the pressure difference between Iceland and the Azores fluctuates on time-scales of days to decades, and can be reversed at times.
	The North Atlantic Oscillation 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 ranging from central North America to Europe.
TOP	
Obligate Species	Species restricted to one particularly characteristic mode of life.
Observers	Agencies, non-governmental organizations, and Governments not Parties to the Convention which are permitted to attend, but not vote, at meetings of the COP and its subsidiary bodies. Observers may include the United Nations and its specialized agencies; other intergovernmental organizations such as the International Atomic Energy Agency; and accredited non-governmental organizations (NGOs).
Ocean Conveyor Belt	The theoretical route by which water circulates around the entire global ocean, driven by wind and the thermohaline circulation.
Ocean Sequestration	See also Geosequestration and Terrestrial SequestrationCarbon dioxide capture and storage system that includes both injection into deep areas of the ocean and increased stimulation of ocean surface waters to grow phytoplankton and take up carbon dioxide.
Ocean Ventilation	Downwelling of water from near the surface to the deep ocean. See also deepwater formation.
OECD	Organisation for Economic Co-operation and Development.
OECD	Organisation for Economic Co-operation and Development which includes the following countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Korea, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

Offset	An emissions reduction achieved by undertaking a GHG reduction project.
Oil	See crude oil, petroleum.
Oil shale	Underground formation of a fine-grained sedimentary rock containing varying amounts of kerogen, a solid, waxy mixture of hydrocarbon compounds. Heating the rock to high temperatures converts the kerogen to a vapor, which can be condensed to form a slow flowing heavy oil called shale oil. See kerogen, shale oil.
Oligotrophic	Relatively unproductive areas of the sea, lakes, and rivers with low nutrient content. See also eutrophic.
OPEC	Organization of Petroleum Exporting Countries.
Operational Entity (OE)	Approved by the CDM Executive Board, an OE is an entity that validates and subsequently requests registration of a proposed CDM project activity which will be considered valid after 8 weeks if no request for review was made. An OE also verifies emission reductions of a registered CDM project, certifies as appropriate and requests the Board to issue Certified Emission Reductions (CERs) accordingly.
Opportunity Costs	The cost of an economic activity forgone by the choice of another activity.
Ore	Mineral deposit containing a high enough concentration of at least one metallic element to permit the metal to be extracted and sold at a profit.
Organic aerosol	Aerosol particles consisting predominantly of organic compounds, mainly C, H, O, and lesser amounts of other elements. (Source: Charlson and Heintzenberg, 1995, p. 405.) See: Carbonaceous aerosol.
Organic compound	Molecule that contains atoms of the element carbon, usually combined with itself and with atoms of one or more other element such as hydrogen, oxygen, nitrogen, sulfur, phosphorus, chlorine, or fluorine. See inorganic compound.
Organic fertilizer	Organic material such as manure or compost, applied to cropland as a source of plant nutrients.
Orography	The study of the physical geography of mountains and mountain systems.
Oxidize	To chemically transform a substance by combining it with oxygen.7
Oxygen cycle	Cyclic movement of oxygen in different chemical forms from the environment, to organisms, and then back to the environment.
Ozone	Ozone, the triatomic form of oxygen (O3), is a gaseous atmospheric constituent. In the troposphere it is created both naturally and by photochemical reactions involving gases resulting from human activities ("smog"). Tropospheric ozone acts as a greenhouse gas. In the stratosphere it is created by the interaction between solar ultraviolet radiation and molecular oxygen (O2). Stratospheric ozone plays a decisive role in the stratospheric radiative balance. Its concentration is highest in the ozone layer.

	A colorless gas with a pungent odor, having the molecular form of O3, found in two layers of the atmosphere, the stratosphere and the troposphere. Ozone is a form of oxygen found naturally in the stratosphere that provides a protective layer shielding the Earth from ultraviolet radiation's harmful health effects on humans and the environment. In the troposphere, ozone is a chemical oxidant and major component of photochemical smog. Ozone can seriously affect the human respiratory system.
Ozone Depleting Substance (ODS)	A family of man-made compounds that includes, but are not limited to, chlorofluorocarbons (CFCs), bromofluorocarbons (halons), methyl chloroform, carbon tetrachloride, methyl bromide, and hydrochlorofluorocarbons (HCFCs). These compounds have been shown to deplete stratospheric ozone, and therefore are typically referred to as ODSs. See ozone.7
Ozone hole	See: Ozone layer.
Ozone Layer	The layer of ozone that begins approximately 15 km above Earth and thins to an almost negligible amount at about 50 km, shields the Earth from harmful ultraviolet radiation from the sun. The highest natural concentration of ozone (approximately 10 parts per million by volume) occurs in the stratosphere at approximately 25 km above Earth. The stratospheric ozone concentration changes throughout the year as stratospheric circulation changes with the seasons. Natural events such as volcanoes and solar flares can produce changes in ozone concentration, but man-made changes are of the greatest concern. See stratosphere, ultraviolet radiation.6
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. The ozone concentration reaches a maximum between about 20 and 25 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, also caused by human-made chlorine and bromine compounds in combination with the specific meteorological conditions of that region. This phenomenon is called the ozone hole.
Ozone Precursors	Chemical compounds, such as carbon monoxide, methane, non-methane hydrocarbons, and nitrogen oxides, which in the presence of solar radiation react with other chemical compounds to form ozone, mainly in the troposphere. See troposphere.7
TOP	

Parametrization	In climate models, this term refers to the technique of representing processes, that cannot be explicitly resolved at the spatial or temporal resolution of the model (sub-grid scale processes), by relationships between the area or time averaged effect of such sub-grid scale processes and the larger scale flow.
Particulate Matter (PM)	Very small pieces of solid or liquid matter such as particles of soot, dust, fumes, mists or aerosols. The physical characteristics of particles, and how they combine with other particles, are part of the feedback mechanisms of the atmosphere. See aerosol, sulfate aerosols.6
Particulate matter (PM)	Solid particles or liquid droplets suspended or carried in the air.
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.
Parts Per Billion (ppb)	Number of parts of a chemical found in one billion parts of a particular gas, liquid, or solid mixture. See concentration.
Parts Per Million (ppm)	Number of parts of a chemical found in one million parts of a particular gas, liquid, or solid. See concentration.
Party	A state (or regional economic integration organization such as the European Union) that agrees to be bound by a treaty and for which the treaty has entered into force.
Patterns of climate variability	Natural variability of the climate system, in particular on seasonal and longer time-scales, predominantly occurs in preferred spatial patterns, through the dynamical non-linear characteristics of the atmospheric circulation and through interactions with the land and ocean surfaces. Such spatial patterns are also called "regimes" or "modes". Examples are the North Atlantic Oscillation (NAO), the Pacific-North American pattern (PNA), the El Niño-Southern Oscillation (ENSO), and the Antarctic Oscillation (AO).
PDD	Project Design Document, the standardised project documentation which CDM/JI project developers must submit when requesting project approval.
Peat	Unconsolidated soil material consisting largely of partially decomposed organic matter accumulated under conditions of excess moisture or other conditions that decrease decomposition rates.
Pelagic	Of, relating to, or living or occurring in the open sea.
Pentanes plus	A mixture of hydrocarbons, mostly pentanes and heavier fractions, extracted from natural gas.
Perfluorocarbons (PFCs)	A group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly CF4 and C2F6) were introduced as alternatives, along with hydrofluorocarbons, to the ozone depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not

	harm the stratospheric ozone layer, but they are powerful greenhouse gases: CF4 has a global warming potential (GWP) of 5,700 and C2F6 has a GWP of 11,900. The GWP is from the IPCC's Third Assessment Report (TAR). See ozone depleting substance.
Perfluorocarbons (PFCs)	PFCs are among the six types of greenhouse gases to be curbed under the Kyoto Protocol. PFCs are synthetic industrial gases generated as a by-product of aluminum smelting and uranium enrichment. They also are used as substitutes for CFCs in the manufacture of semiconductors. There are no natural sources of PFCs. PFCs have atmospheric lifetimes of thousands to tens of thousands of years and 100-year GWPs thousands of times that of CO2, depending on the gas.
	A group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly CF4 and C2F6) were introduced as alternatives, along with hydrofluorocarbons, to the ozone depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are powerful greenhouse gases. CF4 has a global warming potential (GWP) of 6,500 and C2F6 has a GWP of 9,200.
Permafrost	Perennially frozen ground that occurs wherever the temperature remains below 0°C for several years.
Permit	Permits are often used for denoting the tradable units under the Kyoto Protocol, i.e. AAUs, ERU or CERs.
Petrochemical feedstock	Feedstock derived from petroleum, used principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are naphtha (endpoint less than 401 degrees Fahrenheit) and other oils (endpoint equal to or greater than 401 degrees Fahrenheit).
Petrochemicals	Chemicals obtained by refining (i.e., distilling) crude oil. They are used as raw materials in the manufacture of most industrial chemicals, fertilizers, pesticides, plastics, synthetic fibers, paints, medicines, and many other products. See crude oil.
Petroleum	A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and non-hydrocarbon compounds blended into finished petroleum products. See crude oil.
Petroleum coke	A residue that is the final product of the condensation process in cracking.
PFC	Perfluorocarbon.
Phenology	The study of natural phenomena that recur periodically (e.g., blooming, migrating) and their relation to climate and seasonal changes.
Photic Zone	The upper waters of lakes, rivers, and sea sufficiently illuminated for photosynthesis to occur.

Photochemical Smog	A mix of photochemical oxidant air pollutants produced by the reaction of sunlight with primary air pollutants, especially hydrocarbons.
Photosynthate	The product of photosynthesis.
Photosynthesis	The process by which plants take CO2 from the air (or bicarbonate in water) to build carbohydrates, releasing O2 in the process. There are several pathways of photosynthesis with different responses to atmospheric CO2 concentrations. See carbon sequestration, carbon dioxide fertilization.3
	Complex process that takes place in living green plant cells. Radiant energy from the sun is used to combine carbon dioxide (CO2) and water (H2O) to produce oxygen (O2) and simple nutrient molecules, such as glucose (C6HI2O6).
Photovoltaic and solar thermal energy	Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted into electricity by means of solar (i.e., photovoltaic) cells or useable heat by concentrating (i.e., focusing) collectors.
Physiographic	Of, relating to, or employing a description of nature or natural phenomena.
Phytophagous Insects	Insects that feed on plants.
Phytoplankton	The plant forms of plankton (e.g., diatoms). Phytoplankton are the dominant plants in the sea, and are the bast of the entire marine food web. These single-celled organisms are the principal agents for photosynthetic carbon fixation in the ocean. See also zooplankton.
Plankton	Aquatic organisms that drift or swim weakly. See also phytoplankton and zooplankton.
Planned Adaptation	Adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state.
Plenary	A formal meeting of the entire COP or one of its subsidiary bodies. Formal decisions or conclusions may only be taken during plenary sessions.
Point source	A single identifiable source that discharges pollutants into the environment. Examples are smokestack, sewer, ditch, or pipe. See non-point source.
Point-Source Pollution	Pollution resulting from any confined, discrete source, such as a pipe, ditch, tunnel, well, container, concentrated animal-feeding operation, or floating craft. See also non-point-source pollution.
Policies and measures (PAMs)	A frequently used phrase -- sometimes abbreviated as PAMs -- referring to the steps taken or to be taken by countries to reduce greenhouse-gas emissions under the UNFCCC and the Kyoto Protocol. Some possible policies and measures are listed in the Protocol and could offer opportunities for intergovernmental cooperation.
Polluter Pays Principle (PPP)	The principle that countries should in some way compensate others for the effects of pollution that they (or their citizens)

	generate or have generated.
Polynyas	Areas of open water in pack ice or sea ice.
Polyvinyl chloride (PVC)	A polymer of vinyl chloride. It is tasteless, odorless and insoluble in most organic solvents. A member of the family vinyl resin, used in soft flexible films for food packaging and in molded rigid products, such as pipes, fibers, upholstery, and bristles.
Pool	See: Reservoir.
Population	Group of individual organisms of the same species living within a particular area.
Positive Feedback	A process that results in an amplification of the response of a system to an external influence. For example, increased atmospheric water vapor in response to global warming would be a positive feedback on warming, because water vapor is a GHG.
Post-glacial rebound	The vertical movement of the continents and sea floor following the disappearance and shrinking of ice sheets, e.g. since the Last Glacial Maximum (21 ky BP). The rebound is an isostatic land movement.
Potential Impacts	All impacts that may occur given a projected change in climate, without considering adaptation.
Potential Production	Estimated production of a crop under conditions when nutrients and water are available at optimum levels for plant growth and development; other conditions such as day length, temperature, soil characteristics, etc., determined by site characteristics.
ppm or ppb	Abbreviations for “parts per million” and “parts per billion,” respectively - the units in which concentrations of greenhouse gases are commonly presented. For example, since the pre-industrial era, atmospheric concentrations of carbon dioxide have increased from 270 ppm to 370 ppm.
Ppm, ppb, ppt	See: Mole fraction.
Precession	The comparatively slow torquing of the orbital planes of all satellites with respect to the Earth's axis, due to the bulge of the Earth at the equator which distorts the Earth's gravitational field. Precession is manifest by the slow rotation of the line of nodes of the orbit (westward for inclinations less than 90 degrees and eastward for inclinations greater than 90 degrees).6
Precursors	Atmospheric compounds which themselves are not greenhouse gases or aerosols, but which have an effect on greenhouse gas or aerosol concentrations by taking part in physical or chemical processes regulating their production or destruction rates.
Pre-industrial	See: Industrial revolution.
Prescribed burning	Deliberate setting and careful control of surface fires in forests to help prevent more destructive fires and to kill off unwanted plants that compete with commercial species for plant nutrients; may also be used on grasslands.
President	The official of a member government elected by the Parties

	to preside over the COP. The President is often a senior official or minister from the state or region hosting the meeting. The President may not participate in the negotiations as a representative of the member government during the term of presidency.
Primary Energy	Energy embodied in natural resources (e.g., coal, crude oil, sunlight, uranium) that has not undergone any anthropogenic conversion or transformation.
Primary oil recovery	Pumping out the crude oil that flows by gravity into the bottom of an oil well. See enhanced oil recovery, secondary oil recovery.
Private Adaptation	Adaptation that is initiated and implemented by individuals, households or private companies. Private adaptation is usually in the actor's rational self-interest.
Process Change	Is an improvement of the emissions associated directly with a manufacturing process. For example, changing an animal waste management system from an open lagoon to an anaerobic digester is a process change that results in fewer greenhouse gas emissions.
Producer Surplus	Returns beyond the cost of production that provide compensation for owners of skills or assets that are scarce (e.g., agriculturally productive land).
Programmatic CDM Projects	Programmatic CDM Projects cover such activities to reduce emissions as implementation of a government measures or private sector initiatives.
Project boundary	The project boundary is determined by the project developer and stated in the PDD. It must take in all emission sources that can be directly traced to the project activity.
Project Design Document (PDD)	Document completed by project developers in order to register their project under the CDM or JI. (Link: CDM Project Design Document (PDD) and JI Project Design Document (PDD)). The draft JI PDD form shall be applied provisionally until the COP/MOP has adopted it in accordance with the JI guidelines
Project Idea Note (PIN)	This is a short form of project description (about 6 pages) that provides such basic information about the project as type, size and location of the project; estimation of the anticipated total amount of Greenhouse Gas (GHG), reduction compared to the “business-as-usual” scenario, etc.
Projection (generic)	A projection is a potential future evolution of a quantity 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, e.g., future socio-economic and technological developments that may or may not be realised, and are therefore subject to substantial uncertainty. See also Climate projection; Climate prediction.
Projection (Generic)	A projection is a potential future evolution of a quality or set of quantities, often computed with the aid of a model. Projections are distinguished from predictions in order to

	emphasize that projections involve assumptions--concerning, for example, future socioeconomic and technological developments that may or may not be realized--and are therefore subject to substantial uncertainty. See also climate projection and climate prediction.
ProMechG	Germany's Project-Based Mechanisms Act transposing the EU Linking Directive into national law.
Protocol	An international agreement linked to an existing convention, but as a separate and additional agreement which must be signed and ratified by the Parties to the convention concerned. Protocols typically strengthen a convention by adding new, more detailed commitments.
Protozoan	A single-celled animal.
Proxy	A proxy climate indicator is a local record that is interpreted, using physical and biophysical principles, to represent some combination of climate-related variations back in time. Climate related data derived in this way are referred to as proxy data. Examples of proxies are: tree ring records, characteristics of corals, and various data derived from ice cores.
Public Adaptation	Adaptation that is initiated and implemented by governments at all levels. Public adaptation is usually directed at collective needs.
TOP	
Quantified Emission Limitation and Reduction QELRC	Also known as QELRO (Quantified Emission Limitation and Reduction Objective): The quantified commitments for GHG emissions listed in Annex B of the Kyoto Protocol. QELRCs are specified in percentages relative to 1990 emissions.
Quantified Emissions Limitation and Reduction Commitments (QELROs)	Legally binding targets and timetables under the Kyoto Protocol for the limitation or reduction of greenhouse-gas emissions by developed countries.
TOP	
Radiation	Energy transfer in the form of electromagnetic waves or particles that release energy when absorbed by an object. See ultraviolet radiation, infrared radiation, solar radiation, longwave radiation.6
Radiation	Energy emitted in the form of electromagnetic waves. Radiation has differing characteristics depending upon the wavelength. Because the radiation from the Sun is relatively energetic, it has a short wavelength (e.g., ultraviolet, visible, and near infrared) while energy re-radiated from the Earth's surface and the atmosphere has a longer wavelength (e.g., infrared radiation) because the Earth is cooler than the Sun. See ultraviolet radiation, infrared radiation, solar radiation, terrestrial radiation.

Radiative Forcing	Radiative forcing is the change in the net vertical irradiance (expressed in Watts per square metre: Wm-2) at the tropopause due to an internal change or a change in the external forcing of the climate system, such as, for example, a change in the concentration of carbon dioxide or the output of the Sun. Usually radiative forcing is computed after allowing for stratospheric temperatures to readjust to radiative equilibrium, but with all tropospheric properties held fixed at their unperturbed values. Radiative forcing is called instantaneous if no change in stratospheric temperature is accounted for. Practical problems with this definition, in particular with respect to radiative forcing associated with changes, by aerosols, of the precipitation formation by clouds, are discussed in Chapter 6 of the IPCC Third Assessment Report Working Group I: The Scientific Basis.3
Radiative Forcing	The term radiative forcing refers to changes in the energy balance of the earth-atmosphere system in response to a change in factors such as greenhouse gases, land-use change, or solar radiation. The climate system inherently attempts to balance incoming (e.g., light) and outgoing (e.g. heat) radiation. Positive radiative forcings increase the temperature of the lower atmosphere, which in turn increases temperatures at the Earth's surface. Negative radiative forcings cool the lower atmosphere. Radiative forcing is most commonly measured in units of watts per square meter (W/m2).
Radiative forcing	Radiative forcing is the change in the net vertical irradiance (expressed in Watts per square metre: Wm-2) at the tropopause due to an internal change or a change in the external forcing of the climate system, such as, for example, a change in the concentration of carbon dioxide or the output of the Sun. Usually radiative forcing is computed after allowing for stratospheric temperatures to readjust to radiative equilibrium, but with all tropospheric properties held fixed at their unperturbed values. Radiative forcing is called instantaneous if no change in stratospheric temperature is accounted for. Practical problems with this definition, in particular with respect to radiative forcing associated with changes, by aerosols, of the precipitation formation by clouds, are discussed in Chapter 6 of this Report.
Radiative Forcing	Radiative forcing is the change in the net vertical irradiance [expressed in Watts per square meter (Wm-2)] at the tropopause due to an internal change or a change in the external forcing of the climate system, such as a change in the concentration of CO2 or the output of the Sun. Usually radiative forcing is computed after allowing for stratospheric temperatures to readjust to radiative equilibrium, but with all tropospheric properties held fixed at their unperturbed values.

Radiative forcing	A change in the balance between incoming solar radiation and outgoing infrared (i.e., thermal) radiation. Without any radiative forcing, solar radiation coming to the Earth would continue to be approximately equal to the infrared radiation emitted from the Earth. The addition of greenhouse gases to the atmosphere traps an increased fraction of the infrared radiation, reradiating it back toward the surface of the Earth and thereby creates a warming influence.
Radiative forcing scenario	A plausible representation of the future development of radiative forcing associated, for example, with changes in atmospheric composition or land-use change, or with external factors such as variations in solar activity. Radiative forcing scenarios can be used as input into simplified climate models to compute climate projections.
Radio-echosounding	The surface and bedrock, and hence the thickness, of a glacier can be mapped by radar; signals penetrating the ice are reflected at the lower boundary with rock (or water, for a floating glacier tongue).
Radiosondes	Sensors carried aboard weather balloons that have been in continuous use since 1979 for the monitoring of tropospheric temperatures.
Rail	Includes “heavy” and “light” transit rail. Heavy transit rail is characterized by exclusive rights-of-way, multi-car trains, high speed rapid acceleration, sophisticated signaling, and high platform loading. Also known as subway, elevated railway, or metropolitan railway (metro). Light transit rail may be on exclusive or shared rights of way, high or low platform, multi-car trains or single cars, automated or manually operated. In generic usage, light rail includes streetcars, trolley cars, and tramways.
Rangeland	Unimproved grasslands, shrublands, savannas, and tundra.
Rangeland	Land, mostly grasslands, whose plants can provide food (i.e., forage) for grazing or browsing animals. See feedlot.
Rapid climate change	The non-linearity of the climate system may lead to rapid climate change, sometimes called abrupt events or even surprises. Some such abrupt events may be imaginable, such as a dramatic reorganisation of the thermohaline circulation, rapid deglaciation, or massive melting of permafrost leading to fast changes in the carbon cycle. Others may be truly unexpected, as a consequence of a strong, rapidly changing, forcing of a non-linear system.
Ratification	Formal approval, often by a Parliament or other national legislature, of a convention, protocol, or treaty, enabling a country to become a Party. Ratification is a separate process that occurs after a country has signed an agreement. The instrument of ratification must be deposited with a "depositary" (in the case of the Climate Change Convention, the UN Secretary-General) to start the countdown to becoming a Party (in the case of the Convention, the countdown is 90 days).

	After signing the UNFCCCCor the Kyoto Protocol, a country must ratify it, often with the approval of its parliament or other legislature. In the case of the Kyoto Protocol, a Party must deposit its instrument of ratification with the UN Secretary General in New York.
Reactive Adaptation	Adaptation that takes place after impacts of climate change have been observed. See also adaptation assessment, adaptation benefits, adaptation costs, adaptive capacity, and maladaptation.
Recommendation	A formal act of the COP which is weaker than a decision or a resolution, and is not binding on Parties to the Convention.
Recycling	Collecting and reprocessing a resource so it can be used again. An example is collecting aluminum cans, melting them down, and using the aluminum to make new cans or other aluminum products.7
Reference Scenario	See baseline/reference.
Reforestation	Replanting of forests on lands that have previously contained forests but that have been converted to some other use.
	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 Report on Land Use, Land-Use Change and Forestry (IPCC, 2000).
Regeneration	The renewal of a stand of trees through either natural means (seeded onsite or adjacent stands or deposited by wind, birds, or animals) or artificial means (by planting seedlings or direct seeding).
Regimes	Preferred patterns of climate variability.
Regional Greenhouse Gas Initiative (RGGI)	The Regional Greenhouse Gas Initiative is a cooperative effort by Northeastern and Mid-Atlantic states of the United States of America to reduce carbon dioxide emissions establishing of a regional cap-and-trade program initially covering carbon dioxide emissions from power plants in the region.
Regional groups	Alliances of countries, in most cases sharing the same geographic region, which meet privately to discuss issues and nominate bureau members and other officials for activities under the Convention. The five regional groups are Africa, Asia, Central and Eastern Europe (CEE), Latin America and the Caribbean (GRULAC), and the Western Europe and Others Group (WEOG).
	The five regional groups meet privately to discuss issues and nominate bureau members and other officials. They are Africa, Asia, Central and Eastern Europe (CEE), Latin America and the Caribbean (GRULAC), and the Western Europe and Others Group (WEOG).
Registration	Registration is the formal acceptance by the Executive Board of a validated project activity as a project activity.

	Registration is the prerequisite for the verification, certification and issuance of credits related to that project activity.
Registries, registry systems	Electronic databases that will track and record all transactions under the Kyoto Protocol's greenhouse-gas emissions trading system (the "carbon market") and under mechanisms such as the Clean Development Mechanism.
Registry	A system, including electronic databases, that track and record all transactions under a greenhouse-gas emissions trading system.
Reinsurance	The transfer of a portion of primary insurance risks to a secondary tier of insurers (reinsurers); essentially "insurance for insurers."
Relative Sea Level	Sea level measured by a tide gauge with respect to the land upon which it is situated. Mean Sea Level (MSL) is normally defined as the average Relative Sea Level over a period, such as a month or a year, long enough to average out transients such as waves.
Removal unit (RMU)	A Kyoto Protocol unit equal to 1 metric tonne of carbon dioxide equivalent. RMUs are generated in Annex I Parties by LULUCF activities that absorb carbon dioxide.
	A unit relating to land use, land use change and forestry activities is equal to one metric tonne of CO2 equivalent. RMUs cannot be banked for use in any subsequent commitment period, but can be converted into Assigned Amount Units (AAUs) within National Registry.
Renewable Energy	Energy obtained from sources such as geothermal, wind, photovoltaic, solar, and biomass.
	Energy obtained from sources that are essentially inexhaustible, unlike, for example, the fossil fuels, of which there is a finite supply. Renewable sources of energy include wood, waste, geothermal, wind, photovoltaic, and solar thermal energy. See hydropower, photovoltaic.
Research and systematic observation	An obligation of Parties to the Climate Change Convention; they are called upon to promote and cooperate in research and systematic observation of the climate system, and called upon to aid developing countries to do so.
Reservation	An exception or concern noted for the record by a Party in the course of accepting a decision of the COP. No reservations are allowed to the Convention itself, or to the Protocol.
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, a greenhouse gas, or precursor). Oceans, soils, and forests are examples of reservoirs of carbon. "Pool" is an equivalent term (note that the definition of pool often includes the atmosphere). The absolute quantity of substances of concern held within a reservoir at a specified time is called the "stock." 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, water supply, or irrigation.
Reservoir Host	Any animal, plant, soil, or inanimate matter in which a pathogen normally lives and multiplies, and on which it depends primarily for survival (e.g., foxes are a reservoir for rabies). Reservoir hosts may be asymptomatic.
Reservoirs	A component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored. Trees are "reservoirs" for carbon dioxide.
Residence Time	The average time spent in a reservoir by an individual atom or molecule. With respect to greenhouse gases, residence time usually refers to how long a particular molecule remains in the atmosphere. See atmospheric lifetime.7
Residence time	Average time spent in a reservoir by an individual atom or molecule. Also, this term is used to define the age of a molecule when it leaves the reservoir. With respect to greenhouse gases, residence time usually refers to how long a particular molecule remains in the atmosphere. See lifetime.
Residual fuel oil	The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. Includes Bunker C fuel oil and is used for commercial and industrial heating, electricity generation, and to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.
Residual Impacts	The impacts of climate change that would occur after adaptation.
Resilience	Amount of change a system can undergo without changing state.
Resolution	Directives that guide the work of the COP -- opinions rather than permanent legal acts. Unlike decisions, resolutions do not generally become part of the formal body of legislation enacted by the COP.
Respiration	The process whereby living organisms convert organic matter to CO2, releasing energy and consuming O2.3
Respiration	The process whereby living organisms convert organic matter to carbon dioxide, releasing energy and consuming oxygen.
Response time	The response time or adjustment time is the time needed for the climate system or its components to re-equilibrate to a new state, following a forcing resultinsg from external and internal processes or feedbacks. It is very different for various components of the climate system. The response time of the troposphere is relatively short, from days to weeks, whereas the stratosphere comes into equilibrium on a time-scale of typically a few months. Due to their large heat capacity, the oceans have a much longer response time, typically decades, but up to centuries or millennia. The response time of the strongly coupled surface-troposphere

	system is, therefore, slow compared to that of the stratosphere, and mainly determined by the oceans. The biosphere may respond fast, e.g. to droughts, but also very slowly to imposed changes. See: Lifetime, for a different definition of response time pertinent to the rate of processes affecting the concentration of trace gases.
Revenue Recycling	If permits are auctioned, this gives considerable sums of money to be recycled back into the economy, either through a lump sum payment of offsetting other taxes. If the existing taxes that are correspondingly reduced were very inefficient, this allows this allows the possibility of both environmental and economic benefits from the trading system, commonly called the 'double dividend.'
Review of commitments	Regular scrutiny by Convention Parties of the adequacy of the treaty's Article 4.2 (a) and (b) outlining developed country commitments to limit greenhouse-gas emissions. The first review took place at COP-1 and led to a finding that progress was not "adequate" -- and so to negotiations that led to the Kyoto Protocol, which has more stringent commitments for developed countries.
Rio Conventions	Three environmental conventions, two of which were adopted at the 1992 "Earth Summit" in Rio de Janeiro: the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biodiversity (CBD), while the third, the United Nations Convention to Combat Desertification (UNCCD), was adopted in 1994. The issues addressed by the three treaties are related -- in particular, climate change can have adverse effects on desertification and biodiversity -- and through a Joint Liaison Group, the secretariats of the three conventions take steps to coordinate activities to achieve common progress.
Riparian	Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.
RMU	Removal Unit, an emissions certificate issued under Article 3.3 and 3.4 for national sink activities in industrialised countries.
Roster of experts	Experts nominated by Parties to the Climate Change Convention to aid the Secretariat in work related to review of national reports of Annex I Parties, preparation of reports on adaptation technology, the transfer of technology to developing countries, and the development of know-how on mitigating and adapting to climate change.
Rules of procedure	The parliamentary rules that govern the procedures of the COP, covering such matters as decision-making and participation. The COP has not yet formally adopted rules of procedure, but all except one (on voting) are currently being "applied."
Runoff	That part of precipitation that does not evaporate. In some countries, runoff implies surface runoff only.

TOP	
Salinization	The accumulation of salts in soils.
Saltwater Intrusion/Encroachment	Displacement of fresh surface water or groundwater by the advance of saltwater due to its greater density, usually in coastal and estuarine areas.
SBSTA	Subsidiary Body for Scientific and Technological Advice, a subsidiary body of the Climate Change Convention which reports to the Conference of the Parties (COP).
Scenario (generic)	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: SRES scenarios; Climate scenario; Emission scenarios.
Sea level rise	See: Relative Sea Level Secular Change; Thermal expansion.
Sea Level Secular Change (Relative)	Long term changes in relative sea level caused by either eustatic changes, e.g. brought about by thermal expansion, or changes in vertical land movements.
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 alteration to the volume of the world ocean. Relative sea-level rise occurs where there is a net increase in the level of the ocean relative to local land movements. Climate modelers largely concentrate on estimating eustatic sea-level change. Impact researchers focus on relative sea-level change.
Seawall	A human-made wall or embankment along a shore to prevent wave erosion.
Second Assessment Report (SAR)	An extensive review of worldwide research on climate change compiled by the IPCC and published in 1995. Some 2,000 scientists and experts participated. The report is also known as Climate Change 1995. The SAR concluded that "the balance of evidence suggests that there is a discernible human influence on global climate." It also said "no-regrets options" and other cost-effective strategies exist for combating climate change.
Second Assessment Report (SAR)	The Second Assessment Report, prepared by the Intergovernmental Panel on Climate Change, reviewed the existing scientific literature on climate change. Finalized in 1995, it is comprised of three volumes: Science; Impacts, Adaptations and Mitigation; and Economic and Social Dimensions of Climate Change.
Secondary oil recovery	Injection of water into an oil well after primary oil recovery to force out some of the remaining thicker crude

	oil. See enhanced oil recovery, primary oil recovery.
Secretariat	The office staffed by international civil servants responsible for "servicing" the UNFCCC Convention and ensuring its smooth operation. The secretariat makes arrangements for meetings, compiles and prepares reports, and coordinates with other relevant international bodies. The Climate Change Secretariat, which is based in Bonn, Germany, is institutionally linked to the United Nations.
Secretariat of the UN Framework Convention	The United Nations staff assigned the responsibility of conducting the affairs of the UNFCCC. In 1996 the Secretariat moved from Geneva, Switzerland, to Bonn, Germany.
Sector	Division, most commonly used to denote type of energy consumer (e.g., residential) or according to the Intergovernmental Panel on Climate Change, the type of greenhouse gas emitter (e.g. industrial process).
Semi-Arid Regions	Ecosystems that have >250 mm precipitation per year, but are not highly productive; usually classified as rangelands.
Sensitivity	Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. 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).
Septic tank	Underground tank for treatment of wastewater from a home in rural and suburban areas. Bacteria in the tank decompose organic wastes and the sludge settles to the bottom of the tank. The effluent flows out of the tank into the ground through a field of drainpipes.
Sequestration	Opportunities to remove atmospheric CO2, either through biological processes (e.g. plants and trees), or geological processes through storage of CO2 in underground reservoirs.
	See: Uptake.
	The process of increasing the carbon content of a carbon pool other than the atmosphere.
Sewage treatment (primary)	Mechanical treatment of sewage in which large solids are filtered out by screens and suspended solids settle out as sludge in a sedimentation tank.
SF6	Sulphur hexafluoride.
Shale oil	Slow-flowing, dark brown, heavy oil obtained when kerogen in oil shale is vaporized at high temperatures and then condensed. Shale oil can be refined to yield gasoline, heating oil, and other petroleum products. See kerogen, oil shale.
Short Ton	Common measurement for a ton in the United States. A short ton is equal to 2,000 lbs or 0.907 metric tons. See metric ton.
Signature	The signing by a head of state or government, a foreign minister, or other designated official indicating a country's

	agreement with an adopted international text, such as a Convention or Protocol, and signalling the country's intention of becoming a Party to the agreement.
Significant wave height	The average height of the highest one-third of all sea waves occurring in a particular time period. This serves as an indicator of the characteristic size of the highest waves.
Silt	Unconsolidated or loose sedimentary material whose constituent rock particles are finer than grains of sand and larger than clay particles.
Silviculture	Development and care of forests.
Sink	Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere. Forests and other vegetation are considered sinks because they remove carbon dioxide through photosynthesis.
Sink	Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere.3
Sinks	Any process, activity or mechanism that results in the net removal of greenhouse gases, aerosols, or precursors of greenhouse gases from the atmosphere.
Sludge	Gooey solid mixture of bacteria and virus laden organic matter, toxic metals, synthetic organic chemicals, and solid chemicals removed from wastewater at a sewage treatment plant.
Snowpacks	A seasonal accumulation of slow-melting snow.
Soil	Complex mixture of inorganic minerals (i.e., mostly clay, silt, and sand), decaying organic matter, water, air, and living organisms.
Soil Carbon	A major component of the terrestrial biosphere pool in the carbon cycle. The amount of carbon in the soil is a function of the historical vegetative cover and productivity, which in turn is dependent in part upon climatic variables.7
Soil Carbon Pool	Refers to the relevant carbon in the soil. It includes various forms of soil organic carbon (humus) and inorganic soil carbon and charcoat. It excludes soil biomass (e.g., roots, bulbs, etc.) as well as the soil fauna (animals).
Soil moisture	Water stored in or at the land surface and available for evaporation.
Solar ("11 year") cycle	A quasi-regular modulation of solar activity with varying amplitude and a period of between 9 and 13 years.
Solar activity	The Sun exhibits periods of high activity observed in numbers of sunspots, as well as radiative output, magnetic activity, and emission of high energy particles. These variations take place on a range of time-scales from millions of years to minutes. See: Solar cycle.
Solar energy	Direct radiant energy from the sun. It also includes indirect forms of energy such as wind, falling or flowing water (hydropower), ocean thermal gradients, and biomass, which are produced when direct solar energy interact with the

	earth. See solar radiation.
Solar Radiation	Radiation emitted by the Sun. It is also referred to as short-wave radiation. Solar radiation has a distinctive range of wavelengths (spectrum) determined by the temperature of the Sun. See ultraviolet radiation, infrared radiation, radiation.3
Soot particles	Particles formed during the quenching of gases at the outer edge of flames of organic vapours, consisting predominantly of carbon, with lesser amounts of oxygen and hydrogen present as carboxyl and phenolic groups and exhibiting an imperfect graphitic structure. See: Black carbon; Charcoal. (Source: Charlson and Heintzenberg, 1995, p. 406.)
Source	Any process or activity that results in the net release of greenhouse gases, aerosols, or precursors of greenhouse gases into the atmosphere.
Southern Oscillation	A large-scale atmospheric and hydrospheric fluctuation centered in the equatorial Pacific Ocean, exhibiting a pressure anomaly, alternatively high over the Indian Ocean and high over the South Pacific. Its period is slightly variable, averaging 2.33 years. The variation in pressure is accompanied by variations in wind strengths, ocean currents, sea-surface temperatures, and precipitation in the surrounding areas.
Spatial and temporal scales	Climate may vary on a large range of spatial and temporal scales. Spatial scales may range from local (less than 100,000 km2), through regional (100,000 to 10 million km2) to continental (10 to 100 million km2). Temporal scales may range from seasonal to geological (up to hundreds of millions of years).
Special Climate Change Fund (SCCF)	The SCCF was established to finance projects relating to adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. This fund should complement other funding mechanisms for the implementation of the Convention. The Global Environment Facility (GEF), as the entity that operates the financial mechanism of the Convention, has been entrusted to operate this fund. For more information go here
Special naphtha	All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. Those products are refined to a specified flash point.
Spill-over effects	Reverberations in developing countries caused by actions taken by developed countries to cut greenhouse-gas emissions. For example, emissions reductions in developed countries could lower demand for oil and thus international oil prices, leading to more use of oil and greater emissions in developing nations, partially off-setting the original cuts. Current estimates are that full-scale implementation of the Kyoto Protocol may cause 5 to 20 per cent of emissions reductions in industrialized countries to "leak" into developing countries.

Square brackets	Typographical symbols [--] placed around text under negotiation to indicate that the language enclosed is being discussed but has not yet been agreed upon.
SRES Scenarios	A suite of emissions scenarios developed by the Intergovernmental Panel on Climate Change in its Special Report on Emissions Scenarios (SRES). These scenarios were developed to explore a range of potential future greenhouse gas emissions pathways over the 21st century and their subsequent implications for global climate change.
	SRES scenarios are emission scenarios developed by Nakic´enovic´ et al. (2000) and used, among others, as a basis for the climate projections in Chapter 9 of this Report. The following terms are relevant for a better understanding of the structure and use of the set of SRES scenarios:
Stakeholders	Person or entity holding grants, concessions, or any other type of value that would be affected by a particular action or policy.
Still gas	Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. Principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, propylene, etc. Used as a refinery fuel and as a petrochemical feedstock.
Stimuli (Climate-Related)	All the elements of climate change, including mean climate characteristics, climate variability, and the frequency and magnitude of extremes.
Stochastic Events	Events involving a random variable, chance, or probability.
Stock	See: Reservoir.
Storm surge	The temporary increase, at a particular locality, in the height of the sea due to extreme meteorological conditions (low atmospheric pressure and/or strong winds). The storm surge is defined as being the excess above the level expected from the tidal variation alone at that time and place.
Storyline (Scenario)	A narrative description of a scenario (or family of scenarios) highlighting the main scenario characteristics, relationships between key driving forces and the dynamics of their evolution.
Stratosphere	Region of the atmosphere between the troposphere and mesosphere, having a lower boundary of approximately 8 km at the poles to 15 km at the equator and an upper boundary of approximately 50 km. Depending upon latitude and season, the temperature in the lower stratosphere can increase, be isothermal, or even decrease with altitude, but the temperature in the upper stratosphere generally increases with height due to absorption of solar radiation by ozone.6
Stratosphere	Second layer of the atmosphere, extending from about 19 to 48 kilometers (12 to 30 miles) above the earth's surface. It contains small amounts of gaseous ozone (O3), which filters out about 99 percent of the incoming harmful ultraviolet (UV) radiation. Most commercial airline flights operate at a cruising altitude in the lower stratosphere. See ozone layer,

	ultraviolet radiation.
Stratospheric Ozone	See ozone layer.
Streamflow	The volume of water that moves over a designated point over a fixed period of time. It is often expressed as cubic feet per second (ft3/sec).4
	Water within a river channel, usually expressed in m3 sec-1.
Strip mining	Cutting deep trenches to remove minerals such as coal and phosphate found near the earth's surface in flat or rolling terrain. See surface mining.
Sub-Antarctic Mode Water (SAMW)	A type of water in the Sub-Antarctic Zone of the Southern Ocean. The SAMW is the deep surface layer of water with uniform temperature and salinity created by convective processes in the winter. It can be identified by a temperature of around -1.8°C and a salinity of around 34.4 PSU, and is separated from the overlying surface water by a halocline at around 50 m in the summer. Although it is not considered to be a water mass, it contributes to the Central Water of the Southern Hemisphere, and is additionally responsible for the formation of Antarctic Intermediate Water in the eastern part of the South Pacific Ocean. It is also known as Winter Water.
Subbituminous coal	A dull, black coal of rank intermediate between lignite and bituminous coal.
Submergence	A rise in the water level in relation to the land, so that areas of formerly dry land become inundated; it results either from a sinking of the land or from a rise of the water level.
Subsidence	The sudden sinking or gradual downward settling of the Earth's surface with little or no horizontal motion.
Subsidiary body	A committee that assists the Conference of the Parties. Two permanent subsidiary bodies are created by the Convention: the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA). COP-1 also established two temporary bodies: the Ad hoc Group on the Berlin Mandate, which concluded its work on 30 November 1997, and the Ad hoc group on Article 13. Additional subsidiary bodies may be established as needed.
Subsidiary Body for Implementation (SBI)	The SBI makes recommendations on policy and implementation issues to the COP and, if requested, to other bodies.
	A permanent body established by the UNFCCC that makes recommendations to the COP on policy and implementation issues. It is open to participation by all Parties and is composed of government representatives.
Subsidiary Body for Scientific & Tech. Advice	(SBSTA) A permanent body established by the UNFCCC that serves as a link between expert information sources such as the IPCC and the COP.
Subsidiary Body for Scientific and Technological Advice (SBSTA)	The SBSTA serves as a link between information and assessments provided by expert sources (such as the IPCC) and the COP, which focuses on setting policy.

Substitution	The economic process of trading off inputs and consumption due to changes in prices arising from a constraint on greenhouse gas emissions. How the extremely flexible U.S. economy adapts to available substitutes and/or finds new methods of production under a greenhouse gas constraint will be critical in minimizing overall costs of reducing emissions.
Succession	Transition in the composition of plant communities following disturbance.
Sulfate Aerosols	Particulate matter that consists of compounds of sulfur formed by the interaction of sulfur dioxide and sulfur trioxide with other compounds in the atmosphere. Sulfate aerosols are injected into the atmosphere from the combustion of fossil fuels and the eruption of volcanoes like Mt. Pinatubo. Recent theory suggests that sulfate aerosols may lower the Earth's temperature by reflecting away solar radiation (negative radiative forcing). General Circulation Models which incorporate the effects of sulfate aerosols more accurately predict global temperature variations. See particulate matter, aerosol, General Circulation Models.6
	Sulfur-based particles derived from emissions of sulfur dioxide (SO2) from the burning of fossil fuels (particularly coal). Sulfate aerosols reflect incoming light from the sun, shading and cooling the Earth's surface (see "radiative forcing") and thus offset some of the warming historically caused by greenhouse gases.
Sulfur cycle	Cyclic movement of sulfur in different chemical forms from the environment, to organisms, and then back to the environment.
Sulfur dioxide (SO2)	A compound composed of one sulfur and two oxygen molecules. Sulfur dioxide emitted into the atmosphere through natural and anthropogenic processes is changed in a complex series of chemical reactions in the atmosphere to sulfate aerosols. These aerosols are believed to result in negative radiative forcing (i.e., tending to cool the Earth's surface) and do result in acid deposition (e.g., acid rain). See aerosols, radiative forcing, acid deposition, acid rain.
Sulfur Hexafluoride (SF6)	A colorless gas soluble in alcohol and ether, slightly soluble in water. A very powerful greenhouse gas used primarily in electrical transmission and distribution systems and as a dielectric in electronics. The global warming potential of SF6 is 22,200. This GWP is from the IPCC's Third Assessment Report (TAR). See Global Warming Potential.7
	SF6 is among the six types of greenhouse gases to be curbed under the Kyoto Protocol. SF6 is a synthetic industrial gas largely used in heavy industry to insulate high-voltage equipment and to assist in the manufacturing of cable-cooling systems. There are no natural sources of SF6. SF6 has an atmospheric lifetime of 3,200 years. Its 100-year GWP is currently estimated to be 22,200 times that of CO2.
	A colorless gas soluble in alcohol and ether, slightly

	soluble in water. A very powerful greenhouse gas used primarily in electrical transmission and distribution systems and as a dielectric in electronics.
Sunspots	Small dark areas on the Sun. The number of sunspots is higher during periods of high solar activity, and varies in particular with the solar cycle.
Supplementarity	The Protocol does not allow Annex I parties to meet their emission targets entirely through use of emissions trading and the other Kyoto Mechanisms; use of the mechanisms must be supplemental to domestic actions to limit or reduce their emissions.
Surface mining	Removal of soil, sub-soil, and other strata and then extracting a mineral deposit found fairly close to the earth's surface. See strip mining.
Surface Runoff	The water that travels over the soil 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 needs of the present without compromising the ability of future generations to meet their own needs.
Synoptic	Relating to or displaying atmospheric and weather conditions as they exist simultaneously over a broad area.
Synthetic fertilizer	Commercially prepared mixtures of plant nutrients such as nitrates, phosphates, and potassium applied to the soil to restore fertility and increase crop yields. See organic fertilizer.
Synthetic natural gas (SNG)	A manufactured product chemically similar in most respects to natural gas, resulting from the conversion or reforming of petroleum hydrocarbons. It may easily be substituted for, or interchanged with, pipeline quality natural gas.
TOP	
Taiga	Coniferous forests of northern North America and Eurasia.
Tailings	Rock and other waste materials removed as impurities when minerals are mined and mineral deposits are processed. These materials are usually dumped on the ground or into ponds.
Tar sand	Swamp-like deposit of a mixture of fine clay, sand, water, and variable amounts of tar-like heavy oil known as bitumen. Bitumen can be extracted from tar sand by heating. It can then be purified and upgraded to synthetic crude oil. See bitumen.
Targets and Timetables	Targets refer to the emission levels or emission rates set as goals for countries, sectors, companies, or facilities. When these goals are to be reached by specified years, the years at which goals are to be met are referred to as the timetables. In the Kyoto Protocol, a target is the percent reduction from

	the 1990 emissions baseline that the country has agreed to. On average, developed countries agreed to reduce emissions by 5.2% below 1990 emissions during the period 2008-2012, the first commitment period.
Technological Change	How much technological change will be additionally induced by climate policies is a crucial, but not well quantified, factor in assessing the costs of long-term mitigation of greenhouse gas emissions.
Technology transfer	A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders
TEHG	Germany's Federal Emissions Trading Act (TEHG), which transposes the EU Emissions Trading Directive into national law.
Temperature	Measure of the average speed of motion of the atoms or molecules in a substance or combination of substances at a given moment. See heat.
Terrestrial	Pertaining to land.
Terrestrial radiation	The total infrared radiation emitted by the Earth and its atmosphere in the temperature range of approximately 200 to 300 Kelvin. Terrestrial radiation provides a major part of the potential energy changes necessary to drive the atmospheric wind system and is responsible for maintaining the surface air temperature within limits of livability.
The molecular weight of carbon	The molecular weight of carbon is 12, and the molecular weight of oxygen is 16; therefore, the molecular weight of CO2 is 44 (i.e., 12+[16 x 2]), as compared to 12 for carbon alone. Thus, carbon comprises 12/44ths of carbon dioxide by weight.
Thermal Erosion	The erosion of ice-rich permafrost by the combined thermal and mechanical action of moving water.
Thermal expansion	Expansion of a substance as a result of the addition of heat. In the context of climate change, thermal expansion of the world's oceans in response to global warming is considered the predominant driver of current and future sea-level rise.
	In connection with sea level, 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.
	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 1 km, where temperature decreases rapidly with depth and which marks the boundary between the surface and the ocean.
Thermohaline Circulation	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 sinking regions located in high latitudes.3
Thermohaline Circulation (THC)	A three-dimensional pattern of ocean circulation driven by wind, heat and salinity that is an important component of the ocean-atmosphere climate system. In the Atlantic, winds transport warm tropical surface water northward where it cools, becomes more dense, and sinks into the deep ocean, at which point it reverses direction and migrates back to the tropics, where it eventually warms and returns to the surface. This cycle or "conveyor belt" is a major mechanism for the global transport of heat, and thushas an important influence on the climate. Global warming is projected to increase sea-surface temperatures, which may slow the THC by reducing the sinking of cold water in the North Atlantic. In addition, ocean salinity also influences water density, and thus decreases in sea-surface salinity from the melting of ice caps and glaciers may also slow the THC.
Thermokarst	Irregular, hummocky topography in frozen ground caused by melting of ice.
Third Assessment Report (TAR)	The third extensive review of global scientific research on climate change, published by the IPCC in 2001. Among other things, the report stated that "The Earth's climate system has demonstrably changed on both global and regional scales since the pre-industrial era, with some of these changes attributable to human activities. There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities." The TAR also focused on the regional effects of climate change.
	The most recent Assessment Report prepared by the Intergovernmental Panel on Climate Change, which reviewed the existing scientific literature on climate change, including new information acquired since the completion of the Second Assessment report (SAR). Finalized in 2001, it is comprised of three volumes: Science; Impacts and Adaptation; and Mitigation.
Tide gauge	A device at a coastal location (and some deep sea locations) which continuously measures the level of the sea with respect to the adjacent land. Time-averaging of the sea level so recorded gives the observed Relative Sea Level Secular Changes.
Timberline	The upper limit of tree growth in mountains or high latitudes.
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 vapor, 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.6
Trace Gas	A term used to refer to gases found in the Earth's atmosphere other than nitrogen, oxygen, argon and water vapor. When this terminology is used, carbon dioxide, methane, and nitrous oxide are classified as trace gases. Although trace gases taken together make up less than one percent of the atmosphere, carbon dioxide, methane and nitrous oxide are important in the climate system. Water vapor also plays an important role in the climate system; its concentrations in the lower atmosphere vary considerably from essentially zero in cold dry air masses to perhaps 4 percent by volume in humid tropical air masses.
Track 1	The simplified procedure for JI projects.
Track 2	International procedure for JI projects monitored by the JI Supervisory Committee.
Track- two JI	One of two approaches for verifying emission reductions or removals under joint implementation, whereby each JI project is subject to verification procedures established under the supervision of the Joint Implementation Supervisory Committee. Track two procedures require that each project by reviewed by an accredited independent entity.
Transient climate response	The globally averaged surface air temperature increase, averaged over a 20 year period, centred at the time of CO2 doubling, i.e., at year 70 in a 1% per year compound CO2 increase experiment with a global coupled climate model.
Transpiration	The emission of water vapor from the surfaces of leaves or other plant parts.
Tropopause	The boundary between the troposphere and the stratosphere.
Troposphere	The lowest part of the atmosphere from the surface to about 10 km in altitude in mid-latitudes (ranging from 9 km in high latitudes to 16 km in the tropics on average) where clouds and "weather" phenomena occur. In the troposphere temperatures generally decrease with height. See ozone precursors, stratosphere, atmosphere.3
	The lowest part of the atmosphere from the surface to about 10 km in altitude in mid-latitudes (ranging from 9 km in high latitudes to 16 km in the tropics on average) where clouds and "weather" phenomena occur. In the troposphere, temperatures generally decrease with height.
Tropospheric ozone	See ozone.
Tropospheric Ozone (O3)	See ozone.
Tropospheric ozone precursor	See ozone precursor.
Tropospheric Ozone Precursors	See ozone precursors.
Trust funds	Funds earmarked for specific programmes within the UN system.
Tsunami	A large tidal wave produced by a submarine earthquake, landslide, or volcanic eruption.

TT:CLEAR	Technology Transfer Information Clearing House.
Tundra	A treeless, level, or gently undulating plain characteristic of arctic and subarctic regions.
Turnover time	See: Lifetime.
TOP	
Ultraviolet (UV)-B Radiation	Solar radiation within a wavelength range of 280-320 nm, the greater part of which is absorbed by stratospheric ozone. Enhanced UV-B radiation suppresses the immune system and can have other adverse effects on living organisms.
Ultraviolet Radiation (UV)	The energy range just beyond the violet end of the visible spectrum. Although ultraviolet radiation constitutes only about 5 percent of the total energy emitted from the sun, it is the major energy source for the stratosphere and mesosphere, playing a dominant role in both energy balance and chemical composition. Most ultraviolet radiation is blocked by Earth's atmosphere, but some solar ultraviolet penetrates and aids in plant photosynthesis and helps produce vitamin D in humans. Too much ultraviolet radiation can burn the skin, cause skin cancer and cataracts, and damage vegetation.6
Umbrella group	A loose coalition of non-European Union developed countries formed following the adoption of the Kyoto Protocol. Although there is no formal membership list, the group usually includes Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine, and the United States.
Umbrella Group	Negotiating group within the UNFCCC process comprising the United States, Canada, Japan, Australia, New Zealand, Norway, Iceland, Russia, and Ukraine.
UN	United Nations.
UN Framework Convention on Climate Change	(UNFCCC) A treaty signed at the 1992 Earth Summit in Rio de Janeiro that calls for the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” The treaty includes a non-binding call for developed countries to return their emissions to 1990 levels by the year 2000. The treaty took effect in March 1994 upon ratification by more than 50 countries. The United States was the first industrialized nation to ratify the Convention.
UNCCD	United Nations Convention to Combat Desertification.
UNCED	United Nations Conference on Environment and Development.
Uncertainty	Uncertainty is a prominent feature of the benefits and costs of climate change. Decision makers need to compare risk of premature or unnecessary actions with risk of failing to take actions that subsequently prove to be warranted. This is complicated by potential irreversibilities in climate impacts and long term investments.

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 the 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 judgement of a team of experts). See Moss and Schneider (2000).
UNCTAD	United Nations Conference on Trade and Development.
Under the Convention, governments:	gather and share information on greenhouse gas emissions, national policies and best practices launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries cooperate in preparing for adaptation to the impacts of climate change. The Convention entered into force on 21 March 1994.7
Undernutrition	The result of food intake that is insufficient to meet dietary energy requirements continuously, poor absorption, and/or poor biological use of nutrients consumed.
UNDP	United Nations Development Programme.
UNECE	United Nations Economic Commission for Europe.
UNEP	United Nations Environment Programme.
UNFCCC	United Nations Framework Convention on Climate Change.
Unfinished oils	All oils requiring further refinery processing, except those requiring only mechanical blending. Includes naphtha and lighter oils, kerosene and light gas oils, heavy gas oils, and residuum.
Ungulate	A hoofed, typically herbivorous, quadruped mammal (such as a ruminant, swine, camel, hippopotamus, horse, rhinoceros, or elephant).
UNIDO	United Nations Industrial Development Organization.
Uniform report format	A standard format through which Parties submit information on activities implemented jointly under the Convention.
Unique and Threatened Systems	Entities that are confined to a relatively narrow geographical range but can affect other, often larger entities beyond their range; narrow geographical range points to sensitivity to environmental variables, including climate, and therefore attests to potential vulnerability to climate change.
United Nations Framework Convention on Climate Change (UNFCC)	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 aim to return greenhouse gas emissions not controlled by the

	Montreal Protocol to 1990 levels by the year 2000. The convention entered into force in March 1994. See: Kyoto Protocol.
Uptake	The addition of a substance of concern to a reservoir. The uptake of carbon containing substances, in particular carbon dioxide, is often called (carbon) sequestration.
Upwelling	Transport of deeper water to the surface, usually caused by horizontal movements of surface water.
Urban Heat Island (UHI)	Refers to the tendency for urban areas to have warmer air temperatures than the surrounding rural landscape, due to the low albedo of streets, sidewalks, parking lots, and buildings. These surfaces absorb solar radiation during the day and release it at night, resulting in higher night temperatures.
Urbanization	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 come to live in settlements that are defined as "urban centers."
URF	Uniform Reporting Format, a standardised reporting format used for AIJ projects.
TOP	
Validation	Independent evaluation of an emission reduction project.
Vector	An organism, such as an insect, that transmits a pathogen from one host to another. See also vector-borne diseases and vectorial capacity.
Vector-borne disease	Disease that results from an infection transmitted to humans and other animals by blood-feeding anthropods, such as mosquitoes, ticks, and fleas. Examples of vector-borne diseases include Dengue fever, viral encephalitis, Lyme disease, and malaria.
Vector-Borne Diseases	Disease that is transmitted between hosts by a vector organism (such as a mosquito or tick-- for example, malaria, dengue fever, and leishmaniasis.
Vectorial Capacity	Quantitative term used in the study of the transmission dynamics of malaria to express the average number of potentially infective bites of all vectors feeding upon one host in one day, or the number of new inoculations with a vector-borne disease transmitted by one vector species from one infective host in one day.
Vehicle miles or kilometers traveled (VMT or VKT)	One vehicle traveling the distance of one mile or one kilometer. Thus, total vehicle miles or kilometers is the total mileage traveled by all vehicles.
Verification	An objective and independent assessment of whether the reported GHG emissions reductions are actually occurred.

Vernalization	The act or process of hastening the flowering and fruiting of plants by treating seeds, bulbs, or seedlings so as to induce a shortening of the vegetative period.
Volatile organic compounds (VOCs)	Organic compounds that evaporate readily into the atmosphere at normal temperatures. VOCs contribute significantly to photochemical smog production and certain health problems. See non-methane volatile organic compounds.
Volume mixing ratio	See: Mole fraction.
Voluntary commitments	A draft article considered during the negotiation of the Kyoto Protocol that would have permitted developing countries to voluntarily adhere to legally binding emissions targets. The proposed language was dropped in the final phase of the negotiations. The issue remains important for some delegations and may be discussed at upcoming sessions of the Conference of the Parties.
Voluntary Reduction	GHG emission reductions that are made outside of a regulatory mandate.
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.
TOP	
Wastewater	Water that has been used and contains dissolved or suspended waste materials.7
Water Consumption	Amount of extracted water irretrievably lost at a given territory during it's use (evaporation and goods production). Water consumption is equal to water withdrawal minus return flow.
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% of renewable water supply has been used as an indicator of water stress.
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.
Water Vapor	The most abundant greenhouse gas, it is the water present in the atmosphere in gaseous form. Water vapor is an important part of the natural greenhouse effect. While humans are not significantly increasing its concentration, it contributes to the enhanced greenhouse effect because the warming influence of greenhouse gases leads to a positive

	water vapor feedback. In addition to its role as a natural greenhouse gas, water vapor plays an important role in regulating the temperature of the planet because clouds form when excess water vapor in the atmosphere condenses to form ice and water droplets and precipitation. See greenhouse gas.6
Water Vapor (H2O)	Water vapor is the primary gas responsible for the greenhouse effect. It is believed that increases in temperature caused by anthropogenic emissions of greenhouse gases will increase the amount of water vapor in the atmosphere, resulting in additional warming (see "positive feedback").
Water Withdrawal	Amount of water extracted from water bodies.
Waxes	Solid or semisolid materials derived from petroleum distillates or residues. Light-colored, more or less translucent crystalline masses, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series predominates. Included are all marketable waxes, whether crude scale or fully refined. Used primarily as industrial coating for surface protection.
WCC	World Climate Conference.
WCD	World Commission on Dams, a multi-stakeholder dialogue commissioned by the World Bank to produce criteria for sustainable dam projects.
Weather	Atmospheric condition at any given time or place. It is measured in terms of such things as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour-to-hour, day-to-day, and season-to-season. 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 is 30 years, as defined by the World Meteorological Organization (WMO). 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. A simple way of remembering the difference is that climate is what you expect (e.g. cold winters) and 'weather' is what you get (e.g. a blizzard). See climate.
WEOG	Western European and Others Group (United Nations regional group).
Wetlands	Areas regularly saturated by surface or groundwater and subsequently characterized by a prevalence of vegetation adapted for life in saturated-soil conditions.
WHO	World Health Organization.
WMO	World Meteorological Organization.
Wood energy	Wood and wood products used as fuel, including roundwood (i.e., cordwood), limbwood, wood chips, bark,

	sawdust, forest residues, and charcoal.
WSSD	World Summit on Sustainable Development.
WTO	World Trade Organization.
TOP	
Xeric	Requiring only a small amount of moisture.
TOP	
Zoonosis	The transmission of a disease from an animal or nonhuman species to humans. The natural reservoir is a nonhuman animal.
Zooplankton	The animal forms of plankton. They consume phytoplankton or other zooplankton. See also phytoplankton.
TOP	

Top of Document