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Research Report

Glossary of international climate policy terms

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REPORT

Glossary of International Climate Policy Terms

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HWWA-Report

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Glossary of International Climate Policy Terms

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This paper has been prepared within the Research Programme "International Climate Policy" of HWWA.

HWWA REPORT

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Purpose

In the last years, international climate policy (generally known as the UNFCCC¹ process) has become very complex and created a number of specific terms. After adoption of the Kyoto Protocol, the rate of development of new terms has increased significantly. At the same time, terms have started to become obsolete or change meanings.

For newcomers to the process and interested outsiders, it is virtually impossible to follow the discussions. Also professional translators outside the UNFCCC process face growing problems in coping with climate policy terminology. Moreover, the few experts in developing countries encounter big problems in keeping up. However, the UNFCCC Secretariat cannot develop a standard terminology as this would encounter political problems.

This report features a glossary building on numerous smaller glossaries circulating in the public domain² and was enlarged to include the latest terms up to end of March 2001. It is also available online at <http://www.emissions.de> and at <http://www.hwva.de>. Editing glossaries in print has the disadvantage of being immediately outdated due to new developments in climate policy. Thus, we suggest to develop an interactive glossary in all UN and other world languages (English, Spanish, French, Russian, Chinese, Arabic, German, Japanese). This glossary would be put on a dedicated website that would be open for inputs from stakeholders. The website would be administered by a team of independent professionals, which could serve as a basis for the work to be done in the project. Via the interactive glossary, target groups would get a quick and up-to-date access to the terminology. UNESCO would be the UN organisation that would be most appropriate in giving input to the project. We are looking for financing from the

1 UNFCCC stands for U.N. Framework Convention on Climate Change, adopted at the U.N. Conference on Environment and Development in Rio 1992.

2 See for example the glossaries listed by the UNFCCC Secretariat at the URL <http://www.unfccc.int/resource/library/glossaries.html> and the IPCC glossary at the URL <http://www.ipcc.ch/pub/gloss.htm>. The latter is available in five languages. Moreover, the IPCC Special Reports usually have a glossary in their annexes. A very good 1998 glossary has been compiled by Anne Hambleton of CSDA, see <http://www.csdanet.org/glossary.html>. Other glossaries are available at: <http://www.weathervane.rff.org/glossary/index.html>, <http://www.globalchange.org/glossall/gloindex.htm>, <http://www.eia.doe.gov/oiaf/1605/ggrpt/glossary.html>, <http://www.undp.org/gef/workshop/glossary.htm>, <http://cdiac.esd.ornl.gov/glossary.html> (dates from 1990).

EU Commission and Ministries of Environment of major countries. Overall costs for a three-year phase would amount to around 120,000 €

Glossary

A

AAUs: →Assigned Amount Units.

Abatement: The reduction of emissions.

Absorption of Radiation: The uptake of radiation by a solid body, liquid or gas. The absorbed energy may be transferred or re-emitted.

Activities Implemented Jointly (AIJ): Under a pilot phase that started in 1995 and was originally planned to be terminated in 2000 but extended by →COP 5, AIJ activities (i.e. greenhouse gas emissions reduction or →sequestration projects) can be carried out through partnerships between an investor from a developed country (→Annex I country) and a counterpart in a →host country. The purpose is to test the challenges involved in implementing joint projects and to foster technology and know-how transfers.

Adaptation: Adjustments in practices, processes, or structures of systems to projected or actual changes of climate. Adaptation can be spontaneous or planned, and be carried out in response to or in anticipation of changes in conditions.

Adaptation tax: Levy on the →CDM that may be extended to the other →Kyoto Mechanisms to finance adaptation measures in →Non-Annex I countries. Rate and tax base (value of →CERs or value of project) are still unclear.

Additionality: The issue of whether greenhouse gas emissions reduction or sequestration in a →JI or →CDM project occurs over and above the →baseline and constitutes a new reduction that would not have otherwise occurred without the existence of the project. There are several distinct forms of additionality:

- Financial additionality: a project does not use ODA (Official Development Assistance) or →GEF funds.
- Economic/investment additionality: the project is not profitable taking into account risks and non-monetary barriers. There are differing views how to determine economic/investment additionality in quantitative terms.

- Environmental additionality: the project reduces emissions.

Ad hoc Group on Article 13 (AG13): A subsidiary body (committee) created by →COP 1 to explore how to help governments overcome difficulties they may experience in meeting their commitments.

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 final meeting on 30 November 1997.

Advance contribution: Sum used to prevent an interruption in the →GEF's ability to make financing commitments pending the effectiveness of the GEF Trust Fund. The sum involved was to be one-quarter of the total amount of each contribution for which an Instrument of Commitment had been deposited with the Trustee as an advance contribution.

Aerosols: Particles of 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 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, e.g. the burning of fossil fuels and in this case are often considered pollutants. The most important contribution is SO₂. Aerosols have a significant cooling effect with strong regional variation which is not fully understood.

Afforestation: The process of planting a forest in an area where no forest originally existed. Since actively growing trees and forests →sequester carbon, afforestation and →reforestation are one of the tools used by policymakers to combat global warming. It is unclear whether they are allowed under the →CDM.

AG13: →Ad hoc Group on Article 13

AGBM: →Ad hoc Group on the Berlin Mandate

Agenda: A programme of work that the delegates adopt and are guided by; the annotated agenda contains a more detailed explanation of each agenda item.

AIJ: →Activities Implemented Jointly.

Albedo: The ratio of reflected to incident light; albedo can be expressed as either a percentage or a fraction of 1. Snow covered areas have a high albedo (up to about 0.9 or 90%) due to their white colour, while vegetation has a low albedo (generally about 0.1 or 10%) due to the dark colour and light absorbed for photosynthesis. Clouds have an intermediate albedo and are the most important contributor to the Earth's albedo. The Earth's aggregate albedo is approximately 0.3.

Alliance of Small Island States (AOSIS): Ad hoc coalition of low-lying and island countries that are particularly vulnerable to sea-level rise, thus see climate change as a grave problem and develop common public policy positions. The 42 members and observers are American Samoa, Antigua and Barbuda, Bahamas, Barbados, Belize, Cape Verde, Comoros, Cook Islands, Cuba, Cyprus, Dominica, Federated States of Micronesia, Fiji, Grenada, Guam, Guinea-Bissau, Guyana, Jamaica, Kiribati, Maldives, Malta, 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, U.S. Virgin Islands, and Vanuatu. Until →COP 3 at Kyoto, its plan was to hold →Annex I Parties to a 20 percent reduction in CO₂ emissions by the year 2005.

Allocation: The division of →emissions permits or →allowances among greenhouse gas emitters for the purpose of establishing a market in →emissions permits. There are several possible methods for allocating permits, including →"grandfathering" and permit →auctioning.

Allowance Trading: Emissions Allowance trading, along with (but different from) →credit trading, is one of the forms of trading →emissions permits. While →emissions trading had been first developed in the United States as a means of creating, certifying and using excess emission reduction credits to offset emissions from new sources, the allowance trading concept was developed to support the acid rain control program under the 1990 Clean Air Act Amendments. Allowance trading programs (also known as "cap and trade programs") start from the notion that each affected source is allocated an initial allowance of permissible emissions as part of an overall →cap on emissions. Once the allocation is made and compliance monitoring programs have been

established, firms are free to buy and sell so-called allowances in any way that they want. At the end of each regulatory period, each source must hold adequate allowances to cover their actual emissions. The trading is straightforward although stringent monitoring of actual emissions and tracking of allowances are vital to the integrity of the system. However, setting up the system – setting the →baseline, and making the initial →allocation of allowances – is very time consuming and no trades can take place until this is completed for all participants in the system. The baseline and allocation steps are critical to all participants because they result in the allocation of the “currency” which then becomes the basis for the system.

Amendment: The →COP can change the existing →UNFCCC or →Protocol text through consensus or, if consensus cannot be reached, by a three-quarters majority vote by all →Parties present and voting.

Annex I: Industrialised countries that, as parties to the →U.N. Framework Convention on Climate Change, have pledged to reduce their greenhouse gas emissions by the year 2000 to 1990 levels as per Article 4.2 of the →Kyoto Protocol are listed in Annex I. Annex I Parties consist of countries belonging to the →Organisation for Economic Co-operation and Development (OECD). and countries designated as Economies-in-Transition and also Turkey. See difference to →Annex B Countries.

Annex I Expert Group: Government officials from →Annex I countries who develop climate policy proposals. The secretariat of the group is located at the →OECD.

Annex II Parties: The rich countries listed in this annex to the →UNFCCC have a special obligation to help developing countries with financial and technological resources. They include the 24 original OECD members plus the European Union.

Annex A: Annex A of the →Kyoto Protocol lists the →greenhouse gases (GHGs) regulated by the Protocol as well as sector/source categories. The gases are: Carbon dioxide, Methane, Nitrous oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur hexafluoride. The →base year for calculating emission reduction commitments is 1990 for the first three gases and 1995 for the other three. Countries in transition were free to choose an earlier base year.

Annex B: Since the →Kyoto Protocol is a separate legal instrument and must be ratified separately, a new list of countries taking on legally binding commitments along with a listing of their actual commitments was created. Annex B consists of all of those countries listed in →Annex I of the →UNFCCC with the exception of Turkey and Czechoslovakia. New countries added to Annex B include, Croatia, the Czech Republic, Liechtenstein, Monaco, Slovakia and Slovenia. Russia and Ukraine are members of Annex B, while Belarus is not in Annex B. Annex B lists the quantified emission limitation and reduction objective (→QELRO) for each country.

Annual flux accounting: The use of annual fluxes (uptake) measured in tonnes carbon per year as a practical basis for measuring the →sequestration potential of forestry activities presents certain problems. The annual flux (or uptake) of carbon rises rapidly during the early growing phase of the stand. It then declines as the trees mature and competition for light and nutrients increases. However, if felling occurred, one would expect a negative flux of carbon for several years, before re-growth of the second rotation began to take up significant quantities of carbon.

Anthropogenic climate change: Climate change caused by increase in the atmospheric concentration of →greenhouse gases which inhibits the transmission of some of the sun's energy from the earth's surface to outer space. These gases include carbon dioxide, water vapor, methane, →chlorofluorocarbons (CFCs), and other chemicals. The increased concentrations of greenhouse gases result in part from human activity -- deforestation; the burning of fossil fuels such as gasoline, oil, coal and natural gas; and the release of CFCs from refrigerators, air conditioners, etc.

Anthropogenic emissions: Emissions produced as the result of human action. For example, large amounts of carbon dioxide are now being released into the atmosphere by such anthropogenic activities as the burning of fossil fuels, agriculture, and cement making.

AOSIS: →Alliance of Small Island States

Approval: →CDM/→JI/→AIJ projects have to be approved by the governments of the investor and host country. Usually, the →Focal Point is responsible for approval. After approval, the →UNFCCC Secretariat puts the project on its project list.

ARD Activities: →Afforestation, →Reforestation, →Deforestation. These are the three land-use change and forestry activities that are included in Article 3.3 of the →Kyoto Protocol. Net changes resulting from these activities are allowed to be used by the Parties in meeting their →commitments under the Protocol in the first →commitment period (they are required in the second commitment period). →LULUCF.

Article: Paragraph of an international treaty.

Articles 4.8 and 4.9: Adverse impacts of climate change, the impact of measures taken to respond to climate change, and compensation for these impacts is referred to in Articles 4.8 and 4.9 of the →UNFCCC. This issue is also addressed under Article 3.14 of the →Kyoto Protocol. In the negotiations, discussion of these articles is of particular concern to small island countries and those →Non-Annex I countries whose economies are highly dependent on fossil fuels. →AOSIS, →OPEC.

Article 6: The mechanism described in Article 6 of the →Kyoto Protocol that provides for the transfer of →Emission Reduction Units between →Annex I Countries. This mechanism is commonly called →Joint Implementation.

Article 12: The →Clean Development Mechanism is defined in Article 12 of the →Kyoto Protocol that provides for the transfer of →Certified Emission Reductions from Non-Annex I Countries to →Annex I Countries.

Article 17: Art. 17 of the →Kyoto Protocol defines →international emissions trading between →Annex I countries. Trade is done in →Assigned Amount Units.

Assessment Report: The →IPCC issues Assessment Reports every five years that describe the state of science on anthropogenic climate change. The First Assessment report was issued in 1990, the Second in 1995 and the Third in 2001.

Assigned Amounts (AA): Quantified binding →emissions budget agreed upon by →Annex B countries in the →Kyoto Protocol. AA can be measured in tons of CO₂ equivalent.

Assigned Amount Units (AAUs): Parts of a nation's →Assigned Amount used for →international emissions trading. One AAU is defined as one ton of CO₂ equivalent.

Associated Project: →GEF project that is either physically dependent on another agency's project or whose success could depend upon the implementation of another project. Opposite of a "free-standing project".

Atmosphere: The mixture of gases surrounding the Earth. The Earth's atmosphere consists of about 79.1% nitrogen (by volume), 20.9% oxygen, 0.036% 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 km (about 5 miles) in the polar regions and up to 17 km (nearly 11 miles) above the equator. The stratosphere, which reaches to an altitude of about 50 km (31 miles) lies atop the troposphere. The mesosphere which extends up to 80-90 km is 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.

Auctioning: Greenhouse gas emissions may be →allocated among emitters and firms in a domestic →emissions trading regime based upon willingness to pay for these permits. Supporters of this method of emissions trading assert that the advantage of auctioning is that it would provide governments with revenue and provide price signals to the new and developing market for permits. Critics contend that auctioning's disadvantage is that it may be less politically acceptable to those entities that would stand to gain from →grandfathering of permits.

B

Bankable Proposal: To receive funding by development banks for projects it is necessary to deliver a suitable project documentation including technical, financial and organisational data. A project documentation can be partly financed by the →GEF or national developing institutions in from of a "public private partnership".

Banking: Saving →Assigned Amount or →Certified Emissions Reductions for future use in anticipation that these will accrue value over time. Banking of →CERs refers to the period until 2008 in absence of a UN accounting system. Banking for future →Commitment Periods refers to the period after 2012.

Barriers: Circumstances that prevent the realisation of emission reduction projects in absence of income from →emission credits. There are financial, technical, institutional and cultural barriers.

Baseline: The emissions that would occur without policy intervention (in a business-as-usual scenario). There are different degrees of aggregation of baselines.

- national (important for the derivation of national →emission targets)
- sectoral (important for the allocation of →emission permits to companies)

project (important for the calculation of emission reductions under the →Kyoto mechanisms)

Baseline lifetime: The time during which the →baseline of a →CDM/→JI project is valid. Many observers suggest a revision of baselines in regular intervals, e.g. every 5 years.

Base year: year for which the first national greenhouse gas →inventory has been established and which serves as base for calculation of →emission targets. In the →UNFCCC and the →Kyoto Protocol it is 1990 for →Annex I countries (except Bulgaria - 1988, Hungary – average 1985-87, Poland – 1988, Romania 1989). The base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride is 1995. A base year may also be used as a reference for establishing an emissions baseline, or standard by which to measure verifiable changes in carbon stocks for the purpose of determining net changes of GHG emissions from anthropogenic land-use change and forestry activities.

Basket: The six gases CO₂, CH₄, N₂O, HFC, PFC, SF₆ form the basket in which the Kyoto →commitments are denominated.

Benchmark: →Baseline which is generic to a class of projects and based on an →emissions factor per unit of output.

Benefit-Cost Analysis (also called Cost-Benefit Analysis): An economic technique applied to public decision making that attempts to quantify in dollar terms the advantages (benefits) and disadvantages (costs) associated with a particular policy. For example, a policy that requires a power plant near Moscow to install pollution abatement equipment would reduce sulphur dioxide emissions from the plant and

improve the air quality in Moscow (a benefit), but would increase the cost of electricity to customers (a cost).

Berlin Mandate: →COP 1 in Berlin in March 1995 concluded that the present →commitments under the →UNFCCC are not adequate. Under the UNFCCC, →Annex I countries pledged to take measures aimed at returning their greenhouse gas emissions to 1990 levels by the year 2000. The Berlin Mandate established a process that would enable the →Parties to take appropriate action for the period beyond 2000, including a strengthening of Annex I country commitments, through the adoption of a protocol or other legal instruments. It was fulfilled by the adoption of the →Kyoto Protocol.

Bilateral CDM: →CDM projects have to include an investor from an →Annex I country and a →host country from →Non-Annex I. See also →unilateral and →multilateral CDM.

Biogeochemical Cycle: The chemical interactions that take place among the →atmosphere, →biosphere, →hydrosphere, and →lithosphere.

Biomass: Organic nonfossil material of biological origin. For example, trees and plants are biomass.

Biomass energy: Energy produced by combusting biomass materials such as wood. The CO₂ emitted from burning biomass will not increase total atmospheric CO₂ 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 which has large greenhouse gas emissions.

Biosphere: The region on land, in the oceans, and in the →atmosphere inhabited by living organisms.

Boreholes: Past temperature changes diffuse into ground and can be measured in boreholes.

Borrowing: Borrowing refers to using future emissions reductions from future →commitment periods in order to meet current →emissions targets. Borrowing was put

forth by the United States as part of its position in advance of →COP 3 but was not included in the →Kyoto Protocol. A form of borrowing is now being discussed in the context of →compliance. One idea is that if a country is out of compliance during one commitment period, →AAUs from that country's next period budget could be withdrawn with interest and applied towards the deficit. A difficulty in enacting such an idea is the risk of downward debt spirals.

BOT: →Build-Operate-Transfer

Bubble: The idea that emissions reductions anywhere within a specific area count toward →compliance. For example, if a plant with multiple emissions sources is treated as being “under an emissions bubble”, regulators assess only the total emissions of the plant, not the emissions of each individual source, in determining compliance. Article 4 of the →Kyoto Protocol provides for bubbles that allow a group of →Annex I countries to have an aggregate target. The bubble agreement has to be announced at the time of ratification and cannot be revoked. So far, the EU is the only group of countries that has announced its will to form a bubble and defined an internal →burden sharing.

Budget period: →Commitment period.

Buenos Aires Plan of Action: The Plan of Action agreed by governments at →COP 4 held in Buenos Aires. The Plan of Action stated the aim to resolve, by COP 6, a list of outstanding issues concerning the →UNFCCC and the →Kyoto Protocol, principally on the →Kyoto Mechanisms and →compliance. The development and transfer of technology, compensation for adverse effects (of climate change itself and mitigation policies), and the status of the AIJ pilot phase were also included in the Plan of Action.

Build-Operate-Transfer (BOT): Financing scheme for investment in the power sector by which the investor takes over also operation of the installation. After a specific period the installation becomes property of a – generally – public entity of the host country.

Bunker fuel: Fuel supplied to ships and aircraft, both domestic and foreign. The term “international bunker fuels” is used to denote the consumption of fuel for international transport activities. For the purposes of greenhouse gas emissions →inventories, data on emissions from combustion of international bunker fuels are subtracted from national

emissions totals. They are also not counted under the →emissions targets of the →Kyoto Protocol.

Burden sharing: Reallocation of a →bubble target among the member states of the bubble. The EU has done a burden sharing in 1998 that allows Portugal to increase its emissions by 27% while Denmark and Germany have to reduce emissions by 21%.

Business as usual: A situation in which individuals, industries or countries continue to operate as they have in the past, with no changes made to deal with some existing or anticipated problem, such as global warming. The business-as-usual path is also called →baseline.

Byrd-Hagel Resolution: Unanimous decision in June 1997 by the US Senate not to ratify the Kyoto Protocol unless it involved "meaningful" participation by developing countries.

C

Call Options: Options provide a level of flexibility and risk management that can not be provided through other types of transactions, by giving the purchaser of the option the right but not the obligation to buy at a specified price for a specified premium. Options can give both buyer and seller the opportunity to hedge against price and regulatory risk. In an uncertain market, options allow traders to take early positions at relatively low cost.

Options also provide a window of time during which rules for trading will become more clear.

Cap: Absolute emissions limit.

Capacity Building: The process of helping developing countries and →countries in transition to develop the capability and skills needed to implement →climate policy, →adaptation and →mitigation action.

Carbon-based resources: The recoverable →fossil fuel reserves (coal, crude oil, oil shale, tar sands, natural gas) that can be used for energy production/consumption.

Carbon cycle: The complex series of reactions by which carbon passes through the Earth's →atmosphere, →biosphere, →hydrosphere, and →lithosphere. For example, plants remove carbon in the form of CO₂ from the atmosphere and use it to produce carbohydrates in living organisms (photosynthesis). When those organisms die, the carbon is returned to the Earth as carbon dioxide, as →fossil fuels (during decay), or as inorganic compounds such as calcium carbonate (limestone).

Carbon dioxide (CO₂): The main greenhouse gas affected directly by human activities. CO₂ also serves as the reference to compare all other greenhouse gases (→carbon dioxide equivalents). The major source of CO₂ emissions is →fossil fuel combustion. CO₂ emissions are also a product of forest clearing, →biomass burning, and non-energy production processes such as cement production. Atmospheric concentrations of CO₂ have been increasing at a rate of about 0.5% per year and are now about 30% above preindustrial levels.

Carbon dioxide equivalent: A metric measure used to compare the emissions from various →greenhouse gases based upon their →global warming potential. The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated global warming potential. Carbon may also be used as the reference and other greenhouse gases may be converted to carbon equivalents. To convert carbon to carbon dioxide, multiply the carbon by 44/12 (the ratio of the molecular weight of carbon dioxide to carbon).

Carbon dioxide fertilisation: An expression used to denote increased plant growth due to a higher CO₂ concentration.

Carbon sequestration: The uptake and storage of carbon. Trees and plants, for example, absorb carbon dioxide, release the oxygen and store the carbon.
→Sequestration.

Carbon sink: →carbon sequestration. Any reservoir that takes up carbon released from some other part of the carbon cycle. For example, the →atmosphere, oceans and forests are major carbon sinks because much of the CO₂ produced elsewhere on the Earth ends up in these bodies.

Carbon source: Any part of the carbon cycle that releases carbon to some other part of the carbon cycle.

Carbon stocks: Carbon stocks include carbon stored in vegetation (above and below ground), decomposing matter, soils and wood products.

Carbon tax: Tax proportional to CO₂ emissions, e.g. by placing a surcharge on the carbon content of oil, coal, and gas. Carbon taxes exist in several Scandinavian countries.

CDM: → Clean Development Mechanism.

Ceiling: A quantitative limit on use of the → Kyoto mechanisms advocated by the EU and environmental NGOs.

CER: → Certified Emission Reduction.

Certification: The process by which either → operational entities or properly qualified independent auditing companies designated by the → COP/MOP for the purposes of → Article 12 and/or → Article 6 of the → Kyoto Protocol certify that the GHG Reductions achieved by a project comply with a relevant set of standards or conditions.

Certified Emission Reductions (CERs): CERs are verified and authenticated units of greenhouse gas reductions from → abatement or → sequestration projects which are certified under the → clean development mechanism.

Certified Emission Reduction Units (CERUs): Certified Emission Reduction Units are verified and authenticated units of greenhouse gas reductions from abatement or sequestration projects which are voluntarily certified under → Joint Implementation. In contrast to → ERUs, they are risk-free and do not depend on compliance of the host country.

Certified Reductions Units (CRU): Obsolete expression for → CERs used in the first months after → COP 3.

Certified Tradable Offset (CTO): A financial instrument that can be used to transfer (sell) greenhouse gas →offsets created by Costa Rica to international investors. Costa Rica has established two national-level carbon offset programs for which it has issued CTOs. A CTO represents a specific number of units of greenhouse gas emission expressed in carbon equivalent units reduced or sequestered. The host country verification process certifies that the offsets are of high enough quality to allow them to count against national and company-level greenhouse gas reduction →commitments, if such crediting is eventually permitted under the →UNFCCC. In a market-based →emissions trading regime, in return for a financial investment to reduce greenhouse gas emissions (or to sequester carbon), investors would receive fully transferable CTOs. CTOs are the first step to →unilateral CDM.

Certifier: Independent third party accredited with the CDM →Executive Board which verifies that the emission reduction achieved fulfils the CDM criteria. Some countries propose that it also issues →CERs.

CFCs: →Chlorofluorocarbons

CG 11: Group of 11 East European countries in the international climate negotiations formed in 2000.

Chair (or chairman etc.): Governments participating in negotiations on an international treaty elect a Chair for the different bodies from amongst the delegates. 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 start of the next →COP. He/she forms a group of “Friends of the Chair” that consists of selected country representatives to negotiate complex issues.

Chlorofluorocarbons (CFCs): Organic compounds containing carbon, chlorine, fluorine, and (usually) hydrogen. Chlorofluorocarbons are synthetically produced materials much in demand in industry because they tend to be nontoxic, nonflammable, noncorrosive, odorless, and chemically inert. They are used in aerosol propellants, refrigerants, foam blowing agents, industrial solvents, and fire retardants. Once in the →stratosphere, CFCs cause damage in two ways. First, CFC molecules destroy ozone molecules, allowing ultraviolet radiation to reach the Earth's surface. Since they are so non-reactive, they remain in the stratosphere from decades to centuries. Second, CFCs

act as →greenhouse gases with an equivalency many thousands of times as potent as CO₂. Recognising the potential danger of these chemicals, nations joined to ratify the Montreal Protocol on Substances that deplete the Ozone Layer in 1987 and subsequent amendments tightening these rules. Even without causal proof that CFCs were leading to the destruction of the ozone layer, the correlation was high enough to push states to phase out CFC production and use.

CHP: Combined Heat and Power →Cogeneration

Clean Development Fund: A Clean Development Fund was proposed by Brazil in advance of →COP3. The proposed fund, punitive in nature, would have been created by fines paid by countries that did not meet their emissions reduction →commitments. The fund, in turn, would provide resources to →Non-Annex I countries for use in →mitigation and →adaptation projects. The fund evolved into the →CDM at Kyoto.

Clean Development Mechanism (CDM): A modified version of pre-Kyoto →Joint Implementation that was included in the →Kyoto Protocol for project-based activities in developing countries without emission targets. In →Article 12 of the Protocol, the parties established the CDM for the purposes of assisting developing countries in achieving sustainable development and helping →Annex I parties meet their emissions targets. Under the supervision of an →Executive Board, private and public funds may be channelled through this mechanism to finance projects in developing countries. Any party “may involve private and/or public entities” in the regime. One innovative aspect is that a share of the proceeds from project activities is to be used to cover the administrative expenses. Another part of those proceeds (→adaptation tax) will be used to help particularly vulnerable developing countries meet the costs of →adaptation to a changing climate.

Climate change: Change in climatic variables (temperature, precipitation). There is natural and anthropogenic climate change.

Climate feedback: An atmospheric, oceanic, terrestrial, or other process that is activated by the 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 CO₂ 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 negotiations: Conferences within the →UNFCCC process like →COP.

Climate policy: Policy measures and international negotiations to reduce anthropogenic climate change and enhance adaptation capacities.

Climate sceptics: Scientists and lobby groups that deny that anthropogenic change is occurring or say it is beneficial.

Climate sensitivity: The equilibrium response of the climate to a change in →radiative forcing; for example, a doubling of the carbon dioxide concentration.

Climate system: The →atmosphere, the oceans, the →Biosphere, the →cryosphere, and the →geosphere, together make up the climate system.

Climate Technology Initiative (CTI): The Climate Technology Initiative was established by →COP 1. It is a linked set of national and international measures, including voluntary private sector activities, designed to accelerate the development, application and diffusion of climate-friendly technologies in all relevant sectors of the economy including: energy production and conversion, transport, manufacturing, agriculture, forestry and waste management. Its primary purpose is to promote the adoption of technologies that reduce greenhouse gas emissions.

Cofinancing: Sharing of costs between →GEF, any multilateral fund and another investors.

Cogeneration: The process by which two different and useful forms of energy are produced at the same time which leads to a high energy efficiency. For example, while boiling water to generate electricity, the leftover steam can be sold for industrial processes or space heating. Term used interchangeably with →Combined Heat and Power.

Combined Heat and Power (CHP): →cogeneration

Command-and-Control Regulation: Emitters are required to achieve emission reductions. Often the installation and use of specific types of equipment to reduce emissions is mandated.

Commitment: → Emissions targets

Commitment Period: Also “compliance period” or →“budget period”. Range of years within which parties to the →Kyoto Protocol are required to meet their GHG emissions reduction target, which is averaged over the years of the commitment period. The first commitment period will be 2008-2012.

Committee of the Whole: Often created by a →COP to facilitate the process of negotiating text. When the Committee finishes its work it turns the text over to the COP which finalises and then formally adopts it during a plenary session.

Compliance: The fact that a country/company/individual fulfils his emissions and reporting →commitments.

Compliance Reserve: Notion of reserving a significant part of a nation's →AAUs as a reserve excluded from trading for guaranteed compliance and therefore investor security.

Conference of the Parties (COP): The supreme body of the →UN Framework Convention on Climate Change. It comprise the nations that have ratified the UNFCCC. Its first session was held in Berlin, Germany, in 1995, and is expected to continue meeting on a yearly basis. The COP's role is to promote and review the implementation of the UNFCCC. It will periodically review existing commitments in light of the Convention's objective, new scientific findings, and the effectiveness of national climate change programs. The primary role of the COP is to keep the implementation of the UNFCCC under review and to take the decisions necessary for its effective implementation of the Convention.

- **COP-1** held in Berlin March 25 to April 7, 1995.
- **COP-2** Geneva July 8 to 19, 1996.

- **COP-3** held in Kyoto December 1-10, 1997. The outcome of this Conference, the →Kyoto Protocol strengthened the states' commitments beyond the year 2000.
- **COP-4** held in Buenos Aires November 2 - 13, 1998.
- **COP-5** held in Bonn October 25 to November 5, 1999.
- **COP-6** held in The Hague November 13-24, 2000 .
- **COP 6 bis** held in Bonn July 16-27, 2001
- **COP 7** held in Marrakech October 29 to November 9, 2001

Conference Room Papers (CRPs) – A category of in-session documents containing new proposals or outcomes of in-session work for use only during the session.

Contact Group: The →COP or the Committee of the Whole may establish an open-ended meeting wherein →Parties can negotiate before forwarding agreed text to the plenary for formal adoption. Registered observers can attend.

Contract liability clauses: Special conditions may be provided where the buyer requires assurances that the →emission permits being transferred in the future will actually be valid under future regulations. For example, if a mandated →emissions trading programme is put into place and the transacted emission permits are not valid under the future program, the party delivering emission reduction credits will return the initial payment plus interest or substitute valid credits.

Convective heat transfer: The transfer of heat between two materials, one of which, a gas or a liquid, is sweeping past the other. Free or natural convection is produced by changes in density of the fluid caused by the heat transfer. A radiator is a good example. The air next to the radiator is heated, expands, gains buoyancy, floats upward, and is replaced by cooler air from below. The result is a continuous free-convection current. A greenhouse prevents convective heat transfer by confining the air flow with glass. The →greenhouse effect is different in that trace gases in the atmosphere absorb or trap outgoing infrared energy, causing the atmosphere to warm, but they do not form a physical barrier preventing the convective transfer.

Cooperative Implementation: Expression used by the →UNFCCC Secretariat between March and June 1998 for what is now called →Flexible or →Kyoto Mechanisms.

Survives only in the name of the UNFCCC Secretariat department for Kyoto Mechanisms.

COP:→Conference of the Parties.

COP/MOP: The →Kyoto Protocol's supreme body will be the →COP, which will serve as the Protocol's meeting of the →Parties. The sessions of the COP and the COP/MOP will be held during the same period. This will improve cost-effectiveness and coordination with the UNFCCC.

Countries in Transition: Countries undergoing the process of transition to a market economy but that are also classified along with the EU, Japan and the U.S. as →Annex I parties to the UNFCCC.

Credit: Originally defined as a “quantifiable and verifiable recognition of the reduction, avoidance or sequestration of carbon dioxide or other greenhouse gases as a result of a carbon →offset project”, the word “credit” was discontinued in the official language of the climate negotiations after →COP 3 in favour of →Emissions Reduction Units (ERUs), and →Certified Emission Reductions (CERs). “Credit” was a difficult term because it held a number of different technical meanings and connotations in different languages – making negotiations on issues involving GHG “credits” confusing. However, “credit” is still used as colloquial expression for emission permits accruing from projects. In the domestic context (→credit trading) it is still a valid term to define project-based reductions from a baseline.

Credit trading: Domestic emissions credit trading differs from →allowance trading inasmuch there is no absolute →emissions target. The →credit is created as a reduction from a →baseline.

Crediting lifetime: Time during which →CERs/→ERUs accrue for a →CDM/→JI project.

CRPs:→Conference Room Papers

CRU:→Certified Reduction Units

Cryosphere: The frozen part of the Earth's surface. The cryosphere includes the polar ice caps, continental ice sheets, mountain glaciers, sea ice, snow cover, lake and river ice, and permafrost.

CTI: →Climate Technology Initiative

CTO: →Certified Tradable Offset

D

Decision: Unlike a resolution, a decision is a formal agreement and leads to binding actions. It becomes part of the agreed body of decisions that direct the work of the →COP.

Deforestation: The removal of forests from the land. Deforestation occurs when humans cut down trees to use as fuel or for building materials or to obtain land for agricultural, developmental, or other purposes. Deforestation results in the loss of an important sink for carbon dioxide during photosynthesis and an important element of the local ecosystem - forests provide a home for plants and animals, stabilise soils, and help regulate local climate conditions. Most deforestation results from burning to clear ground for agricultural production, leading to the release of more CO₂ and other →greenhouse gases.

Demand side management (DSM): Policies and programmes designed to reduce consumer demand for electricity and other energy sources.

Desertification: Progressive destruction or degradation of existing vegetative cover to form desert. This can occur due to overgrazing, deforestation, drought, and the burning of extensive areas. Once formed, deserts can only support a sparse range of vegetation. Climatic effects associated with this phenomenon include increased albedo, reduced atmospheric humidity, and greater atmospheric dust (aerosol) loading.

Developing countries: Countries which are in the process of becoming industrialised but have constrained resources with which to combat their environmental problems.

Developing Countries are not listed in →Annex I and have therefore no binding →emission targets under the →Kyoto Protocol.

Differentiation: The context of the →UNFCCC refers to differing national circumstances that might imply differing obligations. It can refer to North-South distinctions, or to differences within the rich →Annex 1 countries. The differences can reflect population, income, economic composition, or energy endowment. The Kyoto targets are differentiated across countries.

Discounting: A method used by economists to determine the value today of a project's future costs and benefits. This is done by weighting money values that occur in the future by a value less than 1, or "discounting" them. Because environmental decisionmakers are increasingly forced to evaluate policies with costs and benefits that will be spread out over tens - perhaps hundreds - of years, discounting is used to help evaluate the value of measures that deal with problems such as stratospheric ozone depletion, global climate change, and the disposal of low- and high-level radioactive wastes. The term discounting is also sometimes used in a totally different context, and refers to multiplying the number of claimed →ERUs/→CERs in a →JI or →CDM project by X, whereby $X < 1$. In this context, discounting can be used to compensate for →baseline uncertainty, →leakage, etc.

Documents: Official meeting documents are available to everyone and featuring the logos of the United Nations and the →UNFCCC and a reference number, such as FCCC/CP/1998/1. Pre-session documents are available before the meeting, often in all six UN languages. In-session documents are distributed on-site (see →CRPs, L docs, →Misc. docs, and →nonpapers). Informal documents are often distributed outside the meeting room by observers.

Double dividend: The notion that environmental taxes can both reduce pollution (the first dividend) and reduce the overall economic costs associated with the tax system by using the revenue generated to displace other more distortionary taxes that slow economic growth at the same time (the second dividend). A strong double dividend means that the latter effect is bigger than the former, while in the weak form, it is smaller.

Downstream: A downstream →emissions trading system is applied at the level of energy consumers rather than suppliers. It is commonly interpreted to be industrial

boilers, electric utilities and other major energy users, but also applies, to all consumers of gasoline, coal, electricity etc. Conversely, →upstream refers to the point (or close to it) where →fossil fuels enter the economy, i.e. fossil fuel production and imports.

DSM: →Demand side management

E

Early action: The notion of incentives for early action is based upon the fact that it is the total accumulation of GHGs in the atmosphere that determines their effect on the environment. In the case of GHG emissions, the earlier reductions take place, the slower the rate at which the climate will change in the future. This is critical because it is not just the levels to which temperature may rise, but the speed at which that rise takes place, that ecologists believe will determine the fate of sensitive ecosystems in a greenhouse-intensified world and may lead to irreversible threshold effects. Early action can take several forms: →CDM, as →CERs accrue from 2000 onwards, pre-2008 →JI (unlikely to be accepted), forward trade of →AAUs; investing in energy-efficient technologies in such a manner that development paths are altered; and establishing policies that reward those who take action early. Another type of early action is granting domestic emitters incentives for reductions before 2008 through allocation of →ERUs, fiscal benefits etc.

Early implementation: →Early action.

Earth Summit: Informal title of the United Nations Conference on Environment and Development in Rio de Janeiro 1992 where the →UNFCCC was adopted.

EB: →Executive Board.

EBRD: European Bank for Reconstruction and Development

Eccentricity: The flattening of the Earth's orbit around the sun. The Earth's eccentricity increases and decreases in a cycle that takes about 100,000 years, accounting for varying amounts of solar radiation reaching the Earth's surface over time.

ECCP: →European Climate Change Programme

Economies in Transition (EIT): The countries listed in →Annex I or →Annex B that are undergoing the process of transition to a market economy; →countries in transition.

Ecosystem: The complex 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 according 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. Ecosystems are endangered by climate change.

EIG: →Environmental Integrity Group

EIT: →Economies in Transition

El Nino: A climatic phenomenon occurring irregularly, but generally every 3 to 5 years. El Ninos often first become evident during the Christmas season (El Nino means Christ child) in the surface oceans of the eastern tropical Pacific Ocean. The phenomenon involves seasonal changes in the direction of the tropical winds over the Pacific and abnormally warm surface ocean temperatures. The changes in the tropics are most intense in the Pacific region, these changes can disrupt weather patterns throughout the tropics and can extend to higher latitudes, especially in Central and North America. The relationship between these events and global weather patterns are currently the subject of much research in order to enhance prediction of seasonal to interannual fluctuations in the climate.

Emissions: Pollutants released into the air or waterways by human activities. Air emissions pertain to atmospheric air pollution; water emissions refer to pollutants released into waterways.

Emissions budget: The volume of GHG emissions allowed for a country over a specific time-period (→QELROs, →Assigned Amounts, →emission targets). During the first →commitment period (2008-2012) under the Kyoto Protocol, the aggregate emissions among →Annex B countries must total no more than 94.8% of 1990 levels.

Under the principle of differentiation, each country has a unique emissions budget allowed.

Emission credits: →credit.

Emission factor: A coefficient that relates the activity data to the amount of chemical compound which is the source of later emissions. Emission factors are often based on a sample of measurement data, averaged to develop a representative rate of emission for a given activity level under a set of operating conditions. They are used for →benchmarks.

Emission intensity: Equivalent CO₂ emissions per unit of Gross Domestic Product (kg-CO₂/\$-GDP). The “equivalent CO₂” takes into account other greenhouse gases. Countries with high emission intensities emit high levels of GHG relative to their economic output.

Emissions leakage: A concept often used by policymakers in reference to the problem that emissions abatement achieved in one location may be offset by increased emissions in unregulated locations. Such leakage can arise, for example, in the short term as emissions →mitigation or →sequestration reduces energy demand or timber supply, influencing world prices for these commodities and increasing the quantity emitted elsewhere; and it can arise in the longer term, for example, as industries relocate to avoid controls or timber supply rises due to afforestation.

Emission permit: A tradable entitlement of an individual firm to emit a specified amount of a substance. Permits can either be created via →allocation (→allowance trading) or emission reductions from a →baseline (→credit). →emissions trading, →offset.

Emission quota: The portion or share of total allowable emissions assigned to a country or group of countries within a framework of maximum total emissions and mandatory allocations of resources or assessments. →Assigned Amounts, →emissions budget.

Emission reduction units (ERUs): ERUs are generated via →JI under →Article 6 of the →Kyoto Protocol.

Emission standard: A level of emission that, under law, cannot be exceeded.

Emissions targets: Limits for greenhouse gas emissions.

Emission taxes: Taxes levied on emissions, usually on a per ton basis. Emission taxes provide incentives for firms and households to reduce their emissions and therefore are a means by which pollution can be controlled. The greater the level of the emissions tax, the greater the incentive to reduce emissions.

Emissions trading: An economic incentive-based alternative to →command-and-control regulation. In a domestic →allowance trading program, sources of a particular pollutant (most often an air pollutant) are given permits to release a specified number of tons of the pollutant. The government issues only a limited number of permits consistent with the desired level of emissions. The owners of the permits may keep them and release the pollutants, or reduce their emissions and sell the permits. The fact that the permits have value as an item to be sold or traded gives the owner an incentive to reduce their emissions. Emission trading can also take place under a →baseline-and-→credit system.→International emissions trading can be done in →AAUs, →ERUs and →CERs.

EMS: →Environmental management system

Energy efficiency: The higher energy efficiency, the lower energy use per unit of GDP. The link to greenhouse gas emissions depends on the →carbon intensity of energy supply. Thus from a →climate policy view energy efficiency measures are important in a context of high carbon intensity.

Energy security: A term used to describe a variety of issues from the economic cost of oil supply disruptions to the cost of military expenditures to secure international trade.

Energy taxes: Taxes on energy carriers or energy use/content. They do not give an efficient signal to reduce greenhouse gases as →emission taxes do.

Enhanced Greenhouse Effect: The natural greenhouse effect has been enhanced by anthropogenic emissions of →greenhouse gases. Increased concentrations of carbon dioxide, methane, and nitrous oxide, →CFCs, →HFCs, →PFCs, SF₆, NF₃, and other

photochemically important gases caused by human activities such as →fossil fuel consumption and adding waste to landfills, trap more infra-red radiation, thereby exerting a warming influence on the climate. →climate change, →global warming.

Entry into force: Intergovernmental agreements, including protocols and amendments, are not legally binding until they have been ratified by a certain number of countries; the →UNFCCC required 50 and enters into force for each new →Party 90 days after it ratifies. The →Kyoto Protocol needs ratification by at least 55 countries representing 55% of 1990 →Annex I emissions.

Environmental equity: The environmental protection for all citizens so that no segment of the population, regardless of race, ethnicity, culture, or income, bears a disproportionate burden of the consequences of environmental pollution.

Environmental Integrity Group (EIG): Group in the international climate negotiations consisting of Switzerland, Mexico and South Korea. The EIG was formed in 2000 and is renowned for creative proposals.

Environmental management system (EMS): An environmental management system is a management structure that allows an organisation to assess and control the environmental impact of its activities, products or services. ISO 14001, Environmental management systems — Specification with guidance for use, outlines the requirements for an EMS. According to ISO 14001, there are six key elements of an EMS:

- an environmental policy, in which the organisation states its intentions and commitment to environmental performance;
- planning, in which the organisation analyses the environmental impact of its operations;
- implementation and operation: the development and putting into practice of processes that will bring about environmental goals and objectives;
- checking and corrective action: monitoring and measurement of environmental indicators to ensure that goals and objectives are being met;
- management review: review of the EMS by the organisation's top management to ensure its continuing suitability, adequacy and effectiveness; and
- continual improvement.

ERU: → Emission Reduction Unit.

EU: → European Union

European Union (EU): As a regional economic integration organisation, the European Union can be and is a Party to the →UNFCCC; however, it does not have a separate vote from its members. The EU can also be a →Party to the →Kyoto Protocol. Its members are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK. The EU is the only group of countries that has adopted a →bubble and distributed its common target via →burden sharing.

European Climate Change Programme (ECCP): The →EU has set up the ECCP in 2000 to develop an EU-wide approach to climate policy. It consists of several working groups with representatives from industry and →NGOs.

Evaluation: Checking of the quality of an action.

Evapotranspiration: The sum of evaporation and plant transpiration. Potential evapotranspiration is the amount of water that could be evaporated or transpired at a given temperature and humidity, if there was plenty of water available. Actual evapotranspiration can not be any greater than precipitation, and will usually be less because some water will run off in rivers and flow to the oceans. If potential evapotranspiration is greater than actual precipitation, then soils are extremely dry during at least a major part of the year.

Executive Board: The Executive Board of the →CDM is established in →Article 12 of the →Kyoto Protocol. While many of the functions, makeup and terms of the executive board are still to be determined, the main role is to supervise the CDM and oversee the →operational entities which “certify” →CERs.

Externality: Externalities occur when the activity of one person (or country, industry, company, etc.) has an inadvertent impact on the well being of another person (or country, industry, company, etc.) that is not reflected in the market prices of the activity. Many aspects of environmental degradation, such as air pollution, global warming, loss of wilderness and contamination of water bodies, are viewed as externalities of

economic transactions such as power generation, transportation, harvesting/mining natural resources and industrial production. In the case of the automobile, for example, the costs of global climate impacts and human health from CO₂ emissions generated in its production and operation are not reflected in the cost of the vehicle.

F

FNCCC: Framework Convention on Climate Change

Feedback Mechanisms: A mechanism that connects one aspect of a system to another. The connection can be either amplifying (positive feedback) or moderating (negative feedback). →Climate Feedback.

Flaring: The burning of gas which cannot be contained or used productively. In some cases, when associated natural gas is released along with oil from production fields remote from energy users, the gas is burned off as it escapes, primarily for safety reasons. Some flaring may also occur in the processing of oil and gas. The →IPCC Guidelines classify emissions from flaring as →fugitive emissions.

Flexible Mechanisms: Term used between 1997 and 1999 for the →Kyoto Mechanisms.

Fluorocarbons: Carbon-fluorine compounds that often contain other elements such as hydrogen, chlorine, or bromine. Common fluorocarbons include chlorofluorocarbons and related compounds (also known as ozone depleting substances), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

Focal Point: Official person responsible for accreditation of →AIJ projects, mostly high-ranking bureaucrat of a national ministry. Focal Points are listed by the →UNFCCC.

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 emission of carbon dioxide. →radiative forcing.

Forest dieback: High incidence of decline and individual tree death due to a change in climate conditions that makes trees vulnerable to disease and insect predation. Many models of climate change predict large-scale forest dieback.

Forward settlement: May be structured as:

- pay now (at a discounted rate) and receive title to credits in future years, or;
- payment upon delivery, where payment is made in future years on an agreed date in return for delivery of title to credits created in those years. The second transaction type is often restricted to those with investment grade credit.

Fossil fuel: Fuels derived from organic compounds containing carbon and hydrogen that were laid down in the Earth's crust during past geological periods by formerly living plants and animals. These include coal, petroleum and natural gas. Coal has the largest ratio of carbon to hydrogen, followed by oil and natural gas. When carbon is burned, it unites with oxygen to form CO₂, and hydrogen unites with oxygen to form H₂O (water vapor), both of which contribute to the greenhouse effect. Coal combustion produces more CO₂ per unit of energy than oil or natural gas.

Fragile ecosystems: Ecosystems which can be easily destroyed, e.g. mountainous areas, coral reefs.

Free standing, stand-alone project: Project that is not linked to a World Bank project.

Fuel cycle: The total life of a fuel in all its uses and forms. For example, the fuel cycle of coal is extraction; transportation; combustion; air emissions, and ash removal, transportation and disposal.

Fugitive emissions: Fugitive emissions are intentional or unintentional releases of gases from anthropogenic activities such as the processing, transmission or transportation of gas or petroleum. In particular, they may arise from the production, processing, transmission, storage and use of fuels, and include emissions from

combustion only where it does not support a productive activity (e.g., →flaring of natural gas at oil and gas production facilities).

Fungibility: →Emissions permits of all →Kyoto Mechanisms can be traded on a unified international market.

G

GEF: →Global Environment Facility.

GCC: →Global Climate Coalition

GCM: General Circulation Model: 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 vapour, 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.

Geosphere: The soils, sediments, and rock layers of the Earth's crust, both continental and beneath the ocean floors.

GHG: →greenhouse gases

GHG balance: Audit procedure by which the total life cycle GHG emissions of a product or service including its resource consumption and waste removal are assessed.

GHG reduction potential: Possible reductions in emissions of GHGs (quantified in terms of absolute reductions or in percentages of →baseline emissions) that can be achieved through the use of technologies and measures.

Global Climate Coalition (GCC): A group of US private companies representing fossil fuel and carmaker interests such as Exxon, American Forest & Paper Association, American Petroleum Institute, Chevron, General Motors, Texaco. GCC was founded in

1989. It tried to fight →climate policy wherever it could and invested money in PR campaigns against the ratification of the →Kyoto Protocol. It distributes partially dubious scientific results which can be interpreted as proving that global warming does not exist or originates from CO₂ emissions. Prior to →COP3 GCC invested around \$12 million for an anti climate policy campaign in US media. Recently Shell, BP, Ford and Daimler-Chrysler left the GCC to prevent damage for their companies through public pressure.

Global commons: Goods such as the →atmosphere and the oceans which are necessary for survival of humanity but so far have been used free of charge.

Global Environment Facility (GEF): The GEF was established in 1991 and serves as the financial mechanism of the →UNFCCC. It thus provides grants and concessional loans to eligible countries for incremental costs, for which the →World Bank, the United Nations Development Programme and the United Nations Environment Programme act as the three implementing agencies. For 1992-98 its funds amounted to 4 billion \$.

Global warming: An increase in the near surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming predicted to occur as a result of increased emissions of →greenhouse gases. Scientists generally agree that the Earth's surface has warmed by about 0,7 degree Celsius in the past century. The →IPCC concluded that increased concentrations of greenhouse gases are causing an increase in the Earth's surface temperature and that increased concentrations of sulphate →aerosols have led to relative cooling in some regions, generally over and downwind of heavily industrialised areas. →Climate Change, →Enhanced Greenhouse Effect.

Global Warming Potential (GWP): The index used to translate the level of emissions of various gases into a common measure in order to compare the relative →radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emissions of one kilogram of a greenhouse gas to that from emission of one kilogram of CO₂ over a period of time (usually 100 years). Gases involved in complex atmospheric chemical processes have not been assigned GWPs due to complications that arise. Greenhouse gases are expressed in terms of Carbon Dioxide

Equivalent. The →IPCC has presented these GWPs and regularly updates them in new assessments. The chart below shows the original GWPs (assigned in 1990) and the most recent GWPs (assigned in 1996) for the most important greenhouse gases.

Carbon Dioxide	1	1
Methane	22	24.5
Nitrous Oxide	270	320
HFC-134a	1200	1300
HFC-23	10000	12100
HFC-152a	150	140
HCF-125	NA	3200
PFCs	5400	9400
SF6	NA	23900

Grandfathering: A method by which →emissions permits (→allowances) are be allocated among emitters and firms in a domestic emissions trading regime according to their historical emissions. Supporters of this method of emissions trading assert that this would be administratively simple but many critics argue that this method would reward firms with high historical emissions and unfairly complicate entry into markets by new firms and emitters.

Greenbook: EU Commission document for public review. In early 2000 a greenbook on EU →emissions trading was released proposing an EU-wide emissions trading regime for 2005.

Greenhouse effect: A term used to describe the effect on the Earth's temperature that results from the capture of heat by molecules of carbon dioxide, water vapor, methane, nitrous oxide, CFCs, ozone and other trace gases in the Earth's atmosphere. Shortwave solar radiation can pass through the clear atmosphere relatively unimpeded, but longwave infrared radiation emitted by the warm surface of the Earth is partially absorbed and then re-emitted by these →greenhouse gases in the cooler atmosphere above. The atmosphere's major constituents, nitrogen and oxygen, are transparent to both incoming solar radiation and outgoing infrared radiation. Without the greenhouse effect, the Earth's surface temperature would much less than it actually is and not sustain life.

Greenhouse gases (GHG): Any →trace gas that does not absorb incoming solar radiation but does absorb long-wavelength radiation emitted or reflected from the Earth's surface. The most important greenhouse gases are water vapour, carbon dioxide (0.0365% or 365 ppm), nitrous oxide 0.000031% (310 ppb), methane 0.00015% (1.5 ppm) and Chlorofluorocarbons (CFC's) (0.225 ppb). When discussing global climate change, the term "greenhouse gas" usually refers to the human-induced, or anthropogenic, emissions of carbon dioxide, CFC's, methane and nitrous oxide.

GRILA: → Group of Independent Latin American Countries

Group of Independent Latin American Countries (GRILA): Group in the international climate negotiations formed in 2000. It does not include Brazil. GRILA is in favour of →sinks in the →CDM.

Group of 77 and China (G 77): The G 77 was founded in 1967 under the auspices of the United Nations Conference for Trade and Development (UNCTAD). It seeks to harmonise the negotiating positions of its 132 developing-country members.

Growth baseline: An approach to developing country emissions →commitments that would not cap emissions in absolute terms but would require countries to grow their GHG emissions at a slower rate than their economies. For instance, this approach might require →emission intensity in developing countries to improve by a particular amount or percentage each year.

GWP: →Global Warming Potential

H

HCFCs: →Hydrochlorofluorocarbons

HFCs: Hydrofluorocarbons→Fluorocarbons

Host country: The country in which a →CDM/→JI/→AIJ Project is located.

Hot Air: Reductions in greenhouse gas emissions, for example, in the former Soviet Union, due to economic collapse, as opposed to intentional efforts to curb emissions. Without a trading scenario in place, this would not be an issue, but under a trading regime, the country “owning” these excess reductions, or “hot air”, could sell them to countries not complying with their reduction targets, therefore allowing them to emit more. With the trading of “hot air” overall emissions increase as a result of flexibility measures.

Human-induced Activities (direct human-induced activities): Article 3.3. of the →Kyoto Protocol on →LULUCF includes the term “direct” before human induced activities. The term direct could refer to (1) policies or programs, (2) the physical activities of →afforestation, →reforestation, or reducing deforestation or (3) both of these. For example, governments could change tax policy to speed the rate of conversion of agricultural land to forests, or initiate large-scale programs to increase the planted area. Unlike Article 3.3, no mention is made of the term “direct” with respect to human-induced activities in Article 3.4. This may raise a question about whether indirect activities, such as CO₂ and nitrogen fertilisation by the atmosphere should be included.

Hydrochlorofluorocarbons (HCFCs): Chemicals composed of one or more carbon atoms and varying numbers of hydrogen, chlorine, and fluorine atoms.

Hydrosphere: That portion of the Earth that consists of water. The hydrosphere includes but is not limited to the oceans; freshwater lakes, rivers, streams, ponds, and groundwater; and water vapour in the atmosphere.

I

IAAP: →International Accepted Accounting Principles

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 that time. The longest ice cores from the Antarctic allow an analysis of the climate of the last 400,000 years.

IDR: →In-depth review

IEA: →International Energy Agency

IFC: →International Finance Corporation

IGO: →Intergovernmental organisation

INC: →Intergovernmental Negotiating Committee

Incentives: Without incentives, companies and individuals will not reduce greenhouse gas emissions. – Incentives include →emissions taxes and →tradable emission permits. The primary strength of incentive-based regulation is the flexibility it provides the polluter to find the least-cost way to reduce emissions.

Incremental Costs: The additional costs that a project sponsor funds between the cost of an alternative project that would have been implemented in the absence of global environmental concerns and a project undertaken with global objectives in mind. →GEF calculates incremental costs to decide whether it should fund projects.

Independent Third Party: an entity in the context of →JI and →CDM projects, such as an environmental auditing company, which is independent from the investor country, the →host country and the relevant project proponents. →certifier.

In-depth review (IDR): →National communications by →Annex I countries are subject to in-depth reviews generally involving country visits by international teams of experts.

Industrialised Countries: →Annex I countries.

Integrity: Integrity of the →Kyoto Protocol is guaranteed if the emissions →commitments are fulfilled by real and measurable emission reduction/→sequestration.

Intergenerational equity: Intergenerational equity in the context of environmental policy refers to the fairness of distribution of the costs and benefits of a long-lived policy when those costs and benefits are borne by different generations. In the case of

→climate policy designed to reduce GHG emissions, the costs of the emissions reductions will be borne by the current and near term generations, while the benefits of an unchanged climate will be enjoyed by far distant generations.

Intergovernmental Negotiating Committee: the international body that negotiated the →UNFCCC. The INC met eleven times between 1991 and 1995, before the entry into force of the UNFCCC made the →COP the supreme body of the UNFCCC.

Intergovernmental organisation (IGO): International organisation like e.g. OECD, World Bank.

Intergovernmental Panel on Climate Change (IPCC): The body responsible for the scientific and technical assessment underlying the →UNFCCC. The IPCC was created in 1988 by the United Nations Environment Programme and the World Meteorological Organisation. It consists of thousands of scientists and delivers →Assessment Reports on the status of climate change research every five years. The IPCC also developed the Greenhouse Gas Inventory Guidelines for use by Parties to the FCCC when undertaking their national inventories of sources and sinks of GHGs. The 1995 Second Assessment report prompted international action on climate change because it clearly stated that there is a “discernible human influence on the global climate”.

Internalisation: An economic concept where the polluter directly bears the cost created by his pollution. Currently environmental costs (externalities) are not included in economic costs, giving producers a “free ride” by not having to account for the true cost to society of their activities. Conversely, environmental services (such as carbon sequestration and watershed protection by large forested areas) are not currently reflected in economic indicators (GNP, GDP, etc.). Internalising the externality of the costs of climate change, for example, would significantly raise the costs of emitting CO₂ through →fossil fuel use.

International Accepted Accounting Principles (IAAP): Principles for independent third party auditing.

International Emissions Trading: Emissions trading as defined in →Article 17 of the →Kyoto Protocol.

International Energy Agency (IEA): Part of OECD responsible for energy policy, especially energy supply security. Major source of energy statistics and energy policy analysis, e.g. of emissions data.

International Finance Corporation (IFC): The private sector affiliate of the World Bank Group which is a multilateral source of finance for private investments in economies in transition and developing countries.

International Organisation for Standardisation (ISO): The ISO is a world-wide federation of national standards bodies from some 130 countries, one from each country. ISO is a non-governmental organisation established in 1947. The mission of ISO is to promote the development of standardisation and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity.

Inventory: Typically, a national inventory is the register of sources and sinks of greenhouse gases in a particular country. The →UNFCCC calls for all →Parties to commit to “develop, update periodically, publish and make available to the →COP their national inventories of anthropogenic emissions by sources and removals by sinks, of all GHGs not controlled by the Montreal Protocol and, to “use comparable methodologies for inventories of GHG emissions and removals” In 1996 the →IPCC developed the revised guidelines for national GHG inventories, a series consisting of three books: Greenhouse Gas Reporting Instructions; Greenhouse Gas Inventory Workbook; and; the Greenhouse Gas Reference Manual. Together, these books provide the range of information needed to plan, carry out and report results of a national inventory using the →IPCC methodology.

IPCC: →Intergovernmental Panel on Climate Change.

Irreversible Changes: Once set in motion, cannot be reversed, at least on human time scales.

ISO 14000: The standards are designed to provide an internationally recognised framework for environmental management, measurement, evaluation and auditing. They do not prescribe environmental performance targets, but instead provide

organisations with the tools to assess and control the environmental impact of their activities, products or services. The standards are designed to be flexible enough to be used by any organisation of any size and in any field. They address the following subjects:

- environmental management systems;
- environmental auditing;
- environmental labels and declarations;
- environmental performance evaluation; and
- life cycle assessment.

J

JI: →Joint Implementation.

Joint Implementation (JI): was understood between the Rio and Kyoto Conference as a concept where industrialised countries meet their obligations for reducing their greenhouse gas emissions by receiving →credits for investing in emissions reductions in other countries (derived from Art. 4, 2a of the →UNFCCC). JI would achieve greenhouse gas reductions in industrialised countries at much lower costs while providing foreign investment benefits to the host countries. After Kyoto, the term JI has changed its meaning and is now only used for projects in →Annex I countries with →ERUs accruing between 2008 and 2012 (→Article 6).

Junk Credits: Tradable emission rights with incomplete certification or questionable origin. →Hot Air, →compliance.

JUSSCANNZ: The non-European Union industrialised countries that meet periodically to discuss various issues related to climate change. These countries include Japan, the United States, Switzerland, Canada, Australia, Norway, and New Zealand. Russia and Ukraine started 1998 to take part in JUSSCANNZ negotiations and support JUSSCANNZ positions during →COP 4. At this time the term was changed into →Umbrella Group. Switzerland left it to form the →Environmental Integrity Group.

K

Kyoto Forest: Key to the identification and accounting of →sinks under the →Kyoto Protocol is a definition of forest that is consistent for all →Parties. There are many definitions of forest, based on land use status, (administrative/cultural records) or a minimum threshold of canopy cover and/or tree height. None however, were specifically designed for carbon accounting. The FAO and IPCC definition are most likely to be accepted.

Kyoto Mechanisms: Generic term for the →flexible mechanisms of the →Kyoto Protocol: →bubbles, →JI, →CDM and →international emissions trading.

Kyoto Protocol: An international agreement struck by 159 nations attending the Third Conference of Parties (→COP 3) to the →UNFCCC held in December 1997 in Kyoto, Japan to reduce worldwide emissions of greenhouse gases. Delegates to COP 3 agreed to the following specific provisions: Thirty-eight developed countries (→Annex B) agreed to reduce their emissions of six greenhouse gases. Collectively, developed countries agreed to cut back their emissions by a total of 5.2 percent between 2008 and 2012 from 1990 levels. The six gases include carbon dioxide, methane, nitrous oxide, and three ozone-damaging fluorocarbons not covered by the Montreal Protocol that banned global chlorofluorocarbons (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). The European Union agreed to reduce their emissions by 8 percent below 1990 levels; the United States signed on to a 7 percent reduction; and Japan agreed to a 6 percent reduction. Some countries, including Russia and Ukraine, were not willing to take any emission reductions while countries with smaller economies such as Iceland, Norway and Australia are allowed to actually increase their emissions.

L

Land Use, Land Use Change and Forestry (LULUCF): Art. 3.3. of the →Kyoto Protocol describes land use, land use change and forestry activities that require or allow the net GHG emissions from →sinks to be accounted for by →Parties in meeting their →emission targets. LULUCF was decisive for the failure of COP 6 in The Hague, as the →Umbrella Group wanted to add a number of additional sink categories such as forest

management and agricultural soils (Art. 3.4) whereas the EU wanted to cap the amount of additional sinks.

Lead Investor: Party within a group of investors that provides the majority of capital and/ or takes responsibility for dealing with official bodies concerning the development of a project.

Legally binding targets: →Kyoto Protocol →emissions targets in contrast to →UNFCCC targets are legally binding i.e. subject to compliance checks and sanctions in case the targets are not met.

Leakage: indirect effects of emission reduction projects or policies that lead to a rise in emissions elsewhere. E.g. fossil fuel substitution leads to a decline in fuel prices and a rise in fuel use elsewhere. In the case of →CDM/→AIJ→/JI projects in both forestry and energy sectors, leakage can be a result of unexpected effects including unforeseen circumstances, improperly defined →baseline, improperly defined project →lifetime or project boundaries, and inappropriate project design.

Letter of Endorsement: The letter from the →host country to the investor confirming that the host country is prepared to endorse further development of a →CDM/→JI/→AIJ project. →approval.

Liability rules: Rules established to allocate responsibility in case a →Party which has transferred parts of its assigned amount is found in non-compliance. Following principles are currently under discussion:

- Buyer beware, buyer liability: The buyer may not use all of the emission reductions acquired through trading if the issuing Party (seller) does not meet its emission objective.
- Buyer + insurance: Trading takes place under buyer beware; buyers must be insured when the acquire →AAUs first issued by a Party.
- Issuer beware, issuer liability: The issuer of assigned amount units is entirely responsible for its transfers; buyers are assured that AAUs issued on the market are valid.
- Issuer + tons in escrow: Trading takes place under issuer beware. For each trade, a percentage of the total traded must be set aside, to cover the risk of default by the

issuer. The tons set-aside could be certified emission reduction units from projects under the Clean Development Mechanism.

- Issuer + annual retirement: Trading takes place under issuer beware. At the end of every year, a Party must set aside an incremental quantity of AAUs either to cover its cumulative emissions, or a percentage of its assigned amount.
- Issuer + permanent reserve: Trading takes place under issuer beware. Parties must hold a share of their assigned amounts in a reserve, equal to five times the emission level of the Party's last inventory, and are only allowed to trade the remainder. See Compliance reserve.
- Issuer + annual surplus trading (post verification): Parties are allowed to transfer AAUs every year, corresponding to reductions under their assigned amount for that year. Parties must announce the annual allocation of their assigned amounts to the →UNFCCC Secretariat before 2008.
- Shared liability: In case of non-compliance by an issuing Party, the burden is shared among buyers and issuers, based on an agreed percentage.
- Traffic light option: As a default, Parties trade under issuer liability. In case a non-compliance problem is identified, transfers would go on under buyer beware. All trades may be stopped if the problem is not addressed.

Lifetime: →baseline lifetime, →crediting lifetime, →project lifetime.

Lithosphere: The solid part of the Earth, consisting of rocks, soil and sediments.

Little Ice Age: A period in Earth history that lasted from about 1550 to about 1850 in the Northern Hemisphere, when temperatures were somewhat colder than usual and glaciers extended over relatively large areas of North America, Asia, and Europe.

LULUCF: Land Use, Land Use Change and Forestry.

M

MAC: →Marginal Abatement Cost

Marginal Abatement Cost (MAC): Costs of preventing the emission of an extra ton of GHG from the current level.

Mauna Loa: A volcano on the island of Hawaii where scientists have maintained the longest continuous collection of reliable daily atmospheric records. The carbon dioxide record was begun in 1958.

Market barriers: In the context of climate change, this refers to conditions (such as policy and legal frameworks) that impede the diffusion of cost-effective technologies or practices that could mitigate GHG emissions. Among these are subsidies for fossil fuels and electricity.

Market-based incentives: In the context of →climate policy, this refers to measures (such as →subsidies, →emissions taxes, →emissions trading) intended to directly change relative prices of “climate-friendly” technologies in order to overcome →market barriers.

Market potential: The portion of the economic potential for GHG emission reduction or →energy-efficiency improvements that could be achieved under existing market conditions, assuming no new policies and measures.

Mechanisms: The →Kyoto Protocol establishes four mechanisms to increase the flexibility and reduce the costs of making emissions cuts; these are the →bubbles, →CDM, →JI and →International Emissions Trading. →Kyoto Mechanisms, →flexible mechanisms.

Methane: Second most important →greenhouse gas. A compound of one carbon and four hydrogen atoms produced by the decomposition of organic matter. Methane is the largest single component of natural gas. Common sources of methane emission are: rice cultivation, decomposing landfills, livestock, termites and coal mines.

Memorandum of Understanding (MOU): Agreement between partners of a project with limited juridical liability.

Misc. Docs: →Miscellaneous Documents

Miscellaneous Documents: In the context of international climate negotiations, miscellaneous documents are issued on plain paper with no UN masthead. They

generally contain views or comments submitted as received from a delegation without formal editing.

Monitoring: Monitoring refers to the periodic auditing of a →CDM/→JI/→AIJ project's performance and impact compared to original plans and projections expressed by a previously established →baseline. It involves collecting project data on GHG emissions reductions or other impacts that occur as a result of the project by direct measurement, and comparing it with the pre-established baseline scenario. Typically, project implementers monitor a project and provide data to a national AIJ/JI/CDM programme that has previously approved the project. This information is then used in the →host and investor country reports to the →UNFCCC Secretariat. In the case of CDM, data have to be provided to a →certifier for use in verification that the intended reductions did indeed occur.

Monitoring and Verification Protocol (MVP): Document issued during regular inspection following a prior elaborated procedure. The →Prototype Carbon Fund has developed the first MVPs for emission reduction and sequestration projects.

MOU: →Memorandum of Understanding

Multilateral CDM: CDM investment is channelled through a multilateral fund. →Prototype Carbon Fund.

Multilateral development banks: e.g. →World Bank, EBRD.

MVP: →Monitoring and Verification Protocol

N

National communications: A central requirement of the →UNFCCC and the →Kyoto Protocol is that each →Party must inform the others about its national climate change activities. →Annex I countries have submitted their second reports and developing countries have started to submit their first.

NGO: →Non-governmental Organisation

Non-Annex I country: All countries that do not belong to →Annex I of the →UNFCCC, i.e. the developing countries and some countries in transition.

Non-governmental Organisation (NGO): Any non-profit business association without direct governmental order. NGOs can be accredited as →observers to the climate negotiations. The →UNFCCC Secretariat has acknowledged three official NGO constituencies: environmental NGOs, business NGOs and local authorities that have widely different aims.

Nonlinearities: Changes in one variable cause a more than proportionate impact on an other variable.

Non-papers: In-session documents issued informally to facilitate climate negotiations. They do not have an official document symbol although they may have an identifying number or the name of the authors.

Non-Party: A state that has not ratified the →UNFCCC may attend international climate negotiations as an →observer.

“No-Regrets” measures: Policies, projects and measures that reduce GHG emissions which have no net cost or may even provide economic savings (also from environmental side-effects as reduction of local pollutants); an example might be mandating standards for more energy-efficient appliances and automobiles.

O

Observer: The →COP and its subsidiary bodies normally permit observers to attend their sessions. Observers may include the United Nations and its specialised agencies, →non-Party states, and other relevant →intergovernmental, governmental or →non-governmental organisations.

OECD: →Organisation for Economic Cooperation and Development

Offset: A unit of GHG emissions reduced, avoided or sequestered that compensates for the same quantity of GHGs emitted in another location.

OPEC: →Organisation of Petroleum-exporting Countries

Operational Entity: An independent →certifier within the →CDM →project cycle.

Options: Options provide a level of flexibility and risk management that can not be provided through other types of transactions, by giving the purchaser of the option the right but not the obligation to buy at a specified price for a specified premium. Options can give both buyer and seller the opportunity to hedge against price and regulatory risk. In an uncertain market, options allow traders to take early positions at relatively low cost. Options that specify the price of an acquisition are called “Calls” whereas those specifying a sale are “Puts”. Options also provide a window of time during which rules for trading will become more clear.

Organisation for Economic Cooperation and Development (OECD): It includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Korea, Japan, Luxemburg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. OECD hosts the →Annex I Expert Group and provides analysis of climate policy options for member states.

Organisation of Petroleum-exporting Countries (OPEC): OPEC has tried to block or slow down international climate negotiations from the beginning due to the fear that →climate policy and emissions →mitigation reduces OPEC’s income from oil and gas export. →Rules of Procedure.

Overselling: Situation where a →Party does not hold enough →AAUs to cover its emissions at the end of a →commitment period and has issued and transferred AAUs. The Party has therefore "sold" more AAUs than it was entitled to. →compliance reserve.

Ozone: O₃. A form of oxygen with three atoms of oxygen rather than the usual two. Ozone is a normal component of the atmosphere and forms a layer in the →stratosphere that absorbs ultraviolet radiation from sunlight. The ozone hole is a region in the

stratosphere over Antarctica where the density of ozone has decreased rapidly in the spring over the past decades. Ozone is one of the natural →greenhouse gases and thus plays a role in global →climate change; with ozone depletion, the upper atmosphere tends to cool slightly. Ozone is also produced in the →troposphere during the combustion of →fossil fuels on the Earth's surface is a form of air pollution that is produced when nitrogen oxides and hydrocarbons react in sunlight.

P

PAMs: →Policies and Measures

Particulate Matter (PM): A form of air pollution that includes soot, dust, dirt and →aerosols. It has readily apparent effects on visibility and exposed surfaces, and can create or intensify breathing and heart problems and lead to cancer and premature death.

Party: A state (or regional economic integration organisation such as the EU) that agrees to be bound by a treaty and for which the treaty has entered into force.

PCF: →Prototype Carbon Fund

Permanence: Carbon stored through →sequestration in a →reservoir can be released again. Only permanent reservoirs are acceptable for policy purposes. The →tonne year approach has been suggested to allow the use of non-permanent reservoirs.

PFC: Perfluorcarbons→Fluorocarbons

PM: →Particulate Matter

Policies and Measures (PAMs): In →UNFCCC jargon, policies are actions that can be taken and/or mandated by a government to accelerate the application and use of successful measures for greenhouse gas →abatement. Measures are technologies, processes and practices used to implement policies. Examples might include →emission or →energy taxes, efficiency standards, →subsidies, etc. Before →COP3, the EU argued for “common and coordinated” policies to be adopted jointly by Parties.

Polluter Pays: The principle which states that those who cause pollution should offset its effects by compensating for the damage incurred, or by taking precautionary measures to avoid creating pollution.

PPP: →Public Private Partnership

Precautionary Principle: The idea that action to forestall large-scale, irreversible damage from →climate change is warranted even though the risks of climate change are not yet fully understood. The precautionary principle thus puts a premium on the long-term safeguarding of the world's →climate system, even in the face of uncertainty about the impacts and the need to bear near-term costs of →mitigation.

Precession: The tendency of the Earth's axis to wobble in space over a 23,000 year period. The Earth's precession is one of the factors that results in the planet receiving different amounts of solar energy over very long periods of time.

Primary forest: Forest in its natural state without previous human interference.

Project Agreement: Legal binding agreement between the →host country and project sponsor and other involved parties in a →CDM/→JI/→AIJ project.

Project assessment: Assessing →CDM, →JI and →AIJ projects involves the following tasks: →Monitoring refers to the measurement and calculation of GHG emissions reductions and other impacts that occur as a result of the project. →Evaluation entails a more detailed analysis of project impacts than emissions monitoring. It involves both impact and process evaluation. →Reporting refers to the provision of information on measured project GHG and non-GHG impacts. →Verification refers to the assessment of whether the calculated GHG reductions from a project actually occurred. Verification is essentially an audit performed by a →certifier.

Project cycle: The development of a project until its successful end. In the climate policy context mainly used for the different steps of the →CDM.

Project Entity Agreement: Project Entity Agreement means an agreement between the investor and a Project Entity that provides, inter alia for the implementation, operation and →monitoring of a →project.

Project lifetime: overall duration of a CDM/JI project. Usually much longer than the →baseline lifetime and →crediting lifetime.

Project proponent: →lead investor.

Protocol: A protocol is linked to an existing convention, but it is a separate and additional agreement that must be signed and ratified by the Parties to the convention. Protocols typically strengthen a convention by adding new, more detailed commitments. →Kyoto Protocol.

Prototype Carbon Fund (PCF): The World Bank's PCF funds projects that produce high quality greenhouse gas emission reductions which could be registered under the →Kyoto Mechanisms. Independent experts will provide →baseline validation and verification/certification procedures for emissions reductions. It is financed with 180 million \$ by companies and governments.

Public Private Partnership (PPP): Coordination of public and private project investment.

Public Sector Participant: A government, agency, ministry or other official entity of a country →Party to the →UNFCCC.

Q

QELROs: →Quantified Emissions Limitation and Reduction Commitments.

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 for →Annex B countries.

R

Radiation balance: The difference between the amount of radiation absorbed by the Earth's surface and the amount re-emitted as infrared.

Radiative forcing: Increased concentrations of →greenhouse gases in the →atmosphere are enhancing the Earth's natural →greenhouse effect by trapping a greater proportion the outgoing terrestrial (infra-red) radiation. This increase in radiative forcing causes a temperature rise at the Earth's surface. Radiative forcing can be quantified in terms of Watts per square metre (W/m^2). The forcing value of a greenhouse gas is determined by a combination of factors including the radiation absorbing potential of the gas, its level of concentration increase in the atmosphere and its atmospheric lifetime. The forcing potential of a greenhouse gas is sometimes expressed as a →Global Warming Potential.

Ratification: After signing an international treaty such as the →UNFCCC or the →Kyoto Protocol, a country must ratify it, often with the approval of its parliament or other legislature. The instrument of ratification must be deposited with the depositary (in this case the UN Secretary-General) to start the 90-day countdown to becoming a →Party. There are minimum thresholds of ratifications for entry into force of international treaties.

Recommendation: Weaker than a decision or a resolution and not binding on Parties.

Reference case: Alternative scenario chosen to show improvements by investment in projects and to calculate the quantity of emission reductions. →baseline.

Reforestation: The act of restoring indigenous or exotic forests to lands originally covered by forests. Reforestation projects, if managed correctly, can →sequester carbon dioxide in the trees, roots, trunk and leaves.

Regional Groups: The official UN five regional groups meet privately in international negotiations 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).

Renewable energy: Renewable energy is energy derived from sources that do not use exhaustible fuels. These include: water (hydroelectricity), wind, the sun (solar energy), tides, and geothermal sources. Some combustible materials such as biomass can also be considered renewable. Others include landfill methane gas and municipal solid waste but this is not universally accepted. In general, renewable energy (with the exception of hydropower) is considered more expensive than energy derived from →fossil fuels. The

exception is dispersed rural areas where isolated solar or wind systems may be more cost effective than connecting to a national grid. Technical improvements especially for wind power reduced cost for investment greatly. Generally, renewable energy production (with the exception of geothermal and hydro energy) does not emit →greenhouse gases.

Reporting: Reporting is a critical feature in international →climate policy. It has to be done on the level of →Parties (→national communications) and →CDM/→JI/→AIJ projects. →In depth reviews check the quality of party reporting, →certifiers do it for project reports. In the context of the →Kyoto Protocol, reporting rules have been strengthened. Insufficient reporting can thus lead to →non-compliance and may lead to exclusion from the →Kyoto Mechanisms.

Repowering: Reconstruction or fuel change of existing power plants.

Reservation: A →Party may accept a decision of the →COP while noting its reservations and concerns for the record. However, no reservations could be made to the →UNFCCC itself or to →protocols.

Reservoir: A component or components of the →climate system where a →greenhouse gas or a precursor of a greenhouse gas is stored, e.g. vegetation or fossil fuels. →Sinks lead to the creation of reservoirs.

Residence time: The time during which some substance remains in a particular reservoir.

Resolution: Unlike decisions, resolutions do not generally become part of the formal body of decisions that guide the work of the →COP. They are directives that guide, opinions rather than permanent legal acts.

Restructuring: Changes in the ownership or internal operation of a public utility, and is often used to describe the broader concept of increased competition in the electricity industry.

Retiring: Owners of →emission permits are not obliged to use or sell them. In the U.S. trading systems, some manufacturers donated permits to environmental NGOs to reduce the overall volume of emissions.

Revenue recycling: The revenue raised by an environmental policy is used to reduce other distortionary taxes or government deficits or is rebated to households.

Revolving fund: Income (e.g. from sales of →emission permits) is reinvested in further projects for the generation of emission permits.

Rules of Procedure: The rules that govern the proceedings of the →COP, including the procedures for decision-making and participation. The COP has not yet adopted the rules due to the resistance of →OPEC and all except one (on voting) are currently being "applied" meaning that there is always need for consensus.

S

SAR: →Second Assessment Report

Satellite Remote Sensing: The collection of data on land use, industrial activity, weather, climate, geology and other processes through Earth observations from satellites in outer space. There is a famous controversy on satellite temperature measurements that do not show the same warming as surface temperature measurement. However, recent adjustments of the satellite measurements also show a warming trend.

SBI: →Subsidiary Body for Implementation

SBSTA: →Subsidiary Body for Scientific and Technical Advice

Scientific and technical advisory panel (STAP): Defines criteria for eligibility and priorities for →GEF projects.

Second Assessment Report (SAR): Also known as Climate Change 1995, the →IPCC SAR was written and reviewed by some 2,000 scientists and experts world-wide. It concluded that “the balance of evidence suggests that there is a discernible human

influence on global climate” and confirmed the availability of “no-regrets” options and other cost-effective strategies for combating climate change.

Secretariat: →UNFCCC Secretariat.

Sensitivity: The degree to which a system will respond to a change in climate conditions.

Sequestration: The process by which a substance is removed from the free state and tied up in some other material. For example, carbon dioxide is sequestered - removed from the atmosphere - when it is used by green plants to make carbohydrates during the process of photosynthesis.

Side Effects: →leakage. Positive or negative effects, which occur in conjunction with the realisation of GHG reduction/→sequestration projects.

Signature: The head of state or government, the foreign minister, or another designated official indicates his or her country’s agreement with the adopted text of an international treaty and its intention to become a →Party by signing.

Sinks: Any process or activity or mechanism which removes a →greenhouse gas or a precursor from the atmosphere such as oceans, forests, agricultural soils and other media that →sequester carbon.

SO₂: →Sulphur dioxide

Source: Any process or activity which releases a →greenhouse gas or a precursor into the →atmosphere.

Square brackets: Used during negotiations to indicate that a section of text is being discussed but has not yet been agreed.

Stabilisation target: The →UNFCCC contains a non-binding target for →Annex I countries to return CO₂ emissions to 1990 values by 2000. This target has only been reached by a very small set of countries (UK, Germany, countries in transition) and these countries reached it only due to specific economic circumstances.

Stratosphere: Region of the atmosphere between the troposphere and the mesosphere. It extends from an altitude of about 15 to 50 kilometres.

Streams: Both immediate and forward settlement is available for streams of →allowances of consecutive →vintages. Streams of consecutive vintages allows the buyer to secure the emission reduction credits of the vintages that he/she considers most valuable. It also allows the seller to package and receive revenue for →credits generated over a long period of time.

Subsidiary body: A committee that assists the →COP. Two permanent ones are defined by the Convention: the →Subsidiary Body for Implementation and the →Subsidiary Body for Scientific and Technological Advice. COP 1 also established two other 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 is the permanent body established to assist the →Parties to the →UNFCCC to assess and implement the UNFCCC.

Subsidiary Body for Scientific and Technical Advice (SBSTA): The SBSTA was established to provide the →COP and its subsidiary bodies with information and advice on scientific and technological matters such as coming from the →IPCC relating to the →UNFCCC.

Subsidies: Subsidies play a double role in →climate policy. On the one hand, they can foster the development of →renewable energy (e.g. in Germany) and →energy efficiency. On the other hand, they can block emissions reduction if they are used to reduce the cost of →fossil fuel (e.g. coal in Germany) or electricity (in many developing countries).

Sulphate aerosol: Particulate matter that consists of compounds of sulphur formed by the interaction of sulphur dioxide and sulphur trioxide with other compounds in the atmosphere. Sulphate →aerosols are injected into the atmosphere from the combustion of →fossil fuels and the eruption of volcanoes like [Mt. Pinatubo](#). Sulphate aerosols may lower the earth's temperature by reflecting away solar radiation.

Sulphur dioxide (SO₂): SO₂ is most prevalent in the combustion of coal and leads to the formation of →sulphate aerosols. As SO₂ has been reduced considerably in the industrialised countries the cooling effect of sulphate aerosols has been reduced which explains the fast warming over the last two decades.

Supplementarity: →Article 17 of the →Kyoto Protocol specifies that trading be “supplemental” to domestic actions for the purpose of meeting →QELROs. According to one point of view, supplementarity should be implemented by imposing a →cap, or fixed numerical restriction, on the quantity of emissions reductions that can be achieved internationally, as opposed to via domestic actions and policies. The theory behind this perspective is that, in the absence of pressure to change production and consumption patterns at home, countries with high energy intensities will not have an incentive to spur innovation and adopt new, cleaner technologies and practices. The →EU has argued for a quantitative limit (ceiling) on acquisition and sales of →emission permits.

Sustainable Development: Concept referring to the need to balance the satisfaction of near-term interests with the protection of the interests of future generations, including their interests in a safe and healthy environment. As expressed by the 1987 UN World Commission on Environment and Development (the “Brundtland Commission”), sustainable development “...meets the needs of the present without compromising the ability of future generations to meet their needs” Sustainable Development is a major goal of the →CDM.

Sustainability Assessment: Report on long-term social, economic and environmental impacts of a project.

T

TAR: →Third Assessment Report

Targets & timetables: The →targets under the →Kyoto Protocol refer to specific time periods. →QELROS, →emissions budget, →commitment period, →Assigned Amount).

Tax-Interaction: An effect that occurs when environmental policies, such as →emission taxes or →permits, and the conventional tax system interact. This effect is

the cost of the overall reduction in employment and investment caused by environmental policies, which exacerbate the distortionary effects of pre-existing taxes on labour and capital.

Technology-forcing regulations: Requirements and standards set by governments to catalyse environmental research and development. Some examples include corporate average fuel economy regulations for vehicles and other →energy efficiency requirements.

Technology transfer: Process by which energy-efficient technologies and processes developed by industrialised nations are made available to the less-industrialised nations. These transfers may be conducted solely through the efforts of private parties or may involve governments and international institutions. Article 4.5 of the →UNFCCC and Art 10 c of the →Kyoto Protocol ask for technology transfer. →Climate Technology Initiative, →CDM.

Third Assessment Report (TAR): The →IPCC Third Assessment Report is published in 2001.

Threshold: It is likely that there are →threshold effects for →irreversibility of climate change. Other thresholds are used in the context of climate policy measures. The U.S. have argued for a performance threshold for →additionality determination under the →CDM.

Threshold effects: There is a risk that if a certain rate/threshold of climate change is surpassed, there may be sudden reactions of the global climate system which may be →irreversible such as diversion of the gulf stream or the disintegration of the West Antarctic ice shelf.

Tonne year: To solve the problem of →permanence of →reservoirs and →sinks, the tonne year concept calculates the overall cooling effect caused by sequestration of a tonne during one year. The calculation of the cooling effect is derived from the decay of →greenhouse gases in the atmosphere. There is still methodological discussion on the functions and timeframes to be used. Generally, the annual emissions →credit from tonne-years is much lower than the amount sequestered in the first years of a sequestration project.

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

Tradable Emissions Permits: →emissions trading, →credits, →offsets.

Transparency: Transparency in objectives, results and methods used to obtain and certify data is the key to smoothen operation of →Kyoto Mechanisms and to the credibility of →climate policy as a whole.

Tree rings: Using tree rings, past climate changes can be reconstructed on regional scales for the last millennia.

Tropical air: →"hot air" created by the overly loose setting of an emission target for a developing country (Non→Annex B country)

Troposphere: The lowest layer of the atmosphere, extending from the Earth's surface to an altitude of about 15 kilometres.

U

Umbrella Group: Since 1998 the name of the former →JUSSCANNZ group in the international negotiations consisting of the USA, Russia, Japan and the Non-European OECD countries. It strives for maximum flexibility.

UNCED: [The United Nations Conference on Environment and Development](#), convened in Rio de Janeiro, Brazil, in 1992. Also called the →Earth Summit.

UNFCCC: →United Nations Framework Convention on Climate Change.

UNFCCC Secretariat: The Secretariat of the →UNFCCC is located in Bonn and employs almost 100 experts who organise the international climate negotiations. It

makes arrangements for meetings, compiles and prepares reports, and coordinates with other relevant international bodies. Secretariat members are employed by the U.N.

Uniform Reporting Format: Standard evaluation form issued by the →UNFCCC for →reporting on →AIJ projects.

Unilateral CDM: →CDM where host country sells →CERs on its own without a project investor from an →Annex I country.

United Nations Framework Convention on Climate Change (UNFCCC): The United Nations Framework Convention on Climate Change is a multi-lateral agreement that lays the basis for international climate negotiations. The Convention's primary objective is the "stabilisation of →greenhouse gas concentrations in the →atmosphere at a level that would prevent dangerous anthropogenic (man-made) interference with the climate system". It also requires that all signatory parties develop and update national inventories of anthropogenic emissions of all greenhouse gases not otherwise controlled by the Montreal Protocol. Moreover, it contains the non-binding target to reduce the emissions of GHGs of →Annex I countries to 1990 levels by the year 2000 (→stabilisation target). The UNFCCC was one of several agreements to come out of the 1992 U.N. Conference on Environment and Development in Rio de Janeiro, Brazil, and has been ratified by over 180 countries. It entered into force on March 21, 1994.

Upstream: refers to the point (or close to it) where →fossil fuels enter the economy, i.e. at production or import. Domestic →emissions trading systems can either choose an upstream or →downstream approach.

V

Validation: Assessment by a →certifier of a →CDM/→JI project design, including its →baseline, before the project's implementation.

Value chain: In the context of project-based →Kyoto Mechanisms this means the process from the idea to set up the project to the creation of the (certified) emissions reductions. →project cycle.

Verification: The periodic auditing of the data of emission reductions achieved by a →CDM/→JI/→AIJ project and the project's compliance with other relevant requirements by a →certifier. Verification is a “reality check” on the books. It involves physical, on-site inspection, or where useful, deployment of techniques such as remote sensing, or interviewing relevant personnel in person or otherwise.

Vintaging: The idea of identifying →ERUs and →CERs for reporting and tracking purposes by attaching a label expressing year of origin, country of origin and, in the case of CERs, the project of origin – much as a bottle of wine is identified by its vintage. Vintaging enables →Parties to track all transfers, enabling transparency, integrity and accountability to be maintained. In a manner somewhat analogous to preferred stock or municipal bonds, the ERUs or CERs could be tracked, and in the case of a country overselling, or, exporting while exceeding their assigned amounts, appropriate compliance measures could be taken. Vintaging could be an especially valuable tool if active secondary and tertiary markets for ERUs and CERs develop.

Voluntary agreements: Measures to reduce GHG emissions that are adopted by private firms or other organisations in the absence of or in exchange against government regulation. Voluntary measures have a mixed record concerning effectiveness to reduce emissions. Most refer to specific emission targets (i.e. emissions per unit of production) and thus do not deliver reductions if production grows.

Voluntary commitments: During the Kyoto negotiations, a draft article that would have permitted developing countries to voluntarily adhere to legally binding →emissions targets was dropped in the final hours. This issue remains important for the U.S. and may be discussed in future →COPs.

Vulnerability: Vulnerability defines the extent to which climate change may damage or harm a system. It depends not only on a system's sensitivity but also on its ability to adapt to new climatic conditions.

W

Working Paper: Informal version of an article intended for publication after review. Serves to elicit comments from climate policy community.

World Bank: Multilateral Banks within the UN system: International Bank for Reconstruction and Development, the International Finance Corporation, the International Development Association and the Multilateral Investment Guarantee Agency. The World Bank houses the →GEF and the →Prototype Carbon Fund.

X

Y

Z