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International Climate Negotiations Glossary

Michelle Melton and Sarah Ladislaw

This glossary provides an overview of terms used by negotiators and others when discussing international climate negotiations. While several excellent climate glossaries exist—including from the U.S. Environmental Protection Agency and the United Nations Framework Convention on Climate Change (UNFCCC)—that provide technical definitions of terms, this glossary also provides the political and economic context for understanding the developments leading up to the Conference of Parties 21 (COP 21) in Paris in December 2015. At COP 21, Parties to the UNFCCC will be negotiating an international agreement that provides the framework for greenhouse gas emission reduction beyond the year 2020.

2-degree target: The UNFCCC agreed to a goal to limit anthropogenic temperature rise below 2 degrees Celsius (3.6 degrees Fahrenheit) relative to preindustrial levels, which corresponds roughly to carbon dioxide (or carbon dioxide equivalent, CO_{2e}) concentrations in the atmosphere of 450 parts per million. The current scientific consensus, as expressed by the Intergovernmental Panel on Climate Change (IPCC) and others, is that beyond that threshold, the weather and environmental impacts of climate change risk becoming irreversible, unpredictable, and dangerous.

The principle of limiting warming to no more than 2 degrees was first discussed in the 1970s. The European Council formally adopted it as an aspirational target in 1996 and the UNFCCC followed suit by formally recognizing the target in the 2009 Copenhagen Accord (which was not adopted), and committing to the target in the 2010 Cancun Agreements.

The 2-degree target is somewhat controversial. Several countries and many environmental organizations have called the 2-degree target inadequate. These countries, led by the small island developing states but including others, argue that warming of 2 degrees will profoundly impact their economic and social environments and have pushed for a more stringent target of 1.5 degrees. At the same time, the current scientific consensus is that, without significant mitigation action, warming is likely to surpass the 2-degree target. Any agreement reached in Paris in December 2015 is unlikely to secure commitments to keep warming within this threshold. Critics of the target argue that it is solely an aspirational and political target, lacks a scientific basis, and is overly simplistic, insufficiently ambitious, and infeasible.

Adaptation: Efforts undertaken to prepare for and reduce vulnerability to changes resulting from climate change. Adaptation is necessary because even under the most ambitious mitigation scenarios there will be climate impacts. Adaptation can be evolutionary or abrupt, proactive or reactive, as well as protective or opportunistic. It can be taken by governments at national, regional, or local levels, and by individual citizens and businesses in their investment and behavioral decisions. As with mitigation, the capacity of countries and regions to adapt to climate change varies. Examples of adaptation include adopting drought-tolerant crops, building sea walls, improving evacuation routes and planning for low-lying areas, and hardening infrastructure to withstand stronger storms, among others.

Over time, adaptation has become more formally integrated into the UNFCCC negotiations, and adaptation is now a major pillar, along with mitigation, of the negotiations. Technical discussions under the UNFCCC have focused on developing adaptation best practices and creating the international architecture for financing and sharing those best practices. In the current round of international negotiations, unanswered technical questions include which types of countries should develop long-term national adaptation plans, whether action on adaptation should be required in formal commitments, how to measure and assess country efforts toward adaptation, how to pay for adaptation in developing countries, and how to balance investments in adaptation with those in mitigation.

Additionality: Additionality is a determination of whether a proposed activity is additive relative to a specified baseline. Within climate change, additionality refers to either emission reductions or financing. Emission reductions that would not have otherwise occurred in the course of a defined business as usual are considered additional. Within climate finance, additionality refers to the concept that financial resources devoted to climate change should not substitute or divert from funding that would otherwise be devoted to other issues (such as economic and social development), but be *additional* to other bilateral/multilateral overseas development assistance. The UNFCCC, the Kyoto Protocol, the Bali Action Plan, and the Copenhagen Accord all call for "new and additional" climate financing for developing countries. Technical discussions focus on how to verify that projects and financing are additional, and against what baseline additionality should be measured.

Many in the climate community believe that only projects that result in additional emission reductions should be formally credited. Whether a particular project or abatement action is truly additional—or would have been taken regardless of pledged action—is a longstanding concern among the climate community. Assessing additionality with certainty is difficult, as it is inherently a counterfactual.

Annex I, Annex II, non-Annex I, and Annex B Parties: Under the original UNFCCC treaty and the subsequent Kyoto Protocol, all Parties have commitments to address climate change, taking into account their common but differentiated responsibilities and development priorities. However, while all Parties share common commitments to address climate change, their obligations to do so differ based on the categories enshrined in the UNFCCC. Parties to the

treaties are divided into three categories based on their level of economic development: Annex I, Annex II, and non-Annex I.

Annex I Parties are those countries that were members of the Organization for Economic Cooperation and Development (OECD) in 1992 as well as economies in transition (or former Soviet bloc countries). Under the framework, Annex I countries have an explicit obligation to "take the lead" by adopting national policies on mitigation and limit emissions of greenhouse gases. Annex II countries are Annex I countries excluding the economies in transition; these countries have an obligation to provide new and additional financial resources to meet the costs incurred by developing country Parties in responding to climate change. Non-Annex I countries are those not included in the Annex I list (developing countries). Under the convention, non-Annex I countries have a commitment to put in place mitigation measures to address emissions and take climate considerations into account; however, they do not have obligations to put in place national policies to reduce emissions and are not considered primarily responsible for stabilizing greenhouse gas concentrations in the atmosphere. The UNFCCC is also explicit that non-Annex I country commitments are contingent upon access to financial and technological resources provided by developed countries.

Annex B refers to Annex I Parties assigned emission reduction targets under Annex B of the Kyoto Protocol. These include Australia, Bulgaria, Canada, Croatia, Czech Republic, Estonia, Hungary, Iceland, Japan, Latvia, Lichtenstein, Lithuania, Monaco, New Zealand, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Switzerland, Ukraine, and United States. (The United States was assigned a Kyoto target under Annex B but did not ratify the Kyoto Protocol; Canada was also assigned a target but withdrew from the Kyoto Protocol in 2011.)

The division of Parties into categories has been a controversial element of the UNFCCC structure, especially since the emissions profile of many developing countries has changed but the group of Annex I countries has not. While developed countries recognize their historical responsibility for climate change, many argue that the Annex categories no longer reflect today's global economic order (for example, some Annex I countries have per capita GDP below many non-Annex I countries) nor the reality that non-OECD countries, primarily China and India, are major emitters. Furthermore, they argue that the Annex I/non-Annex I division is not a durable long-term framework for continuing climate action because the division is static, preventing it from evolving to reflect Parties' new capabilities and changed circumstances. Therefore, they argue, it is neither fair nor effective for the developed world (Annex I countries), which represents a shrinking share of global emissions and the global economy, to disproportionately shoulder responsibility for emissions reduction in perpetuity. Developing countries have largely resisted these arguments, making the case that historical responsibility (e.g., cumulative emissions), not differentiated capabilities, should be the criterion in deciding which countries should be required to act on climate.

Bali COP: COP 13, held in Bali, Indonesia, in December 2007, set forward the path for international action on climate change under the UNFCCC. Under the Bali Road Map, the Parties

agreed that all countries—not simply only Annex I Parties—should take enhanced action on climate change mitigation, with Annex I Parties taking on mitigation "commitments" and non-Annex I Parties taking mitigation "actions." In addition to this decision, the Bali Road Map included the establishment of an Adaptation Fund, the review of the financial mechanism, a decision on forestry issues, and a decision on technology transfer. The Bali Road Map also includes the Bali Action Plan, which further elaborated the path forward on long-term cooperative action.

The real achievement of the Bali COP was that, for the first time, mitigation action—although not commitments—was explicitly required from the developing world, which chipped away at the Annex I/non-Annex I framework that had dominated previous international climate action.

Baseline/base year: The emission pathway and year against which emission reductions are measured. For example, the United States has a target of 26 to 28 percent net emissions reduction, compared with a base year of 2005.

The choice of base year matters greatly. Choosing a base year with high emissions makes a target relatively less stringent, while choosing a base year with relatively low emissions makes a target more stringent. The same year could be more stringent for some countries and less stringent for others. For example, in 1990, Western European countries had relatively low emissions, while Russia and other former communist countries had relatively high emissions and saw their emissions decline dramatically after the breakup of the Soviet Union. Therefore, if measuring from a base year of 1990, achieving significant emission reductions would be relatively easier for Russia and other former Soviet economies than for Western Europe. Moreover, when countries select different base years from one another, it is more difficult to compare emission reduction targets and assess comparability. Further, some countries may eschew a base year altogether and choose to measure emission reductions against a business as usual scenario.

Black carbon: Black carbon is a component of particulate matter that absorbs heat in the atmosphere and reduces the reflection of sunlight back into space. It is also a local air pollutant. Black carbon stays in the atmosphere for a short time (up to several weeks) and is considered a short-lived climate pollutant (SLCP).

Black carbon is not covered by the UNFCCC and was long considered less important than greenhouse gases in terms of its effects on climate change. Recently, however, it has been the focus of attention both within and outside the UNFCCC negotiations as a near-term way to reduce atmospheric warming and local air pollution.

Border tariff/border tax adjustment: An international trade measure that levies a tax on imports from which exports and domestically produced goods and services are exempt. Border adjustments can also take the form of domestic production rebates, emission allowances, or tax rebates. For example, climate legislation proposed in the Senate (S. 2191) several years ago

would have required importers to purchase allowances to cover the emissions of goods from countries that did not have adequate climate policies. There are currently no carbon border adjustments in place.

In the context of climate change, border adjustments aim to address carbon leakage by equalizing the playing field between economies that have adopted climate policies and those that have not (or between economies with more and less stringent policies). Whether border adjustments would actually address leakage is a subject of debate. Border adjustments are likely to be an ongoing feature of debates about fairness, comparability, and ambition of individual country climate action in the context of a bottom-up international agreement. Their relevance is not necessarily because they are effective but instead are a potentially attractive mechanism for diffusing domestic political concerns about harming domestic economic competitiveness through environmental regulation.

Bottom-up: A reference to the method of negotiations, where specific mitigation actions and targets for emission reductions originate with individual Parties and are assembled by international negotiators to create a deal.

The 2015 Paris negotiations (and the Copenhagen Accord that preceded it) are a hybrid of top-down and bottom-up negotiations: There is an agreement on general principles (e.g., stabilizing greenhouse gas contributions in the atmosphere), goals (e.g., the 2°C target), and frameworks for monitoring and review, but contributions are submitted by national governments (bottom up) to form the deal. This bottom-up pledging process is in contrast to top-down emission allocation under the Kyoto Protocol.

Business as usual (BAU): Business as usual is a projection of emissions if there are no additional policy actions and other factors (such as technology cost, economic growth, supply, and demand) advance at a rate of growth similar to the recent past. BAU projections often serve as a baseline for comparing another emissions trajectory or for setting an emission reduction target.

Because BAU projections must make many assumptions about the future and therefore many BAU inputs are subjective, the construction and reasonableness of a BAU forecast is an issue of concern when assessing the contributions of specific countries that have taken on BAU targets.

Cancun Adaptation Framework: The Cancun Adaptation Framework, adopted at COP 16 in Cancun, Mexico, in 2010, was the first time that Parties officially recognized adaptation as a priority on the same level as mitigation. The Framework aims to enhance consideration of, and action on, adaptation. The Framework calls for better planning and implementation with regard to adaptation projects in developing countries by enhancing risk-reduction strategies, creating early-warning systems, assessing and managing risk, and implementing sharing and transfer mechanisms. In addition, the Framework established a permanent Adaptation Committee under the UNFCCC and established a process for least-developed countries to

formulate and implement national adaptation plans. Finally, it established a work plan to consider loss and damage.

Cancun Agreements: The Cancun Agreements are a group of decisions taken at COP 16 in Cancun, Mexico, in 2010 that formally adopted and fleshed out the outcomes of COP 15 in Copenhagen, which failed to reach adoption. The Cancun Agreements established the parameters for international climate action for the period 2013–2020. The Cancun Agreements cover the mitigation commitments and actions of Parties that had submitted them to the UNFCCC in the wake of Copenhagen, the Green Climate Fund, the Technology Mechanism, the Cancun Adaptation Framework, fast-start finance and long-term finance (to provide $30 billion in financing through 2012 and $100 billion in long-term funds by 2020), and reference levels for forestry management.

The Cancun Agreements are significant because they more firmly embedded the principles of the Copenhagen Accord into the formal negotiations. Unlike the Copenhagen Accord, whose legal status was unclear, the Cancun Agreements were formally adopted by the COP. Moreover, the Cancun Agreements provided much more detail and institutionalization than the Copenhagen Accord. The Agreements set up institutional structures within and outside the COP itself that serve as the architecture for much of the multilateral activity on climate change today. Therefore, the Cancun Agreements can be seen as the platform from which countries could agree upon further coordinated international action in a post-Kyoto world.

Carbon dioxide: A naturally occurring greenhouse gas that is also a by-product of burning fossil fuels and biomass as well as land-use change and other industrial processes.

Since industrialization, the amount of carbon dioxide in the atmosphere, measured in parts per million (ppm), has risen from 250 to over 400. The scientific community has generally agreed that to stave off the worst effects of climate change and keep warming within the internationally agreed limit of 2°C, carbon dioxide levels should not rise above 450 ppm.

Carbon dioxide equivalent (CO_{2e}): Carbon dioxide equivalent is a measure that allows comparability between different greenhouse gases, each of which have different global warming potentials. For example, the United States emitted 5,613 tons of carbon dioxide in 2011, but its total gross emissions were 6,702 tons of carbon dioxide equivalent once other greenhouse gases (including methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) were included.

Carbon intensity: The rate of carbon dioxide emissions per unit of an activity—in the international climate negotiations, generally in terms of gross domestic product. Historically, carbon intensity has declined as national income rises and the service sector comprises a relatively larger share of output.

Some Intended Nationally Determined Contributions (INDCs) are expected to be expressed as intensity targets. These types of targets are favored in part because they are perceived not to place any limit on absolute economic growth.

Clean Development Mechanism (CDM): The Clean Development Mechanism is one of three flexible market-based mechanisms under the Kyoto Protocol, along with the Joint Implementation and international emission trading. The CDM allows countries with emission reduction commitments under the Kyoto Protocol (developed countries) to meet their targets by purchasing credits from emission reduction projects in developing countries. In this way, it was also designed to incentivize finance and technology transfer to participating developing countries. In exchange for finance and technology transfer, the CDM provides developed countries lower-cost abatement options. There are a wide range of CDM projects, including capturing and destroying methane from landfills, livestock, oil fields, coal mines, and wastewater, the installation of wind and hydropower projects, and energy efficiency, among others. CDM also allow credits for afforestation and reforestation of land that did not contain forest on December 31, 1989.

Despite attempts to ensure that emission reductions from CDM are real and verifiable, there are concerns about the environmental integrity of some CDM projects. In particular, it is often difficult to demonstrate that a project is genuinely additional.

CMP (Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol): Meeting of Parties to the Kyoto Protocol. CMP meetings take place simultaneously with COP meetings.

Commitment period: The period over which governments commit to reduce their greenhouse gas emissions.

The Kyoto Protocol had two commitment periods. The first was between 2008 and 2012 and set a reduction target of 4.2 percent relative to 1990 levels for Parties to the Protocol. The second commitment period under the Kyoto Protocol is between 2013 and 2020 and requires reductions of 18 percent relative to 1990 levels.

The post-2020 commitment period (expressed as a target year rather than a formal commitment period) for the new international agreement is a subject that the negotiators will take up at the Paris COP in 2015. Some parties, such as the United States, have stated a preference for a commitment period of five years (e.g., a target year of 2025); others, such as the European Union, have expressed their preference for a 10-year commitment (a target year of 2030). Proponents of a shorter commitment (3–5 years) under a new agreement argue it allows for more regular revisions to emission reduction commitments to adjust for changing economic, technological, and political circumstances. A longer commitment period (10 years) arguably provides for political stability and serves as a political symbol of a longer-term commitment.

1616 RHODE ISLAND AVENUE NW
WASHINGTON, DC 20036
TEL. (202) 887.0200
FAX (202) 775.3199

Common but differentiated responsibilities and respective capabilities (CBDR): The principle that all states have a common interest in and responsibility for addressing climate change but that not all countries contributed equally to emissions or are equally able to address climate change. As a result, Parties have a common responsibility to address climate change, but these responsibilities are differentiated based on historical emissions and the differing technical and economic ability of countries to deal with climate change. This fundamental principle is enshrined in the UNFCCC.

CBDR is at the heart of the UNFCCC negotiations. In the convention, CBDR underpins with the differentiation of Parties into Annex I and non-Annex I categories. As the negotiations have evolved and the economic circumstances of Parties have changed, some Parties take issue with some countries' expression of their capabilities and responsibilities, but not with the CBDR principle itself. CBDR is important in the discussions about comparability, fairness, and ambition of INDCs.

Consensus rule: Decisions in the COP are made through consensus. Consensus must be achieved, but this does not mean that all countries must actively support an agreement in order for it to be adopted; they must simply not object. If a Party objects, a decision is not adopted. The UNFCCC treaty contains provisions for majority vote where consensus cannot be reached, but because consensus has not been reached on voting procedures, the consensus rule stands.

Achieving consensus in a multilateral forum that has nearly 200 members is difficult even when interests are aligned and generally agree on principle. The necessity of achieving consensus gives every country, regardless of size, leverage and the ability to block a UNFCCC decision over even the most minor of details. Some have argued that negotiating by consensus is unnecessarily burdensome and leads to less ambitious, "common denominator" outcomes than another system might. Defenders of the consensus rule argue that it safeguards the interests of all Parties and provides global legitimacy to international climate agreements.

COP (Conference of Parties) (pronounced like the word "cop")**:** The Conference of Parties is the governing body of the UNFCCC, composed of countries that have ratified the UNFCCC (Parties). The COP meets every year to review implementation of the UNFCCC and adopt decisions and resolutions to further the goals of the UNFCCC. Each meeting is referred to by its place and year. The conference held the first year after the UNFCCC was ratified (held in Berlin in 1995) is referred to as COP 1, the second year's meeting is COP 2, and so forth. The December 2015 meeting in Paris is COP 21. COP meetings are held at the same time as CMP conferences, and therefore meetings are sometimes referred to by both their COP and CMP numbers (e.g., COP 13/CMP 3).

Copenhagen Accord: The Copenhagen Accord was taken note of during the Copenhagen negotiations (COP 15) in December 2009. The Accord, which is not legally binding, addresses international action on mitigation and adaptation to 2020. The Accord was the first time that the entire international community recognized the goal of limiting warming to 2°C in order to avoid

the worst effects of climate change. In addition, it agrees that Annex I Parties will commit to economy-wide emission reduction targets for 2020 and that non-Annex I Parties will also commit to take mitigation actions. In the Accord, Parties also agreed that Annex II countries would mobilize additional financing of $100 billion per year by 2020 from governmental and private sources and establish a Green Climate Fund to support projects and activities in the developing world. However, the Accord had unclear legal standing (the COP "took note" of the Accord but did not formally adopt it). All of the pledges made in the Accord were later formally adopted in the Cancun Agreements.

The Copenhagen Accord was negotiated at the eleventh hour by 20 representatives of the major negotiating blocks, including the United States, the United Kingdom, Germany, and the BASIC countries (Brazil, South Africa, India, and China). When the Agreement was brought back to the full COP for adoption, a few countries opposed its adoption. The Accord was criticized for its failure to achieve a legally binding agreement and for its failure to secure the emission reduction pledges necessary to achieve the stated goal of limiting warming to no more than 2°C. However, Copenhagen was also a milestone, as it was the first time that all the world's major economies, regardless of their development status, offered nonbinding emission reduction pledges were offered by all the world's major economies, regardless of their development status.

Doha Amendment: An amendment to the Kyoto Protocol adopted in December 2012 at COP 13/CMP 8 in Doha, Qatar. The amendment establishes the second commitment period of the Kyoto Protocol from 2013 to 2020, and sets emission reduction targets for Annex B Kyoto Parties of 18 percent below 1990 levels during the second commitment period on aggregate. Only a handful of Parties have ratified the Doha Amendment and it has consequently not entered into force. All Annex I countries that submitted commitments under the Kyoto Protocol, however, also pledged identical commitments under the Cancun Agreements.

Durban Platform for Enhanced Action/Durban outcomes: The Durban Platform for Enhanced Action is one of the outcomes of the COP 17 held in Durban, South Africa, in 2011. In Durban, the Parties agreed to develop a new "protocol, another legal instrument or an agreed outcome with legal force under the Convention" that would apply to all Parties and for the period beyond 2020. The Durban Platform for Enhanced Action is the platform within the UNFCCC for negotiating the new and universal greenhouse gas reduction agreement. The Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) is the subsidiary body established at Durban to develop the form and content of the new international agreement. Negotiators are expected to finalize the text of this agreement at the Paris COP in December 2015.

Emissions: The release of a substance into the atmosphere from a source; in the case of climate change, the substance is generally a gas or particulate matter. For the purposes of reporting annual inventories to the UNFCCC, emissions include carbon dioxide (CO_2), methane (CH_4),

nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), which are measured in metric tons of carbon dioxide equivalent (CO_{2e}).

Finance: Addressing climate change—mitigation and adaptation—requires large-scale investments in physical assets, technology, research, and human capital. The UNFCCC defines climate finance as "local, national, or transnational financing, which may be drawn from public, private and alternative sources of financing" that addresses climate change.

Financing is an important part of all UNFCCC agreements. Annex II Parties are committed under the UNFCCC to provide financial resources to assist developing countries transition to a low-carbon economy and adapt to the impacts of climate change. In 2009, developed countries announced that they would collectively raise the level of climate finance to $100 billion per year by 2020 (including from public and private sources). The Parties have created several mechanisms to provide, facilitate, and develop financing, including the Standing Committee on Finance, the Green Climate Fund, and the Finance Portal.

All Parties accept the necessity of finance for ensuring a smooth transition to a low-carbon economy. However, despite decades of discussion and review, there are no clear rules about what constitutes legitimate climate finance expenditures (e.g., whether providing financing for high-efficiency coal plants should be considered climate finance). And there is no consensus about how much is needed, who will provide necessary funding, and what individual countries must do to access climate finance. Much discussion in the lead-up to the Paris COP focuses on how the $100 billion per year by 2020 will be delivered, and what share particular donor countries will take on.

Geoengineering (also called climate engineering): Geoengineering is the attempt to intervene in the Earth's climate at a large scale. Geoengineering technologies can be divided into solar radiation/albedo modification (efforts to reflect more sunlight out of the atmosphere) and carbon dioxide removal (efforts to change the concentration of carbon dioxide in the atmosphere). Several geoengineering assessments have been conducted at the national level, and the IPCC released a synthesis report of its 2011 expert meeting on geoengineering. That expert report focuses on terminology. To date, geoengineering has not been formally considered under the UNFCCC.

Geoengineering is extremely controversial for scientific, political, and moral reasons, including the uncertainty about the ability to control outcomes, the lack of consensus about agreed-upon goals, the doubts about efficacy, the moral concern about deliberate human intervention in the climate system, and the concern that geoengineering will undercut the will for (less costly and less risky) mitigation action. The debate over geoengineering is currently about whether it is appropriate to undertake scientific research on the issue. Those in favor of further research argue that geoengineering must be better understood so that it may be an option in case it is necessary down the road. Those opposed to geoengineering argue that even putting the option on the table prevents the necessary investment in and political focus on mitigation.

Geoengineering is not currently under discussion in the UNFCCC negotiations and is not expected to be part of any international agreement on climate change in the near future.

Global warming potential (GWP): A measure developed by the IPCC to compare the ability of different greenhouse gases to trap heat in the atmosphere relative to other gases over a set period of time (the basis of comparison is usually 100 years). The GWP of various substances has changed over time as scientific understanding of climate change evolves.

Green Climate Fund (GCF): The Green Climate Fund, headquartered in South Korea, is an institution under the auspices of the UNFCCC created by a decision taken at COP 16 in Cancun, Mexico. The GCF exists to channel financing to developing countries to address mitigation and adaptation. The GCF is still developing plans for how it will disburse funds, eligibility criteria for funding, how funds will be raised, and the role of the private sector.

As of early 2015, the GCF had met its initial target of $10 billion in pledges, although whether all of this money will be delivered is still uncertain. As of April 2014, 42 percent of pledges had been converted into more formal commitments.

Greenhouse gas: According to the UNFCCC, greenhouse gases are "those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation." The six greenhouse gases covered by the UNFCCC are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Greenhouse gas emission inventories: Under the UNFCCC, Annex I Parties must report their greenhouse gas emissions to the UNFCCC. These reports are called inventories. Parties must report on the six greenhouse gases in six sectors: energy; industrial processes; solvents; agriculture; land use, land-use change, and forestry; and waste. Each year, Annex I Parties must submit to the UNFCCC both data tables and a methodology report detailing how they compiled the inventory to the UNFCCC on an annual basis. Non-Annex I Parties are also required to submit greenhouse gas emissions inventories, though with different frequency and level of detail of reported emissions data. New requirements for reporting to the UNFCCC every two years starting in 2014 were adopted at COP 17 in Durban in 2011.

Hydrofluorocarbons (HFCs): HFCs are a subset of fluorinated gases, and a class of short-lived climate pollutants that stay in the atmosphere for between 1 and 200 years, depending on the exact chemical compound. They are used in a variety of industrial and consumer products, primarily as a substitute for ozone-depleting substances. They have 100 to 12,000 times the global warming potential of carbon dioxide, again depending on the exact chemical. HFCs are manmade gases and have no natural sources. HFCs were originally introduced to substitute for ozone-depleting substances controlled under the Montreal Protocol. Emissions of HFCs have risen in recent years, and are projected to continue to rise (in the United States alone, HFC

emissions grew 73 percent between 1990 and 2013 and are projected to rise by 140 percent between 2005 and 2020).

Intended Nationally Determined Contribution (INDC): INDCs are the submissions Parties make prior to the 2015 Paris negotiations outlining their post-2020 emission reduction targets and domestic actions to address climate change. At COP 19 in Warsaw in 2013, a decision was adopted to invite Parties to initiate or intensify preparations for "intended nationally determined contributions" as a way to move away from the contentious political term "commitment." Leading up to the Paris meeting in December 2015, countries will submit their INDCs to the UNFCCC. These intended contributions are expected to be formalized under the agreement, once adopted.

While there is a common set of information countries are invited to provide when submitting their INDCs, and INDCs must be transparent, quantifiable, comparable, verifiable, and ambitious, their composition is expected to vary greatly in terms of both substance and content and will reflect national circumstances. For example, some countries will outline adaptation actions, while others will focus on mitigation only. Mitigation pledges are also expected to take a variety of forms; some will be intensity targets or renewable energy targets, while others will be emissions reduction targets. Leading up to the Paris COP, countries and civil society will examine INDCs both individually and cumulatively to assess their ambition, fairness, and comparability. INDCs will also be assessed to determine whether the reductions will allow the world to remain within the internationally established 2°C target. However, if this target is not met, there is no formal obligation for countries to revise their INDCs. Moreover, the content contained within INDCs is not expected to be legally binding, although a future legal instrument may require that countries to submit them to the UNFCCC.

International emissions trading: International emissions trading is one of the three flexibility mechanisms under the Kyoto Protocol. It allows countries that have exceeded their Kyoto reduction targets to sell their excess capacity (e.g., ability to pollute) to countries that have not met their target. International emissions trading is supposed to drive abatement costs down, as countries that have cheaper ways to reduce emissions will do so, and sell them countries at a price lower than it would cost for that country to take reductions on its own.

The countries of the European Union are the only Parties that have adopted emissions trading as a Kyoto compliance mechanism. Emissions trading in Europe occurs through the European Union Emissions Trading System (EU ETS). The EU ETS is a cap-and-trade program covering over 11,000 power plants and industrial facilities in 31 countries. The EU ETS works by implementing an agreed-upon cap on emissions. The cap is reduced over time so that overall emissions decline. In order to demonstrate compliance, regulated facilities must submit allowances (e.g., permits) for every ton of pollutant emitted. These allowances are either obtained or purchased from the regulator, and may also be traded. Every year, each regulated company must surrender enough allowances to cover all of its emissions. As a result of the economic crisis in the Eurozone, the EU ETS has experienced an oversupply of allowances, with

the result that prices for allowances have plummeted. The low price of allowances has put the emissions reduction target in jeopardy; however, the European Union is taking action to restructure the market to address the imbalance.

Intergovernmental Panel on Climate Change (IPCC): The IPCC, established in 1998, is a scientific body under the auspices of the United Nations that aims to provide objective and complete scientific knowledge on climate change and its potential impacts. The IPCC does not conduct any research itself; rather, it is a review body composed of hundreds of scientists from around the world who voluntarily contribute to its work. All IPCC reports are policy neutral.

IPCC assessment reports (e.g., the Fifth Assessment Report): The IPCC's assessment reports are peer-reviewed, published materials that provide a full scientific and technical assessment of climate change issued by the Intergovernmental Panel on Climate Change (IPCC). The reports are the most comprehensive and authoritative summary of views on the science of climate change. Each report summarizes and defines the consensus among the scientific community on issues of changes in the Earth's climate. The Fifth Assessment Report was released in 2014.

Joint Implementation (JI): One of three flexibility mechanisms under the Kyoto Protocol, along with the Clean Development Mechanism and international emissions trading. JI is a project-based mechanism that allows a country with a binding emission reduction commitment under the Protocol (Annex B Party) to earn credit toward its Kyoto target by investing in projects that result in reductions in another country that also has an emission reduction commitment under Kyoto (e.g., it allows the transfer of emission reduction credits among developed countries). JI complements the Clean Development Mechanism, which allows for the transfer of emission reduction credits from developing to developed countries (from those without emission reduction commitments to those with emission reduction commitments). In addition, JI includes projects in the forestry sector.

There are fewer JI projects than CDM projects because opportunities for low-cost abatement in developed countries are fewer than in the developing world and because of concerns about the ability or willingness of certain countries to fulfill JI projects with verifiable emission reductions.

Kyoto Protocol: The Kyoto Protocol is a legally binding instrument under the UNFCCC; it was adopted by 192 Parties in 1997, and came into force in 2005. The Protocol arose from the recognition that the limited provisions for emission reductions in the original convention were not enough to achieve the stated goal of stabilizing greenhouse gas emissions in the atmosphere. The Protocol set binding emission reduction targets for 37 Annex I Parties in its first commitment period (2008–2012); targets for a second commitment period (2013–2020) were set out in the Doha Amendment. Parties could also choose to use three flexible market-based mechanisms to achieve emission reductions (Joint Implementation, the Clean Development Mechanism, and international emissions trading).

The Kyoto Protocol was a watershed in that it set out binding emission reduction targets (albeit not for all Parties) that theretofore had not existed before. But over time, the Kyoto Protocol's structure is perceived to have eroded its effectiveness. The Protocol enshrined the division of the world between Annex I and non-Annex I countries, a proposition that was and remains unacceptable to the United States. The United States, the world's largest emitter, did not ratify the Protocol and several other Protocol Parties failed to meet their targets for the first commitment period and have not signed up for the second commitment period. The Kyoto Protocol has also been criticized for its top-down process, whereby negotiators set emission reduction targets that were not endorsed domestically and thus were often not viable in their respective domestic political contexts, because such targets are inherently linked to politically sensitive issues related to trade, domestic economies, and domestic politics. Despite these criticisms, many developing country Parties support the continuation of the Kyoto Protocol because it is the only international legally binding instrument for reducing emissions from developed countries. Actual emission reductions under the Kyoto Protocol have been mixed, with some countries meeting or going beyond their assigned targets, and others falling short of their targets. Perhaps most importantly, although many Parties with emission reduction commitments under the Kyoto Protocol have reduced their emissions, greenhouse gas emissions have risen globally since Kyoto was implemented.

Land use, land-use change, and forestry (LULUCF): Both a source of greenhouse gas emissions and a category of emissions mitigation (a sink). Human activities have an impact on natural sinks (parts of the natural environment, such as forests and wetlands, that absorb greenhouse gases) through land use, land-use change, and forestry activities. For example, cutting down or planting trees, tilling soil, or developing land for commercial use have an emissions impact.

LULUCF is relatively more important in many developing economies, where emissions from forestry and land-use change are much higher than emissions from other categories. For example, LULUCF accounts for 60 percent of emissions in Indonesia, primarily through deforestation. By contrast, LULUCF is a sink in the United States, offsetting 15 percent of greenhouse gas emissions. Consideration of LULUCF in international climate policy and negotiations to date has been relatively limited because data and methodological issues make precise treatment of emissions from this sector challenging.

Leakage: Leakage occurs when there is an increase in emissions in one territory as a result of emission reduction in a second territory with a stricter climate policy.

Leakage—or the threat of leakage—has been a primary obstacle in achieving a comprehensive climate agreement, especially among developed economies. The latter are concerned that strict climate policies in their economies will lead to the migration of economic activity to other areas without such policies, resulting in economic loss and disadvantages without attendant climate benefits. This was a primary concern about the original UNFCCC division between Annex I and

non-Annex I countries and the subsequent emission reduction assignments within the Kyoto Protocol.

Leakage can be dealt with through a variety of policy mechanisms; for example, the European Union provides free emission allocations to affected industries under its emission trading system. Border adjustments are another such mechanism; they allow countries that wish to unilaterally implement climate policy without threatening their economies to attempt to address the threat of leakage. How effective these policy mechanisms are at addressing leakage is a matter of debate.

Least-developed countries (LDCs): Least-developed countries are 48 Parties recognized by the United Nations and under the UNFCCC for their "specific needs and special situations" and limited capacity to respond and adapt to climate change. Under the UNFCCC, these countries are given special consideration for financing and technology transfer. The list of LDCs is available here.

Loss and damage: Loss and damage describes the economic and noneconomic losses as a result of climate change. Loss and damage implicitly acknowledges that mitigation and adaptation will not address all the changes and costs associated with climate change, and that some groups, countries, ecosystems, and sectors of the economy will not be able to adapt. Loss and damage can occur gradually, through long-term, slow-onset trends, or rapidly in the context of extreme events. An extreme example is the case of small island nations that will potentially be subsumed by sea-level rise—a likelihood that may occur regardless of attempts at mitigation and cannot be prevented or adequately addressed by adaptation. Loss and damage was first formally considered in 2010 under the Cancun Adaptation Framework, and was institutionally embedded by the Warsaw International Mechanism for Loss and Damage.

Loss and damage is controversial because of its association with liability and compensation, a premise rejected by many Parties. The concern among Annex I Parties in particular is that having loss and damage as a separate pillar (in addition to mitigation and adaptation) will eventually result in demands for compensation—which many developing countries favor. The compromise reached was that the UNFCCC formally recognized loss and damage, but under the adaptation pillar. This is still a point of contention but is unlikely to change in the near future.

Major Economies Forum on Energy and Climate Change (MEF): The Major Economies Forum was launched in 2009 as a multilateral forum to facilitate dialogue among major developed and developing economies in order to achieve a successful outcome in UNFCCC climate negotiations. Although the original goal of the MEF was to help secure a successful agreement at the Copenhagen COP, the MEF is also meeting in preparation for the December 2015 Paris COP. Members include Australia, Brazil, Canada, China, European Union, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, South Korea, South Africa, United Kingdom, and United States. The MEF built on the work of, and ultimately supplanted, the Major Economies Meeting, created in 2007.

Market mechanism: A market mechanism is an approach to reducing greenhouse gas emissions using market frameworks, including a price on emissions (e.g., a cap or a tax), trading schemes, and various pollution taxes. Some Parties favor market mechanisms to reduce the costs of mitigation, increase environmental effectiveness, and spur technological innovation. The Bali Action Plan acknowledges opportunities for both market and non-market approaches (e.g., mandates).

Research indicates that several factors are necessary for market mechanisms to be successful, including accurate measurement, transparency, accountability, fungibility, and consistency. The Kyoto Protocol included three market mechanisms: the Clean Development Mechanism (CDM), the Joint Implementation (JI), and international emissions trading. Any agreement reached in Paris is not expected to create a new market mechanism, and some countries are opposed to the inclusion of a market mechanism within the agreement. An overarching market mechanism—such as a global emissions trading platform—is unlikely to emerge under the auspices of the UNFCCC in the near future, although existing and future market mechanisms are likely to benefit from many of the ideas, processes, and methodologies created in the UNFCCC.

Methane: CH_4, a short-lived climate pollutant with a global warming potential 34 times greater than carbon dioxide over 100 years. Methane has many natural and human sources, including agriculture, mining, and oil and natural gas production.

Mitigation: Reducing the emissions of greenhouse gases, either through sinks or by curtailing emissions at the source. Most people consider mitigation to be the only long-term solution to climate change, and is therefore central to all international climate negotiations and to achieving the goal of stabilizing greenhouse gas concentrations in the atmosphere. Mitigation is one pillar of climate change action within the UNFCCC and to date has heretofore received the most attention. The Convention requires all countries to formulate and implement mitigation measures. Over the years, the relative attention given to mitigation and adaptation has been the subject of much debate.

Measurement, reporting, and verification (MRV): Measurement, reporting, and verification is the process of assessing whether Parties are fulfilling their stated commitments under international agreements. Parties are currently required to submit information to the UNFCCC on a range of issues, including emissions and action taken on mitigation, finance, and adaptation.

MRV will be a key component of the 2015 negotiations, as verifying that countries achieve their pledges is essential for fostering trust and overcoming the significant collective action problems associated with climate change. However, transparency—necessary for MRV—is a sensitive issue and it is as yet unclear how MRV will be formally incorporated into any post-2020 architecture beyond what is already required.

Montreal Protocol: The Montreal Protocol on Substances that Deplete the Ozone Layer is a treaty that entered into force in 1989 that reduces the production and consumption of air pollutants that deplete the Earth's ozone. Since its initial entry into force, the treaty has been amended multiple times and used to phase out many gases. Most recently, the United States, Canada, and Mexico submitted a proposal to phase down the short-lived climate pollutant HFCs under the Protocol, a move supported by the world's largest economies via the G-20. China and India have also separately agreed to work together with the United States to phase down HFCs under the Montreal Protocol (while still including the measurement and reporting of HFCs under the scope of the UNFCCC).

The Montreal Protocol does not specifically address climate change or fall under the auspices of the UNFCCC. Nonetheless, the Protocol is widely perceived as a successful global environmental treaty, and it is relevant for international climate negotiations in two respects. First, the treaty addresses the emission of chlorofluorocarbons (CFCs), an ozone-depleting substance, that has led to the widespread use of HFCs as substitutes for CFCs in industrial and consumer products. The unintended consequence of the Montreal Protocol's success, therefore, was the further adoption of gases that have a high global warming potential and are not currently regulated under the Montreal Protocol. While the Protocol is not formally tied to the UNFCCC, Parties wishing to drive further progress on HFCs have turned to the Montreal Protocol when they did not see the UNFCCC as ambitious enough. Second, the success of the Montreal Protocol led some to view it as a model to address climate change. However, the economic and political challenges associated with climate change have proved much more challenging and complex than addressing ozone-depleting pollutants.

Offset: An offset is a credit for a reduction in greenhouse gas emissions that can be purchased to compensate for (e.g., offset) an emission made elsewhere. Offsets are often used to comply with emission trading programs (including in California and the European Union), but non-compliance voluntary offset markets also exist. They can be purchased from a variety of brokers, retailers, and trading platforms. Offsets comprise a range of activities, including renewable energy, reforestation and avoided deforestation, energy efficiency, and greenhouse gas destruction. To ensure their climate benefits, offsets must only be sold once (and therefore need to be registered in a tracking system), should be verified as additional, and should be validated and verified by third parties as achieving the claimed emission reductions.

Offsets are often useful in providing flexibility to companies and others with compliance obligations while simultaneously providing financing for climate-friendly activities, but they have also been criticized. One of the most prominent criticisms is the difficulty of assessing whether offsets deliver real climate benefits (e.g., whether the emission reductions they provide are additional).

Party: A country or regional economic organization that has ratified the UNFCCC or Kyoto Protocol. While most Parties are countries, the European Union is also a party to both treaties.

Short-lived climate pollutant (SLCP): Short-lived climate pollutants (SLCPs) are pollutants that remain in the atmosphere over a relatively short period of time, between a few days and a few decades, and are agents of global warming. SLCPs are estimated to account for up to 20 to 45 percent of the planet's warming. SLCPs include black carbon, methane, hydrofluorocarbons (HFCs), and tropospheric (ground-level) ozone (O_3). In addition to the climate benefits of reducing SLCPs, lowering SLCP concentrations in the atmosphere can have positive effects on health and agriculture.

In 2012, the United Nations Environment Program, along with six governments including the United States, created the Climate and Clean Air Coalition to coordinate action to reduce short-lived climate forces. In addition to the founding partners, the coalition also includes additional donor countries, partner countries, and nonstate partners. In recent years, discussion of SLCP reduction has taken on greater prominence in the international climate negotiations as a way to drive additional and meaningful emission reduction in the near term. SLCP reduction will likely be included in some INDCs as well as play a role in the UNFCCC talks at the 2015 Paris COP.

Sink: According to the UNFCCC, a sink is "any process, activity, or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere." For example, forests in the United States act as a sink, reducing the country's overall emissions profile. The ocean also acts as a sink through acid-base reactions, dissolution, carbonate-forming reactions of some marine organisms, and photosynthesis by plankton.

Small Island Developing States (SIDS): In the UNFCCC negotiations, SIDS have formed a negotiating block called the Alliance of Small Island States (AOSIS), with 39 member states and 5 observers.

These countries, such as Mauritius, Barbados, Palau, and others, face unique challenges with regard to climate change. While many face similar economic issues to other developing countries, SIDS are particularly vulnerable because of their small size, isolation, susceptibility to sea-level rise, and natural disasters. SIDS have been pushing for more aggressive mitigation action and have been vocal about their desire to see the international community embracing a goal of limiting warming to no more than 1.5° Celsius (the current internationally accepted target is 2°C).

Subsidiary Body for Implementation (SBI): The UNFCCC has two permanent subsidiary bodies, one of which is the SBI. The SBI advises the COP on the implementation of the UNFCCC. SBI also assesses the UNFCCC's effectiveness and reviews financial assistance provided to non-Annex I Parties. The Subsidiary Body for Scientific and Technological Advice (SBSTA) and SBI both meet in parallel twice a year.

Subsidiary Body for Scientific and Technological Advice (SBSTA): The UNFCCC has two permanent subsidiary bodies, one of which is the SBSTA. The SBSTA advises the COP on science, technology, and methodological issues. Two key areas of SBSTA's work are promoting the

development and transfer of technology and technical work to improve guidelines for preparing national greenhouse gas inventories. The SBSTA and Subsidiary Body for Implementation (SBI) both meet in parallel twice a year.

Technology transfer: The transfer of skills, knowledge, technologies, and methods of manufacturing to developing countries so they may develop their economies in a sustainable manner. Technology transfer is essential for reducing greenhouse gas emissions and adapting to a warming world, as addressing climate change requires the widespread dissemination of clean and sustainable technologies.

Technology transfer is relevant for both mitigation and adaptation. The IPCC has identified the need for ongoing development and enhancement of capacity building, enabling environments, and mechanisms (e.g., official development assistance, multilateral development banks, national systems of innovation) to ensure the success of technology transfer. Under the UNFCCC, the Technology Mechanism, the Technology Transfer Framework, the Climate Technology Centre and Network, and the Poznan Strategic Program on Technology Transfer all formally address technology transfer.

While Annex I Parties have an obligation to provide technology transfer, this obligation is necessarily non-specific and limited. The issue of technology transfer can be politically sensitive because of its relationship with trade, economic competitiveness, and intellectual property. Moreover, much of the intellectual property to be transferred is owned by private-sector entities and not governments, which are unwilling to compel them companies to transfer their technologies to the developing world.

Top-down: A reference to the method of negotiations. When plans for responding to climate change and targets for emission reductions originate in international negotiations (at the top) and are passed down to individual Parties, often as mandates, negotiations are top-down. The Kyoto Protocol exemplifies this process, which contrasts with negotiations where commitments are made bottom-up.

The Copenhagen Accord and the 2015 Paris negotiations are a hybrid of top-down and bottom-up negotiations. That is, there is a top-down agreement on general principles (e.g., stabilizing greenhouse gas contributions in the atmosphere), goals (e.g., the 2°C target), and frameworks for monitoring and review; however, contributions (e.g., commitments to act) themselves are made bottom up and specific contributions patched together to form the deal.

United Nations Framework Convention on Climate Change (UNFCCC) (pronounced U-N-F-triple C): The UNFCCC is an international treaty adopted in 1992 and that came into force in 1995; it currently has 196 Parties (195 countries and 1 regional economic integration organization, the European Union). The convention establishes the multilateral process/framework through which the international community addresses climate change, but

it does not require specific emission reduction action or set reduction targets. The Convention is foundational to all else that followed because it:

- Established a common objective, to stabilize greenhouse gas concentrations in the atmosphere at a level that prevents dangerous impacts;
- Set out agreed-upon principles such as common but differentiated responsibilities and respective capabilities (CBDR) and the promotion of sustainable development;
- Established commitments to track and publicize data on greenhouse gas emissions, and promote mitigation, technology transfer, adaptation, and cooperation;
- Created an institutional body (the COP) to review progress on implementation of the treaty and undertake negotiations on any legal instruments to realize the UNFCCC's objectives.

The UNFCCC is an inclusive treaty and forum, which has both advantages and disadvantages. As the negotiations process has evolved and both the problem and the solutions of climate change have become more complex, there have been debates about whether it is possible to achieve meaningful consensus among the UNFCCC's diverse 196 Parties, all of which have different interests, resources, and objectives. This inclusiveness also confers the UNFCCC with a legitimacy unmatched by other venues for negotiations.

Warsaw International Mechanism for Loss and Damage (Loss and Damage Mechanism/Warsaw International Mechanism, WIM): COP 19, held in 2013 in Warsaw, Poland, established the International Mechanism for Loss and Damage. The mechanism is the first time that loss and damage acquired a permanent institutional home within the UNFCCC. Its task is to promote approaches to address loss and damage associated with climate change in an integrated and coherent manner within the UNFCCC. The mechanism will contend with loss and damage associated with climate change by: 1) enhancing knowledge of risk management to address loss and damage; 2) strengthening dialogue; and 3) enhancing finance, technology, and capacity building to address loss and damage. The UNFCCC set up an executive committee with a three-year mandate to report its findings on these issues at COP 22 in December 2016. The committee will examine economic and noneconomic loss and damage from future climate events.

The politics of the mechanism are contentious, as loss and damage is associated with liability and claims—that is, with compensation and wealth transfers. The Loss and Damage Mechanism is a forum to address loss and damage, but it is not currently envisioned to handle wealth transfer. Whether the mission, purpose, and approach under the mechanism evolve—which some Parties would like and others would vehemently resist—remains to be seen.

Michelle Melton is a research associate with the Energy and National Security Program at the Center for Strategic and International Studies (CSIS) in Washington, D.C. Sarah Ladislaw is a senior fellow and director of the CSIS Energy and National Security Program.