A U.S.-centric Chronology of the International Climate Change Negotiations

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Summary

Under the 2007 "Bali Action Plan," countries around the globe sought to reach a "Copenhagen agreement" in December 2009 on effective, feasible, and fair actions beyond 2012 to address risks of climate change driven by human-related emissions of greenhouse gases (GHG). The Copenhagen conference was beset by strong differences among countries, however, and (beyond technical decisions) achieved only mandates to continue negotiating toward the next Conference of the Parties (COP) to be held in Mexico City in December 2010. The COP also "took note of" (not adopting) a "Copenhagen Accord," agreed among the United States and additional countries (notably including China), which reflects compromises on some key actions.

As background to the ongoing negotiations, this document provides a U.S.-centric chronology of the international policy deliberations to address climate change from 1979-2009. It begins before agreement on the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, and proceeds through the Kyoto Protocol in 1997, the Marrakesh Accords of 2001, the Bali Action Plan of 2007, and the Copenhagen conference in 2009. The Bali Action Plan mandated the Copenhagen negotiations on commitments for the period beyond 2012, when the first commitment period of the Kyoto Protocol ends. This chronology identifies selected external events and major multilateral meetings that have influenced the current legal and institutional arrangements, as well as contentious issues for further cooperation.

Negotiations underway since 2007 have run on two tracks: one under the Kyoto Protocol (which is subsidiary to the Convention), to extend commitments of developed, *Annex I*, Parties beyond 2012. This track excludes the United States, which is not a Party to the Kyoto Protocol and has said it will not join the Protocol. The second track proceeds directly under the Convention under the Bali Action Plan and focuses on five primary elements: a "shared vision" for reducing global GHG emissions by around 2050; mitigation of greenhouse gas emissions; adaptation to impacts of climate change; financial assistance to low income countries; and technology development and diffusion. Among the most difficult issues have been provisions for mutual assurance of compliance among Parties through *measurement, reporting, and verification* (MRV) of GHG emissions and removals, nationally appropriate mitigation actions, and financial and technical support from the wealthiest countries for adaptation, technology, and capacity-building. Some progress has been made on arrangements *to reduce emissions from deforestation and forest degradation* (REDD-plus). However, Parties did not reach consensus in Copenhagen on any of these elements, and the mandates for negotiation on the two tracks have been extended into 2010. The Copenhagen Accord may represent a supplemental or alternative track. Currently, the way forward remains unclear.

Many in the U.S. Congress are concerned with the goals and obligations that a treaty or other form of agreement might embody. A particular concern regards parity of actions and trade competitiveness effects among countries. For U.S. legislators, additional issues include the compatibility of any international agreement with U.S. domestic policies and laws; the adequacy of appropriations, fiscal measures, and programs to achieve any commitments under the agreement; and the desirable form of the agreement and related requirements, with a view toward potential Senate ratification of the agreement and federal legislation to assure that U.S. commitments are met.

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Overview of the International Climate Change Negotiations

Formal international negotiations were launched in December 1990 to address human-driven climate change. These negotiations on a Framework Convention on Climate Change marked the progress of decades of scientific research toward conclusions—with uncertainties—that have remained remarkably stable in the years since: greenhouse gas (GHG)[1] emissions from human-related activities are very likely causing the major portion of climate change observed in recent decades and, if these continue, could lead to potentially catastrophic impacts on human societies and their environment. Predicting the precise timing, magnitude and implications of changes remains subject to a variety of uncertainties; many questions may not be resolvable in a timeframe consistent with making effective and cost-effective decisions to address the risks of climate change. Only concerted global action can stabilize GHG concentrations, since emissions come from all countries. China has surpassed the United States as the leading emitter of GHG, although the United States historically has contributed more—almost one-fifth of the rise of GHG concentrations in the atmosphere. The greatest growth in GHG emissions is expected from countries, such as China, India and Brazil, that historically have contributed less, now emit much less per person, and have lower economic and governance capabilities to address the problem.

The core issues for negotiation in 1990 remain the same today:

- when and by how much to reduce greenhouse gas emissions globally in order to avoid "*dangerous anthropogenic interference with the climate system*";[2]
- how to share "*common but differentiated responsibilities*" among countries taking into account "*historic contributions*" and "*respective capacities*" of different people—in particular, the acceptable degree of participation of developing countries;
- what mechanisms are best suited to assuring GHG reductions by all parties at the lowest cost, respecting national sovereignty and while supporting "*sustainable economic development*" and "*the eradication of poverty*";
- how cooperatively to understand the risks and facilitate adaptation to climate changes, especially by those least able to cope on their own; and

[1] "Greenhouse gases" are defined in the United Nations Framework Convention on Climate Change as "those gaseous constituents of the atmosphere, both natural and anthropogenic [human-driven] that absorb and re-emit infrared radiation." They may alter the composition of the atmosphere, changing the balance of radiation entering and leaving the Earth system, and consequently change the temperature or patterns of climate on Earth. The most important is water vapor, but it is believed not to be altered by human activities. Carbon dioxide (CO_2) is the most important human-related GHG, with about ¾ from fossil fuel use and about ¼ due to land use change and forestry. Other important gases listed under the Kyoto Protocol are methane (CH_4), nitrous oxide (N_2O, hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF_6). Additional greenhouse gases are partially controlled internationally under the *Montreal Protocol* of the Vienna Convention for the Protection of the Ozone Layer, including chlorofluorocarbons (CFC) and hydrochlorofluorocarbons (HCFC), etc., while others are emerging (e.g., nitrogen trifluoride (NF_3). Other radiatively important substances are significant but difficult to treat similarly, such as aerosols or tropospheric ozone.

[2] Terms used particularly in association with the international climate change negotiations are frequently highlighted in italics in this document, to alert the reader to their significance.

- how to adapt international arrangements over time as science, social conditions, and capabilities evolve.

The United Nations Framework Convention on Climate Change

The international negotiations launched in 1990 culminated in the 1992 adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in Rio de Janeiro, Brazil. The United States was the fourth nation to ratify the UNFCCC, and the first among industrialized countries. As of November 2008, 192 governments are Parties to the UNFCCC. As a framework convention, this treaty provides the structure for collaboration and evolution of efforts over decades, as well as the first step in that collaboration. The UNFCCC does not, however, include measurable and enforceable objectives and commitments.[3] By the time the treaty entered into force and the Conference of the Parties (COP) met for the first time in 1995, the Parties agreed that achieving the objective of the UNFCCC would require new and stronger GHG commitments, though the Berlin Mandate deferred any new commitments for developing countries for future agreements. The resulting 1997 accord, the Kyoto Protocol, pledged to reduce the net GHG emissions[4] of industrialized country Parties (Annex I Parties) to 5.2% below 1990 levels in the period of 2008 to 2012. It also pledged to assess the adequacy of these commitments early in the new century.

The Kyoto Protocol

The United States signed the Kyoto Protocol in December 1997. However, opposition in the U.S. Congress was strong. In the "Byrd-Hagel" Resolution[5] in July 1997, the Senate expressed its opposition (95-0 vote) to the terms of the Berlin Mandate, by stating that the U.S. should not sign any treaty that does not include specific, scheduled commitments of non-Annex I Parties in the same compliance period as Annex I Parties, or that might seriously harm the U.S. economy. The Kyoto Protocol (KP) was not submitted to the Senate for ratification by President Clinton, nor by his successor, President George W. Bush. Newly elected President Bush announced in 2001 that the United States would oppose the agreement because it did not include GHG commitments by other large emitting (developing) countries and because of his conclusion that it would cause serious harm to the U.S. economy. As of November 1, 2008, 183 governments had become Parties to the Kyoto Protocol, with the United States and Kazakhstan[6] being the only industrialized countries to remain outside of the Kyoto Protocol. In KP Article 9, the Parties to

[3] The commitment by industrialized Parties to prepare national action plans aiming to reduce GHG emissions to 1990 levels is measurable, but no effective penalties or mechanisms were established to address any non-compliance with obligations.

[4] "Net" emissions are the gross emissions minus the removals of GHG from the atmosphere by "sinks" (sequestration), particularly by growing forests and other vegetation (or prevention of release of GHG by burning or decomposing vegetation).

[5] S.Res. 98.

[6] Kazakhstan is unusual in being considered an Annex I Party for the purposes of the Kyoto Protocol, but not for the purposes of the UNFCCC, once it ratifies the Kyoto Protocol [COP report FCCC/CP/2006/5].

The Kyoto Protocol agreed to begin a process no later than 2005 to consider commitments beyond 2012, when the first commitment period ends.

The Bali Action Plan and Kyoto Protocol Tracks

In 2007, Parties agreed to establish two tracks for negotiation of further commitments of Parties. The first track was a mandate among the Kyoto Protocol Parties (not including the United States) to pursue an amendment to the Protocol on further commitments of Annex I Parties for period(s) beyond the year 2012. The first commitment period runs from 2008 through 2012.

The second track was established in December 2007, when the Conference of the Parties (COP) to the UNFCCC agreed to a "Bali Action Plan" to negotiate new GHG mitigation targets for Annex I Parties, "nationally appropriate mitigation actions" for non-Annex I Parties, and other commitments for the post-2012 period. The mandates specified that the products of negotiation should be ready by the end of 2009, for decision at the 15th meeting of the COP and the fifth meeting of the COP/MOP, in Copenhagen, Denmark. The form(s) of agreement were not clear, nor how the two negotiating tracks might converge.

The key items for the "Copenhagen" negotiations to address climate change beyond 2012 were:

- mitigation of climate change (primarily to reduce GHG emissions or to enhance removals of carbon by forests and other vegetation "sinks");
- adaptation to impacts of climate change;
- financial assistance to low income countries;
- technology development and transfer; and
- a shared vision for long-term goals and action.

In addition, provisions for "monitoring, reporting, and verification" (MRV) permeated the negotiations. Provisions to reduce GHG emissions from deforestation and forest degradation (REDD-plus) were also pursued under the Bali Action Plan.

Four meetings in 2008 and four in 2009 were scheduled, along with numerous inter-sessionals, regional group meetings, ministerials, and summits, in an ambitious attempt to reach an agreement of some kind by the Copenhagen meetings in December 2009. In Poznan, Poland, at the 14th COP, Parties decided to "shift into full negotiating mode" and that a first, full negotiating text should be available for a meeting in Bonn in June 2009. Under the UNFCCC, all bases for amending the Convention or a Protocol must be proposed at least six months before adoption.

The Copenhagen Sessions and the "Copenhagen Accord"

It may take many months to evaluate the practical outcomes of the Copenhagen negotiations under the UNFCCC and the Kyoto Protocol. Despite the determination evidenced by participation by 193 delegations and 119 heads of state, strong disagreements on substance and process yielded results far below the (arguably unrealistic) expectations of many stakeholders. Formal decisions

were largely technical. Both the COP and COP/MOP extended negotiating mandates into 2010. Progress was made on draft texts regarding some elements, such as pledges to commit to further GHG reductions by Annex I Parties, assistance for reducing emissions from deforestation and forest degradation, adaptation, and goals for financial assistance.

The sessions revealed distance among many countries' "bottom lines," leaving no space for consensus on major issues, such as the form and structure of agreements; obligations for GHG reductions and actions; whether commitments should be legally binding; and acceptable provisions for monitoring, reporting, and verification (MRV). Given the inability to reach consensus among the 193 delegations present, the United States, China, Brazil, India, and South Africa negotiated a "Copenhagen Accord" that bridges some difficult differences and identifies a common and differentiated path forward. While most UNFCCC Parties seemed willing to adopt the Copenhagen Accord, it was blocked by Bolivia, Cuba, Sudan, and Venezuela, arguing that the closed-door deal-making violated the procedures of the United Nations Charter. Tuvalu and some other nations rejected the agreement for not assuring, in their views, sufficiently deep GHG reductions. Consequently, the COP only "took note" of the text, but did not adopt it. Hence, the Copenhagen Accord is a political outcome, not a legal agreement. Willing countries will be invited to join it. Nonetheless, President Obama was reported to have said "We should still drive toward something that is legally binding," a view held by most countries.

The Copenhagen Accord states a commitment ("shall") to "enhance our long-term cooperative action to combat climate change." In this regard, the Copenhagen Accord outlines a number of key points for action:

- **Long-term vision for GHG mitigation**: "Deep cuts" in global emissions are required "with a view to ... hold the increase in global temperature below 2 degrees C."
- **GHG mitigation by both Annex I and non-Annex I Parties**: Annex I Parties report GHG mitigation targets for 2020, and non-Annex I Parties report their mitigation actions, both before February 1, 2010, to be compiled in non-binding documentation. Least Developed Countries and small island developing states become a new mitigation grouping that may identify actions voluntarily and with financial support.
- **Transparent reporting and international review of Parties' mitigation while respecting national sovereignty**: Non-Annex I Parties must submit their National Communications bi-annually, and include reports on their domestic MRV of implementation of their mitigation actions, subject to *international consultations and analysis* that will ensure respect for national sovereignty. Mitigation actions (as well as technology, financing and capacity-building) supported by international finance will be subject to international MRV.
- **Immediate establishment of a mechanism including REDD-plus**,[7] to enable mobilization of international financing.
- **Goals for developed countries to mobilize finance for adaptation, mitigation, technology, and capacity-building:** Pledges of $30 billion during 2010-2012,

[7] "REDD-plus" is Reducing Emissions from Deforestation and Forest Degradation plus enhancing carbon sequestration.

and a goal of $100 billion annually by 2020 "in the context of meaningful mitigation actions and transparency on implementation." Funding will come from public and private, bilateral and multilateral, and alternative sources.

- **Establishment of the Copenhagen Green Climate Fund** under the Global Environment Facility, managed by the World Bank to support international financing.
- **Establishment of a Technology Mechanism** to "accelerate technology development and transfer" and to be "guided by a country-driven approach."
- **Assessment of the Copenhagen Accord**, to be completed by 2015, that would include consideration of strengthening the "long-term goal" of the Accord.

The Copenhagen Accord identifies a number of administrative decisions made to carry it out fully. These include development of guidelines for non-Annex I Parties' biannual National Communications; guidelines for "international consultations and analysis" of non-Annex I Parties' nationally appropriate mitigation actions; guidelines for MRV of nationally appropriate mitigation actions supported internationally; a mechanism to include REDD-plus; a mechanism of a High Level Panel to study potential sources of financing; the Copenhagen Green Climate Fund and its operational rules; a Technology Mechanism and its functions; and (after a few years) an assessment of implementation of the Accord.

A number of major proposals were notably not part of the final Copenhagen Accord:

- a target to avoid 1.5°C increase in global temperature (opposed by China);[8]
- that GHG emissions be cut by 2050 by 50% globally, and by Annex I countries by 80% (opposed by China; supported by a couple of developing countries);
- that there be a year by which global emissions would peak and then decline (opposed by China and other major developing country emitters);
- that non-Annex I countries reduce their emissions by 15-30% below business-as-usual projections by 2020 (opposed by China and other developing country emitters);
- specification of a baseyear (e.g., pre-industrial levels or 1990) for the aspirational target of avoiding global mean temperature increases of more than 2°C (3.6°F), (opposed by China);
- provisions that would make the Copenhagen Accord legally binding (opposed by China); and
- specification of specific amounts of funding to be pledged by individual Annex I Parties (opposed by the United States).

The process from Copenhagen to the next meeting of the COP, in Mexico City in December 2010, remains undefined. Two countries have offered to host related summits to facilitate progress.

[8] Although many critics accuse the United States of a number of faults in the Copenhagen negotiations, a number have identified China as the sole obstacle to many points of potential agreement. One such account is Mark Lynas, "How Do I Know China Wrecked the Copenhagen Deal? I Was In the Room" The Guardian, London, December 22, 2009.

Bolivia has called an "alternative" meeting of indigenous peoples, social movements, environmentalists, scientists, and governments.

Fundamental disagreement remains on whether the outcome of further negotiations should be one or two agreements, or three if the Copenhagen Accord follow-up is included. The Copenhagen outcome leaves two separate negotiating mandates on the table, and no texts have been agreed on as the basis for further negotiations. COP-16 will be hosted by Mexico in December 2010. This meeting, which had been expected to set in motion the implementation of a Copenhagen agreement, may take on a very different function depending on processes and actions in 2010 that have yet to be defined. It also remains to be seen whether countries will be able and willing to move beyond the disarray and deadlocks witnessed in Copenhagen.

Congressional Interests in International Issues

International cooperation would be required to achieve the ranges of long-term targets for GHG mitigation and successful adaptation to climate change impacts. For U.S. legislators, assurance of actions by other major emitters is key to acceptability of U.S. mandates to abate emissions. Additional important issues include the compatibility of any international agreement with U.S. domestic policies and laws; the adequacy of appropriations and fiscal incentives to achieve any commitments under the agreement; and the desirable form of the agreement and any requirements for potential ratification and implementing legislation. Many Members of Congress are also attentive to questions of comparability of GHG actions among major trading partners, and especially to the potential for adverse competitiveness effects if some countries do not mandate GHG reductions.

U.S.-centric Chronology of International Climate Change Negotiations, 1979-2009

1979	First World Climate Change Conference estimates that a doubling of carbon dioxide (CO_2) concentrations over pre-industrial levels would eventually lead to a 1.4-4.5°C increase in global mean temperature (GMT).
1987	In the Montreal Protocol, 57 governments agree to phase-out production of substances that deplete stratospheric ozone. Many of these substances, such as CFCs are also powerful and long-lasting greenhouse gases (GHG), implicated in climate change.
1985	Major scientific conference in Villach, Austria, reviews decades of observations and research, and calls for policy analysis and actions to slow the rate of GHG-induced climate change.
1988	Experts to the Toronto Conference on the Changing Atmosphere call for a reduction of global CO_2 emissions by 20% from 1988 levels by the year 2005.
November 1988	Governments establish the Intergovernmental Panel on Climate Change (IPCC) under the joint auspices of the UN World Meteorological Organization and the UN Environment Programme, to assess climate change research for governmental decision-making.
1990	Global CO_2 concentrations in the atmosphere are about 354 parts per million (ppm), compared to pre-industrial concentrations of about 280 ppm in 1750. Global CO_2 emissions are 21 billion tons annually, with 4/5 from industrialized countries (1/5 from the United States). Developing countries, home to 80% of the world's population, emit 1/5th of global GHG emissions, not projected to reach 50% until around 2025.

1990	First Assessment Report of the IPCC concludes that human activities emit greenhouse gases (GHG) that have increased atmospheric concentrations; these may be causing observed increases in global mean temperature (GMT), and could drive future global warming. The human contribution could not be confirmed, however, for up to a decade.
1990	The United Nations General Assembly establishes the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change.
June 1992	The United Nations Framework Convention on Climate Change (UNFCCC) opens for signature at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. The treaty cites *common but differentiated responsibilities and respective capabilities* of all Parties, with an *objective* of *avoiding dangerous anthropogenic interference with the climate system*. It includes commitments of developed country "Annex I" Parties to establish national action plans with measures that aim (i.e., non-binding) to reduce GHG emissions to 1990 levels by the year 2000. Includes obligations for Parties listed in Annex II (including the United States) to provide technical and financial assistance, report GHG emissions, and additional obligations. The Global Environment Facility (GEF) is named the interim financial mechanism of the UNFCCC. Non-Annex I Parties have general obligations, including for GHG mitigation, adaptation planning, and reporting.
1 October 1992	The United States becomes the first industrialized nation to ratify the UNFCCC.
21 March 1994	Entry into Force of the UNFCCC, following ratification by 50 countries. (As of November 2008, 192 governments have ratified the UNFCCC.)
March-April 1995	In Berlin, Germany, the first meeting of the Conference of the Parties (COP-1) reviews the *adequacy of commitments* under UNFCCC Articles 4.2(a) and (b) and concludes they are inadequate. It therefore adopts the *Berlin Mandate*, initiating negotiations for the post-2000 period to strengthen the GHG commitments of Annex I Parties, but *no new commitments for non-Annex I Parties*. The COP also agree to a Pilot Phase for Joint Implementation, and to establish two entities: the Subsidiary Body on Implementation (SBI) and the Subsidiary Body on Scientific and Technological Advice (SBSTA).
July 1997	The U.S. Senate passes (95-0) the *Byrd-Hagel Resolution*, that the United States should not enter into any international agreement that does not include obligations for developing countries in the same period, or that would seriously harm the U.S. economy.
December 1997	The *Kyoto Protocol* to the UNFCCC is adopted, signed by more than 150 countries. It sets a goal of reducing industrialized countries' GHG emissions to 5% below 1990 levels during the first commitment period of 2008-2012, and lists *assigned amounts* of allowable GHG emissions by Parties in Annex B. It provides for flexibility mechanisms, including trading of assigned amounts, Joint Implementation, and the Clean Development Mechanism. It outlines a compliance mechanism, and requires reporting by Parties. Many implementing rules remain to be negotiated, covering operations of the flexibility mechanisms, how to account for land-based carbon sequestration, the nature of the compliance regime, etc. The Protocol would enter into force when 55 countries, including at least 55% of 1990 GHG emissions, have submitted papers of ratification.
1998	The COP agrees to the *Buenos Aires Plan of Action*, with a deadline of 2000 to finalize rules to implement the Kyoto Protocol. The United States continues to press developing countries to take on voluntary commitments to reduce GHG emissions.
November 2000	In the Hague, Netherlands, the sixth COP discussions collapse, suspended without agreement on rules to implement the *flexibility mechanisms* in the Kyoto Protocol. Parties agree to resume talks at "COP-6bis" in July 2001.
January-May 2001	The IPCC releases its Third Assessment Report, concluding that global temperature and precipitation continue to increase, and effects can be observed in decreasing snow and ice extent, melting glaciers, altered seasonality, and other indicators of climate. The observed CO_2 concentration has not been exceeded during the past 420,000 years and likely not during the past 20 million years. Most of the observed warming over the last 50 years is likely due to the increased GHG concentrations, most of which results from fossil fuel use. Without concerted actions to abate GHG emissions, atmospheric CO_2 concentrations could rise to 540 to 970 ppm by 2100—90 to 250% above the 280 ppm level in the year 1750. Associated global average temperature could rise over 1990 by 1.4° to 5.8°C (3.2°F

	to 14.4°F) by 2100; some regions would change more than others.
March 2001	President George W. Bush announces United States' opposition to the Kyoto Protocol, and becomes an Observer (not a Party) to deliberations concerning the Protocol.
July 2001	At COP-6bis, the United States participates for the first time as an observer, not a party to the Kyoto Protocol discussions. Decisions are made on use of the flexibility mechanisms (emissions trading, joint implementation and the Clean Development Mechanism), carbon sinks, emission penalties for non-compliance, and to establish three new financial mechanisms: the Special Climate Change Fund, the Least Developed Country Fund, and the Adaptation Fund.
December 2001	COP-7 adopts the *Marrakesh Accords*, establishing most rules and guidelines for the Kyoto Protocol to operate, especially for the three flexibility mechanisms: the Clean Development Mechanism, Joint Implementation, and Allowance Trading. To support adaptation in developing countries, agreements include: (1) replenishment of GEF to address needs of developing countries due to adverse effects of climate change or of response measures; (2) establishment of Special Climate Change Fund (SCCF) to support adaptation and technology transfer; (3) establishment of a Least Developed Country Fund (LDC Fund), with guidance on its operation; and (4) establishment of an Adaptation Fund under the Kyoto Protocol. The Parties also establish an LDC work program and the LDC Expert Group (LEG), funding for National Adaptation Programs of Action and additional implementation support. The United States participates for the first time as an Observer in deliberations related to the Kyoto Protocol.
November 2002	COP-8 issues a modest *Delhi Declaration on Climate Change and Sustainable Development.*
Summer 2003	Exceptional heat and air pollution in Western Europe are associated with more than 70,000 excess deaths. Scientific research indicated that global warming had at least doubled the chance of occurrence of the extreme heatwave.
30 October 2003	The first U.S. Senate vote on legislation to control GHG through a cap-and-emissions trading system, the McCain-Lieberman Climate Stewardship Act, fails (43-55), but gains more support than had been expected.
December 2003	COP-9 reaches several breakthrough decisions on credits for carbon absorption by forest sinks, as well as the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDC Fund).
November 2004	The Arctic Climate Impact Assessment concludes "Climate change, together with other stressors ... presents a range of challenges for human health, culture and well-being of Arctic residents ... as well as risks to Arctic species and ecosystems." Indigenous peoples link climate change impacts to human rights.
December 2004	COP-10 increases focus on adaptation and approves the Buenos Aires Programme of Work on Adaptation and Response Measures. Brazil and China submit their first National Communications to the UNFCCC.
1 January 2005	The European Union's Emissions Trading System (ETS) begins, permitting GHG allowance trading among 12 thousand companies.
16 February 2005	The Kyoto Protocol enters into force after Russia's ratification meets the requirement for ratification by Parties representing at least a 55% super-majority of CO_2 emissions (the requirement for at least 55 Parties to the UNFCCC having already been met).
2005	China announces ambitious energy efficiency and renewable energy policies.
25 June 2005	The U.S. Senate passes a Sense of the Senate Resolution (Amendment to H.R. 6) calling on Congress to enact "comprehensive and effective ... mandatory, market-based limits" to slow, stop, and reverse the growth of GHG emissions, at a rate and in a manner that would not "significantly harm" the U.S. economy.
27 July 2005	The United States announces the Asia-Pacific Partnership on Clean Development and Climate (APP), to cooperate on reducing the GHG intensity of their economies through voluntary technology exchanges. The APP includes the United States, Australia, Canada, China, India, Japan, and South Korea, and includes participation by the private sector.

November-December 2005	In Montreal, Canada, the first "Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol" (CMP) meets. After the U.S. delegation walks out of the meeting, the COP agrees to two parallel tracks to consider actions in the post-2012 period, the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), and another dialogue to be established under the UNFCCC.
6 June 2006	After a week of debate, the U.S. Senate rejects (38-60) the McCain-Lieberman proposal to establish a system of tradable allowances to reduce GHG emissions in the United States.
November 2006	In Nairobi, Kenya, COP-12 and CMP-2 reach agreements concerning the Adaptation Fund, the Nairobi Work Programme on Adaptation, and the Nairobi Framework on Capacity Building for the CDM.
10 January 2007	Commission of the European Union states a new policy of limiting global warming to 2° Celsius to reduce its GHG emissions unilaterally by 20% below 1990 levels by 2020, and to 30% below if other countries join in.
February-May 2007	The IPCC releases its Fourth Assessment Report, concluding that "warming of the climate system is unequivocal" and that "[m]ost of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations." By 2005, the global atmospheric concentration of CO_2 is 379 ppm, up 25 ppm since 1990, and up more than 35% over the pre-industrial level; the primary source of that increase is fossil fuel use and the second is land use change. While the United States adds about 18% of global GHG emissions, the emissions from China may have become the highest of any country.
April 2007	U.S. Supreme Court decides in *Massachusetts v. EPA* that GHG are air pollutants and that EPA must exercise the authority granted to it by the Clean Air Act to consider regulating these emissions.
May 2007	U.S. President Bush initiates the Major Economies Meetings (MEM) to negotiate a new post-2012 framework among a small group of countries, to develop a long-term global goal and "to complement ongoing UN activity."
31 August 2007	In Vienna, Parties to the Kyoto Protocol agree to consider a range of GHG reduction targets of 25% to 40% below 1990 levels for industrialized countries by 2020, though this range is resisted by Canada, Japan and Russia.
23 September 2007	At the first Major Economies Meeting (MEM), hosted by the United States, U.S. President George Bush pledges $2 billion over three years for a Clean Technology Fund (CTF) under the World Bank, expecting to raise $10 billion among donors to support concessional financing for energy projects in developing countries. Some environmental groups oppose inclusion of coal electricity in permitted project types.
December 2007	COP-13 agrees to the "Bali Action Plan"—establishes the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) with a mandate for Parties to the UNFCCC to negotiate toward new GHG mitigation actions and commitments in the post-2012 period and to reach agreement by the end of 2009 (at COP-14 meeting in Copenhagen, Denmark). The Bali Action Plan calls for "a shared vision for long-term cooperative action" and identifies 4 main elements: mitigation, adaptation, technology, and finance. Additional decisions place management of the Adaptation Fund under the World Bank, and initiate demonstrations and commitments to reduce deforestation.
15 May 2008	The U.S. Senate votes (55-40) that no new mandates on GHG should be enacted without effectively addressing imports from China, India and other nations without similar programs.
August 2008	In Accra, Ghana, exchange of views under the AWG-LCA continues on alternative approaches to "shared vision," mitigation, adaptation, technology and finance. Any question of differentiation among non-Annex I Parties continues to be contentious, with China and the G-77 maintaining solidarity. Some developing countries argue that the AWG-LCA and AWG-AP are not mandated to consider amendments to the UNFCCC or Kyoto Protocol, only implementation of them. Some delegations support worldwide sectoral approaches, which some developing countries argue would be inappropriate for them. Developing countries frequently call for new mechanisms for each issue, and oppose "conditionality" on financial and technology transfers (such as protection of intellectual property rights). The

	AWG-KP agree on a comprehensive "basket approach" to including multiple GHG in the second commitment period, and notes new groups of gases and new gases (e.g.,NF_3) identified by the IPCC AR4. It notes that the Montreal Protocol phases out production of CFC and HCFC, but not their emissions. Analysis will proceed on various "spillover" effects of mitigation actions.
September 2008	Government of Japan proposes that all Parties adopt a "shared vision" of achieving at least 50% reduction of global GHG emissions by 2050. Global GHG emissions should peak in the next 10 to 20 years. It proposes criteria for entering additional countries into Annex I (i.e., to become countries with commitments), to create comparability of efforts for GHG targets among Annex I Parties, according to sectoral emissions, efficiencies, and reduction costs, and for new GHG commitments among three groups of developing countries.
December 2008	In Poznan, Poland, a high-level segment of COP-14 witnesses political statements on a "shared vision for long-term cooperative action," and agrees to intensify negotiations. Parties agree that a full negotiating text should be available by June 2009. Parties also resolve issues regarding the Adaptation Fund, though developing countries did not achieve commitments for additional adaptation monies.
	The Government of Mexico, among the first non-Annex I Parties to offer a GHG reduction commitment, announces a goal to halve GHG emissions from 2002 levels by 2050. Brazil pledges to cut deforestation by at least 50% by 2017.
1-12 June 2009	In Bonn, 30th sessions of the UNFCCC subsidiary bodies—SBSTA-30 and SBI-30; AWG-LCA-6 and AWG-KP-8. Deliberation begins on a first negotiating text for a post-2012 agreement.
December 2009	COP-15 and COP/MOP-5 deliberate on multiple proposed texts without agreement, and decide to extend the negotiating mandates of AWG-LCA and AWG-KP through 2010. Key disagreements include whether the product should be two agreements (one being amendment of the Kyoto Protocol) or one merged text; whether obligations should be legally binding; and whether developing countries' mitigation actions and results should be measurable. COP-15 also "takes note of" the "Copenhagen Accord" negotiated among United States and roughly 30 countries outlining process to pledge (by February 1, 2010) national targets or actions to mitigate GHG emissions; $30 billion of financing from 2010-2012; and to seek $100 billion annually of a variety of types of financing by 2020.

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