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Greenhouse Gas Pledges by Parties to the United Nations Framework Convention on Climate Change

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Introduction

International negotiations are underway toward an agreement, due in December 2015, under the *United Nations Framework Convention on Climate Change* (UNFCCC)¹ regarding commitments and actions to address human-related, global climate change from 2020 on. This report briefly summarizes the existing commitments and pledges of selected national and regional governments to limit their greenhouse gas (GHG) emissions as contributions to the global effort. The negotiations cover additional topics, including adaptation to the impacts of climate change and financing to assist the efforts of low-income countries. However, parties to the UNFCCC have not agreed that *intended nationally determined contributions* (INDCs) of parties must or should include those other topics. Consequently, this report focuses only on the GHG mitigation pledges. More extensive information on the climate change negotiations is available in several additional CRS reports.²

Following background on the UNFCCC, this report describes the role of INDCs in the current negotiations. It then summarizes selected parties' existing GHG mitigation commitments and pledges in a table that covers both the period to 2020 and from 2020 on. Information on additional parties' INDCs is available through the website of the UNFCCC.³

Background on the UNFCCC

All Parties Have Common but Differentiated Obligations Aimed at Achieving the UNFCCC's Objective

Nearly all national governments around the world, including the United States,⁴ agreed in 1992 to the UNFCCC as the principal framework for addressing climate change internationally. It provided the structure for collaboration among parties and for evolution of efforts toward the treaty's objective of "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic⁵ interference with the Earth's climate system" (UNFCCC Article 2). (See box below.)

¹ Sen. Treaty Doc. 102-38; United Nations, *Treaty Series*, vol. 1771, p. 107; and depositary notifications C.N.148.1993. Currently, there are 196 parties to the UNFCCC.

² See, among others, CRS Report R40001, *A U.S.-Centric Chronology of the United Nations Framework Convention on Climate Change*, by Jane A. Leggett; CRS Report IF10239, *President Obama Pledges Greenhouse Gas Reduction Targets as Contribution to 2015 Global Climate Change Deal*, by Jane A. Leggett; and CRS Report R41889, *International Climate Change Financing: The Green Climate Fund (GCF)*, by Richard K. Lattanzio.

³ UNFCCC, "INDCs as Communicated by Parties," <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>.

⁴ President George H. W. Bush referred the treaty to the U.S. Senate, which gave its advice and consent, and the United States deposited its ratification of the treaty on October 15, 1992.

⁵ Human-induced.

Stabilizing Carbon Dioxide Concentrations Implies Zero Net Emissions

Parties' INDCs are proffered in the context of negotiations over how actions in 2020 and beyond may contribute to achieving the objective of the UNFCCC, to stabilize GHG concentrations. These are premised on the relationships between GHG emissions, their atmospheric concentrations, and ultimately, global climate change.

Carbon dioxide (CO₂) is the major human-related GHG in the atmosphere,⁶ even though it constitutes only about 0.04% of the atmosphere. Because CO₂ concentrations were roughly stable for thousands of years before the industrial revolution, scientists conclude that natural emissions and natural removals were approximately equal. The human-related addition to the previously balanced "carbon flux" is currently less than 4% annually. However, the incremental accumulation led to important changes over centuries.

In 1992, when the UNFCCC was signed, CO₂ concentrations had risen from preindustrial levels by almost 30% (i.e., from about 280 parts per million [ppm] to about 356 ppm).⁷ At some point during 2015 or 2016, annual average CO₂ concentrations could reach over 400 ppm.⁸ The National Academy of Sciences has stated, "The present level of atmospheric CO₂ concentration is almost certainly unprecedented in the past million years, during which time modern humans evolved and societies developed. The atmospheric CO₂ concentration was however higher in Earth's more distant past (many millions of years ago), at which time paleoclimatic and geological data indicate that temperatures and sea levels were also higher than they are today."⁹

Various scenarios project that CO₂ concentrations could rise to 700-900 ppm in this century if human-related burning of fossil fuels, deforestation, and other land-use change were to continue unabated.¹⁰ Such levels would be as much as three times the pre-industrial concentrations.

Meeting the objective of the UNFCCC—stabilizing GHG concentrations—at any level requires that emissions fall to net zero. That is, the human increment of emissions could not exceed extra removals of the GHG from the atmosphere. Removals of carbon dioxide occur by natural processes, principally growing vegetation and phytoplankton in the oceans. These removal processes are likely to increase somewhat with higher CO₂ concentrations ("carbon fertilization") but are limited by nutrient availability and other factors. Removals could be enhanced by human actions.

To stabilize CO₂ emissions, human-related net emissions would need to decline to zero. Some refer to approaching "net zero" as "carbon neutral" or "deep decarbonization" of the economy. This could be achieved by enhancing removals to exceed natural plus human-related emissions. The level of emissions could be greater to the degree that enhancing removals could offset them—for example, through sequestering more carbon in trees or agricultural soils. The UNFCCC negotiations cover both human-related emissions and enhancing removals.

⁶ The UNFCCC covers only GHG that are influenced by human activities but does not identify them specifically. Implicitly, the scope includes substances that are *both* naturally occurring *and* human-related—such as CO₂, methane, and nitrous oxide, as well as manufactured-only gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). Additional manufactured gases, such as chlorofluorocarbons (CFC), are also potent GHG but are not addressed under the UNFCCC; they are covered by an existing international treaty, the 1985 Vienna Convention to Protect the Stratospheric Ozone Layer and its subsidiary Montreal Protocol and additional amendments. Under the UNFCCC, negotiations will continue to consider the scope of compounds to be covered by national actions and commitments.

⁷ These CO₂ concentrations are from the National Oceanic and Atmospheric Administration (NOAA), ftp://aftp.cmdl.noaa.gov/products/trends/co2/co2_annmean_gl.txt. Dated June 5, 2015. Earth Systems Research Laboratory, *Global Greenhouse Gas Reference Network*.

⁸ *Ibid.*

⁹ U.S. National Academy of Sciences, and the Royal Society (United Kingdom). "Climate Change: Evidence and Causes," 2014, <https://nas-sites.org/americasclimatechoices/more-resources-on-climate-change/climate-change-evidence-and-causes/>.

¹⁰ See, for example, Leon Clarke et al. "Scenarios of Greenhouse Gas Emissions and Atmospheric Concentrations," Washington DC: U.S. Climate Change Science Program, July 2007, <http://www.climatechange.gov/Library/sap/sap2-1/default.php>. Figure 3.22. Rising concentrations of additional GHG would add to the increase in radiative forcing of the climate system.

To achieve the UNFCCC's objective over the long-term, all parties agreed to legally binding, qualitative commitments that include (among many others) formulating, implementing, publishing, and regularly updating programs containing measures to mitigate climate change by addressing their GHG emissions and removals from the atmosphere (Article 4.1). Further, all parties agreed to communicate their GHG inventories according to agreed methods and to describe the steps taken or envisaged by the party to implement the convention. The UNFCCC did not contain quantified obligations to achieve specific GHG emission targets, although such obligations have been a primary topic of negotiation ever since.¹¹

Because the stated objective of the UNFCCC is to stabilize atmospheric GHG concentrations, parties implicitly obligated themselves jointly to the objective of reducing human-related, global GHG emissions to net zero. (See box.) Because CO₂ and most other GHG remain in the atmosphere for decades to thousands of years, they accumulate there as atmospheric concentrations. The cumulative amount of emissions determines the level of concentrations. In turn, the atmospheric concentrations at which GHG may stabilize determines, ultimately, the magnitude of human-forced climate change.¹²

Put another way, the task of stabilizing CO₂ concentrations at, say, 550 ppm or avoiding a particular human-induced temperature increase (e.g., 2 degrees Celsius) becomes greater and greater as net emissions continue. The “budget” of cumulative emissions consistent with a set concentration or temperature target gets used up. Continuing net emissions leave less and less of the budget for continuously growing economies to emit as they develop and deploy options compatible with reaching and sustaining net zero emissions.

Parties are currently negotiating over whether to quantify the UNFCCC's objective—currently proposed by some as a particular temperature increase to avoid¹³ or a concentration target.¹⁴ Doing so would implicitly set an emissions “budget,” though it may not be legally binding and individual parties may not be accountable for their shares of the effort.

¹¹ See CRS Report R40001, *A U.S.-Centric Chronology of the United Nations Framework Convention on Climate Change*, by Jane A. Leggett.

¹² This statement is independent of the uncertainty of how much global average temperature will increase with a given increase in GHG concentrations. This relationship is called “climate sensitivity.” While the *amount* of climate sensitivity is not precisely established, there is not scientific controversy that higher GHG concentrations will result in higher global average temperature and other climate changes. See, for example, Richard S. Lindzen et al. “On the Observational Determination of Climate Sensitivity and Its Implications.” *Asia-Pacific Journal of Atmospheric Sciences* 47, no. 4 (August 28, 2011), pp. 377-390, and discussion of a research response to Lindzen's hypothesis: Andy Dessler, “The Return of the Iris Effect?,” RealClimate, April 24, 2015, <http://www.realclimate.org/index.php/archives/2015/04/the-return-of-the-iris-effect/#ITEM-18375-5>. See also CRS Report RL34266, *Climate Change: Science Highlights*, by Jane A. Leggett. (Also, certain speculative human interventions are possible through geo-engineering to modify concentrations or climate sensitivity to them. See CRS Report R41371, *Geoengineering: Governance and Technology Policy*, by Kelsi Bracmort and Richard K. Lattanzio.)

¹³ The 2010 Cancun Agreements recognized that deep cuts in global GHG emissions are required “with a view to reducing global greenhouse gas emissions so as to hold the increase in global average temperature below 2 [degrees Celsius] above pre-industrial levels ... [and] need to consider ... strengthening the long-term global goal ... in relation to a global average temperature rise of 1.5 [degrees Celsius].” UNFCCC Conference of the Parties, *Report of the Conference of the Parties on Its Sixteenth Session, Held in Cancun from 29 November to 10 December 2010, Addendum, Part Two: Action Taken by the Conference of the Parties at Its Sixteenth Session*, FCCC/CP/2010/7/Add.1, March 15, 2011, paragraph I.2.4.

¹⁴ The current negotiating text includes a proposed option to stabilize GHG concentration at 350 ppm—well below current concentrations of CO₂ only. Most other proposed options include only goals to avoid temperature increases of 2 degrees Celsius (°C) or 1.5°C (3.6° or 2.7° Fahrenheit).

Sharing the UNFCCC Objective

The question of how to share the effort to achieve the UNFCCC’s stabilization objective has been a core challenge for international cooperation. Because emissions come from all countries, only limitations—then reductions—by all major emitters can stabilize the rising GHG concentrations in the atmosphere.

“Common but Differentiated Responsibilities and Respective Capabilities”

Two principles in the UNFCCC are that (1) parties’ should act “on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities” (CBDR) and (2) that developed country parties should take the lead in combating climate change. Deciding how these principles should apply to parties’ commitments beyond 2020 is a lively topic in the negotiations.

The UNFCCC incorporated “differentiation” of responsibilities in part by listing the wealthier parties (in 1992) in Annex I of the treaty. Annex I, including the United States, the European Union, Russia, and other then-industrialized nations,¹⁵ took on more specific obligations than non-Annex I Parties—to adopt national policies and measures that would limit GHG emissions and communicating them “with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol” (Article 4.2(b)). At the same time, and reflected in the general obligations of the UNFCCC, parties understood that all parties would need to contribute to the common mitigation effort to meet the treaty’s objective.

Subsequent rounds of negotiations since 1992 have struggled with the existing bifurcation of responsibilities into Annex I (“developed”) and non-Annex I (“developing”) countries.

The Kyoto Protocol’s GHG Targets for Annex B Parties Only

Immediately after the UNFCCC entered into force, the parties predicted in 1995 that voluntary national efforts would be insufficient to meet the treaty’s objective and therefore entered into negotiations toward a new, subsidiary agreement that would contain binding GHG abatement obligations. In contentious negotiations over the “Berlin Mandate” for the new agreement, the parties agreed to “no new commitments” for developing countries. The resulting 1997 Kyoto Protocol established quantitative, legally binding emission reduction obligations during 2008-2012 for the highest income parties listed in its Annex B, obligations that could be achieved individually or jointly with other parties through markets and other mechanisms.

The United States is one of three of the 194 parties to the UNFCCC that is not also party to the subsidiary Kyoto Protocol. (The other two are Canada¹⁶ and Andorra.) The United States signed

¹⁵ Annex I did not include, as examples, Brazil, China, India, Israel, Korea, Mexico, or Singapore. Some of these have incomes per capita higher than some Annex I Parties.

¹⁶ Canada withdrew from the Kyoto Protocol in December 2012.

the Kyoto Protocol but neither President Clinton nor President Bush sent it to the Senate for advice and consent to ratification.

Copenhagen Accord and Cancun Agreements

In multiple decisions, the parties agreed on the importance of achieving further GHG mitigation beyond the end of the first Kyoto commitment period (2008-2012). They expected to negotiate a new agreement—either an amendment creating a second commitment period under the Kyoto Protocol or new subsidiary agreement directly under the UNFCCC (or both)—in the 2009 Copenhagen meeting of the Conference of the Parties (COP). Parties disagreed in Copenhagen over whether non-Annex I Parties should take on GHG abatement commitments. The result was the political—but not legally binding—Copenhagen Accord¹⁷ in which the parties

agree that deep cuts in global emissions are required according to science, and as documented by the IPCC Fourth Assessment Report with a view to reduce global emissions so as to hold the increase in global temperature below 2 degrees Celsius, and take action to meet this objective consistent with science and on the basis of equity. We should cooperate in achieving the peaking of global and national emissions as soon as possible, recognizing that the time frame for peaking will be longer in developing countries and bearing in mind that social and economic development and poverty eradication are the first and overriding priorities of developing countries and that a low-emission development strategy is indispensable to sustainable development.

Parties also agreed that Annex I Parties would implement “quantified economy-wide emissions targets for 2020” that each would submit, to be compiled in a document. Non-Annex I Parties agreed to implement GHG mitigation actions that would also be submitted and compiled. In an important sense, this politically binding agreement arguably marked a turning point in the negotiations as non-Annex I Parties agreed to explicit and country-specific commitments to mitigate GHG emissions. The agreement in the Copenhagen Accord was reiterated and expanded in the 2010 Cancun Agreements.

More than 90 parties submitted conditional or unconditional targets or “nationally appropriate mitigation actions” that they would implement to reduce emissions by 2020. For Annex I Parties, these pledges encompass quantified economy-wide emission reduction targets under the convention for all developed countries (FCCC/SBSTA/2014/INF.6) and/or legally binding commitments for the second commitment period of the Kyoto Protocol in 2013-2020.

Table 1 summarizes the pledges of selected parties to GHG reduction targets or *nationally appropriate mitigation actions*¹⁸ under the 2009 Copenhagen Accord and the 2010 Cancun Agreements or under the second commitment period of the Kyoto Protocol (whichever is more current).

¹⁷ Conference of the Parties, FCCC/CP/2009/11/Add.1, paragraph 2.

¹⁸ *Nationally appropriate mitigation actions*, or NAMAs, is a term referring to the set of policies, programs, or other actions that non-Annex I Parties (i.e., those not listed in Annex I of the UNFCCC, generally lower income countries) should identify to mitigate their GHG emissions. Parties that see international support for NAMAs must record them in a registry and be subject to international measurement, reporting, and verification, according to the Copenhagen Accord.

The Durban Platform Negotiations Toward a New Agreement in 2015

The circumstances and capabilities of parties have evolved in the more than two decades since the UNFCCC was negotiated. However, the gap between *obligations* (but not necessarily actions) of Annex I Parties and those of non-Annex I Parties has widened. Since the UNFCCC entered into force in 1994, parties adopted decisions pertaining to Annex I Parties on common methods and reporting guidelines and frequencies, terms for independent and in-country reviews, and—for most Annex B Parties under the Kyoto Protocol—binding, quantitative targets for GHG emissions through 2020.¹⁹ The United States—and later Australia, Canada, Japan, and Russia—took the position that they would not agree to further GHG targets under the UNFCCC unless all major emitting countries also took on GHG mitigation commitments.

Consequently, when UNFCCC parties agreed to engage in a new round of negotiations—the *Durban Platform for Enhanced Action*—toward a new agreement “with legal force” for actions in 2020 and later, they agreed that it would be “applicable to all parties.” In concept, this mandate could eliminate the bifurcation in the UNFCCC between *Annex I* and *non-Annex I Parties*, or between countries with and without binding obligations for quantitative GHG mitigation.

GHG Mitigation in the “Durban Platform” Negotiations

As part of the Durban Platform negotiations, in 2013, the COP invited all parties to submit their *Intended Nationally Determined Contributions* (INDCs) toward achieving the objective of the UNFCCC, Article 2, in the context of adopting a protocol, another legal instrument, or an agreed outcome with legal force under the convention applicable to all parties.²⁰ Submission of INDCs is without prejudice to the legal form that Nationally Determined Contributions may take in or associated with the agreement mandated by December 2015.

All parties are expected to provide an “unconditional” INDC—a pledge of actions that the party will undertake without dependence on assistance from other parties. Mexico has included in its INDC a “conditional” pledge of greater GHG mitigation depending on international market incentives and assistance. Other parties, including Brazil and Indonesia, are expected also to submit unconditional and conditional pledges.

INDCs were to be communicated by the first quarter of 2015 for those parties ready to do so, but for all parties “well in advance of” the 21st meeting of the COP. As of June 30, 2015, 44 parties, including the United States, Russia, the European Union and its 28 member states, and China had submitted INDCs containing their GHG pledges beyond 2020.

Table 1 summarizes pledges or legally binding commitments of selected parties for 2020 and for post-2020. The list does not include the multitude of individual policies and measures enacted in countries to reduce their emissions or to meet their existing pledges. The yes/no assessments of

¹⁹ Canada withdrew from the Kyoto Protocol in December 2012, while Australia, Japan, and Russia declined to take on new GHG targets for the second commitment of the Kyoto Protocol, for 2013-2020.

²⁰ UNFCCC COP 19, “Further Advancing the Durban Platform,” *Report of the Conference of the Parties on Its Nineteenth Session, Held in Warsaw from 11 to 23 November 2013, Addendum, Part Two: Actions Taken by the Conference of the Parties at Its Nineteenth Session*, in FCCC/CP/2013/10.Add.1, Decision 1/CP.19, November 2013.

whether parties appear to be on track to meet their 2020 pledges are derived from various analysts in research organizations and are best considered tentative: Much may happen before 2020 to influence GHG pathways. In some cases, whether a party may be on track to meet its pledge may have more to do with the challenge inherent in the pledge than with the level of effort made thus far.

As noted above, what may be perceived as “ambitious” or “fair” will continue to be an important part of the negotiations; analysis of these issues, however, is beyond the scope of this report. Parties were invited to address the ambition and fairness of their INDCs in their submissions. One could expect that those topics will be debated as more INDCs are submitted and considered by other parties.

Table I. Parties’ Pledges to Abate Greenhouse Gas Emissions
(as of June 30, 2015)

| Party | Copenhagen Pledge or 2 nd Commitment Period of the Kyoto Protocol to 2020 | Appears on Track for 2020? ^a | Post-2020 Pledge |
|----------------|---|---|---|
| United States | Reduce GHG emissions by 17% below 2005 levels. | Y | INDC: Reduce GHG emissions by 26-28% below 2005 levels by 2025. |
| European Union | Reduce GHG emissions to 20% below 1990 levels by 2020, binding in 2 nd commitment period of the Kyoto Protocol. | Y | INDC: Binding target to reduce domestic GHG emissions by at least 40% below 1990 levels by 2030. |
| China | Endeavor to reduce CO ₂ emissions intensity (per unit of GDP) by 40-45% by 2020 below 2005 level. Intends to increase share of non-fossil fuels in primary energy consumption to around 15% by 2020. Also intends to increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 compared with 2005. | Y | INDC: Announced that, by 2030, it would: <ul style="list-style-type: none"> • Achieve peaking of carbon dioxide (CO₂) emissions around 2030 and make best efforts to peak earlier; • Increase the share of non-fossil fuel energy sources to around 20% of primary energy supply; • Lower CO₂ emitted per unit of gross domestic product (GDP) by 60-65% compared with the 2005 level; • Expand forest stock volume by around 4.5 billion cubic meters (m³) compared with 2005 levels; and • “Proactively” adapt to climate change. |
| Australia | Reduce GHG emissions by 5% below 2000 levels, including credits from LULUCF. ^b | Y | INDC expected in mid-2015. |
| Brazil | Reduce by 36.1% to 38.9% compared to business-as-usual (BAU) emission trajectories, conditional on international financing. Includes LULUCF. | Y | N.A. ^c |
| Canada | Reduce GHG emissions by 17% below 2005 levels by 2020. | N | INDC: Reduce GHG emissions by 30% below 2005 levels by 2030. |

| Party | Copenhagen Pledge or 2 nd Commitment Period of the Kyoto Protocol to 2020 | Appears on Track for 2020? ^a | Post-2020 Pledge |
|--------------|---|---|---|
| India | <p>Reduce its GHG intensity by 20-25% compared to 2005 levels, excluding agricultural emissions.</p> <p>Plans to install 175 GW of renewable energy capacity by 2022, with 100 GW from solar and 38.5 GW from wind, partly financed by a tax on coal.</p> <p>November 2014 announcement: Reduce emission intensity of GDP by 20-25% by 2020 from 2005 level, and add 30 GW of renewable energy capacity during 2012-2017.</p> | Y | <p>Many expect India to submit an INDC for 2030 based on its own efforts and another conditioned on financial and technological assistance. India has said that it will not pledge a peak year of emissions but may pledge a GHG intensity target or one for renewable energy. It has proposed to curb production or consumption of hydrofluorocarbons (HFC) under the Montreal Protocol. According to an Indian newspaper, "Outcome of the Indo-US deal in renewable energy sector will guide India in coming out with its INDC in June," said an official.^d India is against ex-ante review of INDC or pressure to revise it. INDC may emphasize adaptation.</p> |
| Indonesia | <p>Reduce GHG emissions by 26% below BAU unilaterally, and by 41% conditioned on international support. Includes LULUCF.</p> | N | N.A. |
| Japan | <p>Reduce GHG emissions by 26% below 2013 levels (3.8% below FY2005 levels), changed following the Fukushima nuclear disaster from its Copenhagen target of 25% below 1990 by 2020.</p> | Y | <p>INDC: Reduce GHG emissions by 26% below FY2013 levels in 2030 (24.5% below 2005 levels). INDC expected in mid-2015.</p> <p>In transparent explanation of the government's assumptions, the share of nuclear in electricity supply would be 20-22% by 2030. The share of renewable energy technologies would increase to 22-24%, lead by hydro power to approx. 9%, and solar to 7%. Coal would take a 26% share.</p> |
| Mexico | <p>Reduce GHG emissions to 30% below BAU, conditioned on adequate financial and technological support.</p> | N | <p>INDC: Implies that GHG emissions will peak in 2026. Reductions by 2030 from BAU projections of 25% of all GHG and SLCP^e emissions, implying a reduction of GHG by 22% and black carbon aerosols by 51%. Total reductions could increase to 40% conditioned on international market incentives and policies. Long-term domestic goal to reduce GHG emissions to 50% below 2000 levels by 2050. Includes adaptation commitments for 2030, <i>inter alia</i>, to strengthen adaptive capacities of most vulnerable municipalities, and establish early warning systems and risk management practices.</p> |
| South Africa | <p>Reduce GHG emissions by 34% below BAU by 2020, and by 42% by 2025, capped at this level, and conditioned on international support.</p> | ? | <p>See Copenhagen pledge for 2025 target. Expected to give prominence to adaptation and fairness issues. Mitigation target likely to be for 2030.</p> |

| Party | Copenhagen Pledge or 2 nd Commitment Period of the Kyoto Protocol to 2020 | Appears on Track for 2020? ^a | Post-2020 Pledge |
|-------------|--|---|--|
| South Korea | Reduce GHG emissions by 30% below BAU emissions (813 million tons of all GHG expressed as CO ₂ -equivalents) in 2020. | N | INDC: Reduce its GHG emissions by 37% from a 2030 BAU level (851 million metric tons of CO ₂ -equivalent). Intends to use international carbon credits to achieve this target in part. No decision yet on whether emissions and removals from the land sector will be included. States that it aims to reduce its GHG emissions by 49-70% from 2010 levels by 2050. |
| Russia | Reduce GHG emissions by 25% below 1990 levels, conditioned on accounting of forestry sector and binding obligations from all major emitting countries. | Y | INDC: “Long-term indicator” to limit GHG to 25-30% below 1990 levels by 2030, subject to the “maximum allowance” of credits for CO ₂ removals by land use changes and forestry. Target conditioned on what “major emitters” pledge. |

Sources: CRS from various sources, widely available. The notes below provide references to difficult-to-find information. INDCs available at <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>.

In addition, for Brazil: <http://climateobserver.org/country-profiles/brazil/>.

For South Korea: Ministry of Environment, <http://eng.me.go.kr/eng/web/index.do?menuId=108&findDepth=1>.

Notes:

- a. Many of the assessments of whether a party is on track to meet its Copenhagen pledge come from analysis of assessments done by ClimateActionTracker.org, a pro-GHG mitigation research group, supplemented by additional sources. Any prediction is, of course, subject to uncertainty.
- b. LULUCF means Land Use, Land Use Change, and Forestry activities. Credits may result by reducing deforestation or land degradation, or by increasing rates of removals by growing vegetation.
- c. N.A. means not available.
- d. Mohan Vishwa, “PM-Led Climate Panel to Pick Issues for Obama Talks,” *The Times of India*, January 19, 2015, <http://timesofindia.indiatimes.com/india/PM-led-climate-panel-to-pick-issues-for-Obama-talks/articleshow/45934516.cms>.
- e. SLCP means Short-Lived Climate Pollutants, a category that includes such radiatively active emissions, such as black carbon aerosols.

CRS does not intend to include all 195 parties to the UNFCCC in **Table 1** as INDCs are submitted. Parties not included in **Table 1** that have submitted INDCs are, as of July 20, 2015, Andorra, Ethiopia, Gabon, Iceland, Lichtenstein, Morocco, New Zealand, Norway, Serbia, Singapore, and Switzerland.

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