



Status of the Copenhagen Climate Change Negotiations

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November 5, 2009

Congressional Research Service

7-5700

www.crs.gov

R40910

CRS Report for Congress

Prepared for Members and Committees of Congress

Summary

The United States and almost 200 other countries are negotiating under the United Nations Framework Convention on Climate Change (UNFCCC) to address climate change cooperatively beyond the year 2012. Parties agreed to complete the negotiations by the 15th meeting of the Conference of the Parties (COP-15) scheduled for December 7-18, 2009, in Copenhagen.

The negotiations toward a “Copenhagen agreement” are intended to be the next steps toward meeting the objective of the UNFCCC, to *stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*. Most parties conclude the objective requires avoiding a 2°Celsius increase in global mean temperature and reducing global greenhouse gas (GHG) emissions by 80%-95% by 2050. The UNFCCC principle of “common but differentiated responsibilities” among parties permeates debate about obligations of different forms, levels of effort, and verifiability. Key disagreements remain among parties:

- **GHG mitigation:** Some countries, including the United States, seek GHG actions by all parties; many developing countries argue that differentiation should exclude them from quantified and verifiable GHG limitations. Many vulnerable countries are alarmed that GHG targets proposed by wealthy countries are inadequate to avoid 2°C of temperature increase and associated serious risks.
- **Adaptation to climate change:** Many countries, including the United States, wish to use bilateral and existing international institutions, with incremental financial assistance, targeted at the most vulnerable populations; many developing countries seek a fully financed, systemic, and country-determined effort to avoid damages of climate change, to which they have made minor historical contribution.
- **Financial assistance to developing countries:** Many wealthy countries, including the United States, propose private sector mechanisms such as GHG trading, along with investment-friendly economies, as the main sources of financing, with a minor share from public funds; many developing countries argue for predictable flows of unconditioned public monies, with direct access to an international fund under the authority of the Conference of the Parties.
- **Technology:** Many countries, including the United States, maintain that private sector mechanisms are most effective at developing and deploying the needed advanced technologies, enabled by balanced trade and intellectual property protection; some countries seek new institutional arrangements and creative mechanisms to share technologies to facilitate more effective technology transfer.

Negotiators face a complex array of proposals. Many delegations, including the United States, approach Copenhagen with unresolved climate agendas at home. Although President Obama declared a policy to reduce GHG emissions by 14% from 2005 levels by the year 2020, the U.S. delegation is negotiating without clear signals as to what the Congress would support. U.S. influence in the negotiations may also be impaired by signing but not ratifying the Kyoto Protocol, and by being almost \$170 million in arrears in contributions to the multilateral Global Environment Facility. It remains to be seen what kind of an agreement can be reached in Copenhagen or whether negotiations will break down, and what ramifications may unfold for the United States’ environmental, energy security, and other foreign policy interests.

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Overview

The United States and almost 200 other countries are negotiating under the United Nations Framework Convention on Climate Change (UNFCCC) to address climate change cooperatively¹ beyond the year 2012. Parties agreed to complete those negotiations by the 15th meeting of the Conference of the Parties (COP-15) scheduled for December 7-18, 2009, in Copenhagen.

Pivotal discussions toward a “Copenhagen agreement” include:

- whether measurable commitments to reduce greenhouse gas (GHG) emissions will include all major emitting countries and how deep reduction commitments would be;
- whether countries will agree to transparency and accountability regarding their commitments through robust measuring, reporting, and verification (MRV) requirements;
- how much financing may be available for capacity building, GHG reductions, avoiding deforestation and forest degradation, technology cooperation, and adaptation to climate change in developing countries through private sector mechanisms and public finance, and what institutions may oversee such flows;
- what means of technology cooperation would help to develop and deploy advanced, low- or no-emitting technologies, as well as to assist adaptation to climate impacts; and
- what mechanisms and resources would assist the most vulnerable countries to adapt to projected climate change.

Negotiations had lagged through 2008. In December 2008, the then-incoming Obama Administration stated its policy to reduce U.S. emissions to 14% below 2005 levels by 2020. Optimism among many grew that the U.S. Congress would pass GHG control legislation before the Copenhagen meeting, providing guidance to the executive branch negotiators regarding the elements of a treaty that the Senate would ultimately consent to ratify.

The Obama position and passage by the U.S. House of Representatives of H.R. 2454 (the American Clean Energy and Security Act, ACES, or the “Waxman-Markey” bill) have led to reinvigorated hopes of some people that consensus among countries could be found by December 2009 on a comprehensive Copenhagen agreement with quantified commitments. As the weeks remaining until December wane, with neither a U.S. GHG target nor U.S. financial offers, it becomes less likely that China and major non-Annex I country emitters would agree to GHG reduction commitments—which they have been strongly resisting. Smaller countries, concerned about the impacts of climate change on their welfare and economies, and looking to the United States and other large, wealthy countries for leadership on climate change, have become increasingly frustrated. Lack of strong political agreements has led to recent demonstrations in as many as 4,500 locations in 170 countries.² More are planned during the Copenhagen meeting.

¹ Parties to the negotiations are seeking international cooperation and workable cooperative mechanisms for the purpose of addressing climate change. No proposals to create a “world government” are on the negotiating table.

² See, for example, Brad Knickerbocker, “The World Demonstrates Against Climate Change, But US Public Concern (continued...)”

It has become increasingly uncertain whether it will be possible in Copenhagen to reach comprehensive and detailed agreement to address climate change in the period beyond 2012, when the Kyoto Protocol's first period of GHG commitments expires (discussed in "Background" below). Without a new detailed accord, alternative outcomes are possible. One alternative could be a "framework" decision among high-level officials that spells out a plausible mandate for a future treaty—an outline more likely than the current one to gain broad consensus among nations. Another alternative could be a breakdown of negotiations. While all parties may contribute to a potential breakdown, many people would blame the United States. Resulting anger could spill over into other international issues, influencing other U.S. objectives.

The climate change issue has become politically significant internationally and domestically, with major legislation to control greenhouse gases passed by the House (H.R. 2454) and under development in the Senate (S. 1733 among others). Domestic legislation will interplay with any commitments made internationally, and actions taken by other countries to address climate change will likely have an impact on the United States. If the President submits an agreement as a treaty, the Senate must give its consent to ratification for the treaty to be legally binding on the United States; or, both chambers of Congress would have to approve any agreement³ that the President submits before such agreement becomes binding. Consequently, the U.S. Congress has taken an interest in what the U.S. delegation may offer and oppose in Copenhagen. Members may also have interest in how the United States and its allies handle diplomatic and public reactions coming out of the Copenhagen meeting, whatever its outcome.

Background

The UNFCCC was adopted in 1992 and has been ratified by 192 countries, including the United States. Its objective is "*stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.*" The UNFCCC contained many commitments of all parties, though few were quantified and there were no sanctions for failing to meet commitments.

Most parties conclude the UNFCCC objective requires avoiding a 2°Celsius increase in global mean temperature and reducing global greenhouse gas (GHG) emissions by 80%-95% by 2050. The UNFCCC principle of "common but differentiated responsibilities" among parties permeates debate about obligations of different forms, levels of effort, and verifiability.

Because nations agreed the UNFCCC objective could not be met by voluntary efforts alone, the 1997 Kyoto Protocol established enforceable, quantified GHG reductions for parties listed in Annex I of the UNFCCC in the period 2008 to 2012.⁴ The United States signed the Kyoto

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Wanes," Christian Science Monitor, October 24, 2009. <http://features.csmonitor.com/politics/2009/10/24/the-world-demonstrates-against-climate-change-but-us-public-concern-wanes/>.

³ For example, in the case of a Congressional-Executive agreement as proposed by several authors, including Nigel Purvis, *Paving the Way for U.S. Climate Leadership: The Case for Executive Agreements and Climate Protection Authority*, Resources for the Future Discussion Paper 08-09, April 2008.

⁴ Although the UNFCCC, the Kyoto Protocol, the Bali Action Plan, and numerous documents involved in the Copenhagen negotiations make a distinction between "developed" and "developing" country parties, the definitions of these groups are nowhere defined. The listings of countries include the "developed and other parties included in Annex I" of the UNFCCC, leading to the grouping of Annex I parties and non-Annex I parties. Thus, there seems no legal (continued...)

Protocol in 1997, but President Clinton never submitted it to the Senate for consent. President Bush in 2001 announced that the United States would not become a party to the Kyoto Protocol, because of (1) uncertainty of the science; (2) potentially high cost of GHG abatement; and (3) lack of GHG commitments from non-Annex I countries. The first “commitment period” for meeting GHG emission targets runs from 2008 to 2012. It had been envisioned that GHG commitments for one or more subsequent periods would be made before 2008. But commitments beyond 2012 have been delayed, in part because the United States is neither a Party to the Kyoto Protocol nor has shown interest in engaging in future commitments under it, in part because of difficulty in gaining a mandate for negotiations among all UNFCCC parties. A mandate covering all parties was achieved in 2007 in the “Bali Action Plan.”

Two Tracks on the Way to Copenhagen: One Agreement or Two?

The negotiations currently are running on two tracks, one under the Kyoto Protocol and the other under the UNFCCC’s “Bali Action Plan” of 2007. The Kyoto Protocol’s first commitment period runs from 2008 to 2012, during which wealthier (“Annex I”) countries agreed to reduce their GHG emissions to an average of 5% below 1990 levels. In 2007, Kyoto Protocol parties (not the United States) began negotiating under the Kyoto Protocol on what commitments would ensue beyond 2012. This is the “Kyoto Protocol” track.

However, because neither the United States nor developing (non-Annex I) countries are bound by GHG reduction commitments under the Kyoto Protocol, another negotiating mandate was established to include the United States and to address several broader commitment issues. Under the 2007 “Bali Action Plan,” all countries seek to reach agreement in Copenhagen on (1) a “shared long-term vision” (GHG targets for 2020); (2) GHG mitigation; (3) adaptation to climate change; (4) financial assistance; (5) technology cooperation; and (6) enhancing carbon sequestration in forests. This established the “Long-Term Cooperative Agreement” track. Each of these is described in later sections. One current dispute is whether the two tracks should result in two accords or converge into a single treaty.

The European Union (EU) and other Annex I countries do not want to amend the Kyoto Protocol without including U.S. commitments, though the United States is unlikely to agree to join the Kyoto Protocol. The Kyoto Protocol parties also do not wish to abandon their agreement and the progress they made in establishing implementing rules and procedures (e.g., reporting requirements and compliance reviews) under the protocol. Nonetheless, the Annex I countries have all urged that these two tracks converge by Copenhagen into one agreement that includes commitments of all parties.

Most non-Annex I parties believe certain advantages exist in maintaining the Kyoto Protocol and a separate agreement for them. They argue that the Kyoto Protocol is for quantified, enforceable

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basis under the UNFCCC to identify which countries belong to groupings other than Annex I, Annex II (a subset of Annex I) and Annex B to the Kyoto Protocol (Parties taking on quantified GHG targets). For clarity, then, this report will generally refer to Annex I countries.

GHG obligations for developed countries only. The G-77⁵ and China have so far blocked even discussion of accession of current non-Annex I parties to quantified GHG commitments under the Kyoto Protocol track. They maintain that non-Annex I commitments should be of a different form and legal nature, embodied in the Bali Action Plan track, and resist any disaggregation of non-Annex I parties. They perceive any proposal to disaggregate “developing” countries into smaller sub-groupings, based on magnitude of emissions or financial capacity, as an effort to pull additional countries onto a track of quantifiable GHG commitments. The G-77 and China have, thus far, successfully blocked any formal discussion of how this could happen; some delegations walked out of the Bangkok negotiations in October after a proposal was articulated to merge the negotiations onto one track.

In the UNFCCC, all parties agreed to “common but differentiated” responsibilities, with differentiation based on a number of implied factors, including financial and technical capacity, and historical responsibility for climate change. The differentiation has been made primarily, though not exclusively, between Annex I (wealthier) and non-Annex I (less wealthy) countries, with quantified GHG reductions so far spelled out only for the Annex I parties. The UNFCCC also spelled out that commitments from non-Annex I parties would depend on leadership from the wealthiest (“Annex II”) parties to meet GHG and financial commitments. Circumstances have evolved since the UNFCCC was signed in 1992, especially with the growth of China and other large emerging economies. Recognition has crystalized that the objective to halt growth of GHG concentrations in the atmosphere requires slowing then reversing growth of GHG emissions by *all* major countries. Despite these facts, most countries argue that the Annex I countries have not fully met their UNFCCC and Kyoto Protocol obligation to reduce GHG emissions and assist developing countries (with the United States especially criticized). Although non-Annex I parties now discharge most of current GHG emissions, the Annex I parties continue to be responsible for the majority of the increase since the Industrial Revolution of atmospheric GHG concentrations linked to climate change. Thus, most countries argue, the wealthiest countries continue to have the greatest historic responsibility to cut greenhouse gas emissions.

At this stage, with a few weeks left before the Copenhagen meeting, it is unclear whether the fundamental obstacle of the number and form of agreement(s) can be surmounted. At the negotiations held in Bangkok in early October, “substantial” progress reportedly was made in reducing text on the negotiating table and on certain topics: adaptation, technology cooperation, and capacity building.⁶ Over the coming weeks, negotiators must face many contentious issues regarding substantive commitments, described below.

⁵ The G-77 or “Group of 77” was established in 1964 by 77 developing countries (now about 130 countries) to promote their collective economic interests and enhance their joint negotiating capacity within the United Nations system and more broadly.

⁶ See, for example, IISD Reporting Services, Earth Negotiations Bulletin, Summary of the Bangkok Climate Change Talks: 28 September-9 October 2009, Vol. 12 No. 439.

Key Topics Under Negotiation

A Shared Long-Term Vision to 2050

The Bali Action Plan provided for negotiation of a vision (i.e., to 2050) for long-term cooperative action (LCA) among parties. Many countries viewed this as the setting of a long-term target for avoiding global temperature increases, stabilizing atmospheric GHG concentrations, and/or setting global GHG reduction targets relative to a base year (typically 1990 or 2005). Some parties have not viewed this as a major element in the negotiations, and some have opposed any kind of quantified vision. Other parties have viewed a quantified vision as a hook for pulling all parties into a common, global commitment to reduce GHG emissions.

The EU and many parties have proposed cutting global GHG emissions to 50% below 1990 levels by 2050, to limit global warming to 2°C. Avoiding 2°C of global warming has been estimated by some as consistent with stabilizing GHG atmospheric concentrations at 450 parts per million (ppm). Some scientists, activists, and vulnerable countries call for a long-term target below 350 ppm.⁷ Others consider the 350 ppm target to be politically, and possibly economically, infeasible.

The EU further proposes that Annex I countries should cut their GHG emissions by 80%-95% by 2050 to meet the 450 ppm vision, and that global emissions drop by 50% from 1990 levels. President Obama's policy is that the United States should reduce its emissions by 80%-83% from 2005 levels by 2050 and support the 50% global emission reduction.⁸ These have not been offered as legally binding commitments in the Copenhagen negotiations, however. In the recent Barcelona negotiations, the U.S. delegation called on China to halve its GHG emissions by 2050, which would allow modest growth for poorer countries.⁹ China, among others, has blocked an explicit long-term and global target, however. World-wide emission targets consistent with, for example, 450 ppm, would require China to reduce its emissions strongly from past growth trajectories, and from current levels over several decades.

Obligations to Mitigate GHG Emissions

Mitigation obligations remain among the most contentious topics of the negotiations. Aspects of mitigation include the forms and depth of commitments for Annex I and non-Annex I parties, mechanisms to promote compliance with mitigation commitments, methods to address deforestation emissions, options for sectoral or other sub-national targets, and GHG trading schemes or other "cost-containment," and financing mechanisms.

⁷ Current atmospheric concentrations of carbon dioxide are over 385 ppm; counting all GHG covered by the Kyoto Protocol is equivalent to about 430 ppm of carbon dioxide. A target of 350 ppm suggests strong reductions from current concentrations.

⁸ See, for example, U.S. Office of Management and Budget, Budget Overview: Jumpstarting the Economy and Investing for the Future, February 26, 2009, available at <http://www.whitehouse.gov/omb/budget/Overview/>.

⁹ As reported in Greenwire, November 5, 2009. <http://www.eenews.net/Greenwire/2009/11/05/6/>.

Mid-Term Targets for GHG Reductions

Common but Differentiated Commitments

All parties to the UNFCCC agreed to the principle of “common but differentiated” responsibilities. They also agreed that the Annex I parties should demonstrate the lead, as most have under the Kyoto Protocol (but not the United States or Canada). The two primary negotiating questions regarding mitigation for Copenhagen are (1) when and how additional countries will take on specific GHG mitigation commitments, and (2) how to “differentiate” the commitments among parties (“comparability”). So far, China and most other non-Annex I parties have blocked discussion of new commitments for them, though Mexico and South Africa have announced their own targets. While China has set some quantified domestic targets associated with reducing its growth of GHG emissions, its negotiating position has been firmly against taking any quantitative target internationally. The EU proposes that developing countries set and quantify “low carbon development strategies” as a prerequisite to financial assistance. Such strategies would need to be measured, reported and verified (MRV).

Proposals for Quantified GHG Targets

Climate activists and some parties especially vulnerable to climate change have called for Annex I countries to reduce their GHG emissions to 25%-40% below 1990 levels by 2013-2017. The EU has passed a law to reduce its GHG emissions by 20% below 1990 levels by 2020, or by 30% if other countries make comparable commitments. Japan’s new president has pledged a commitment of 25% below 2005 levels by 2020, while the Australian legislature may pass a bill to achieve as much as 25% below 2000 levels by 2020. In late May, China called for developed country parties to take on targets of 40% below 1990 levels by 2020—at the most stringent level of the range it had previously advocated—although many observers consider the Chinese statement to be positioning in the negotiations as it comes under greater pressure to take on a quantified target. Other countries, including Canada, continue to emphasize that the EU’s and non-Annex I countries’ proposals are too stringent and do not consider costs or other circumstances. The United States has also indicated that these proposals are not under consideration nationally.

The Obama Administration has stated its policy to reduce U.S. GHG emissions to 14% below 2005 levels by 2020, and the Congress is working on legislation (e.g., S. 1733 and H.R. 2454) that may set a comparable emission cap. Some Obama Administration officials have suggested that the U.S. and EU proposals are comparable, in that both parties¹⁰ would reduce emissions approximately 1.4% annually through 2020.

Table 1 provides a summary of some proposals for GHG reduction targets, unilateral or for groups of countries, by 2020. Only the EU’s target has been enacted into law. Many targets are proposed unilateral commitments by parties for themselves, sometimes conditioned on what other parties would commit. Most proposals are for 2020, although a few parties propose a commitment period of 2013-2017 or 2013-2020. Some commitments would be contingent on technical issues regarding creditable GHG reductions regarding land use emissions, flexibility mechanisms, and others.

¹⁰ The European Union, as a regional economic integration organization, is a Party to the UNFCCC, as are its member countries.

One issue raised frequently by the European Union is the question of whether Russia and other former Soviet and Eastern European countries would be allowed surplus “assigned amounts” (AAUs), which are GHG targets higher than their actual emissions. These surplus AAUs were accepted under the Kyoto Protocol as an incentive to participation by those countries, although some in the EU have often referred to them as “hot air” and argued that they undermine the environmental integrity and fair burden-sharing of the international framework. Russia and several other countries seek to retain and expand their surplus of AAUs in a new agreement beyond 2012.

Table I. Summary of Proposals for GHG Reductions in 2020
(as of June 15, 2009)

Annex I Party GHG Reductions by 2020	Developing Country GHG Reductions	Parties Proposing to these Targets
≥ 30% below 1990 for Annex I as a whole		EU, Norway, Belarus,
≥ 40% below 1990 levels for Annex I as a whole	No quantified commitments	China, India, Africa Group, Indonesia, South Africa, Iran
≥ 45% below 1990 for Annex I as a whole		Small Island States, Brazil, Zambia
20% below 1990 levels for EU		EU unilateral target, enacted into law
30% below 1990 levels conditional on comparable commitments by Annex I parties	15-30% below business as usual trajectories, or that developing countries must “contribute adequately” with MRV for all actions.	EU proposed targets
14% below 2005 levels for US	Recording of self-financed NAMAs ^a into an international registry, with MRV ^b for all actions	U.S. unilateral target
5% below 2000 for Australia; 15% below 2000 conditioned on global mitigation	All countries register national schedules of mitigation efforts	Australia conditional target
5%-10% below 1990 for Belarus		Belarus unilateral proposal
40% below 1990 levels by 2020; carbon neutral by 2030,		Norway unilateral target
25%-40% below 1990		Referred to in conclusions of AWG-KP-6 ^c
Range of 25%-40% below 1990 not feasible. New President proposes conditional 8% below 1990 levels conditional on all countries actions.		Japan
10%-20% below 1990 levels		New Zealand

Source: Compiled by CRS from various sources, including records of meetings of the UNFCCC.

Note: This table is not comprehensive of all proposals made.

- a. NAMAs are Nationally Appropriate Mitigation Actions.
- b. MRV stands for measuring, reporting, and verification.
- c. AWG-KP-6 means the 6th meeting of the Ad Hoc Working Group on Further Commitments for Annex I parties under the Kyoto Protocol.

Annex I Parties' Views

The United States, the EU, and many other Annex I countries insist that a Copenhagen outcome be a comprehensive framework for action by all parties. They propose alternate versions of differentiated, quantified emission limits for Annex I parties, with key issues including the form, nature and depth (“comparability”) of GHG mitigation commitments. Furthermore, Annex I parties propose differentiated commitments for non-Annex I parties to establish strategies that would reduce their current GHG growth trajectories, as well as Nationally Appropriate Mitigation Actions (NAMAs), to delineate specific actions that they would submit to be inscribed into an internationally measured schedule or registry. Eligibility for countries to receive financial or technological assistance would be incumbent upon taking and reporting such GHG mitigation programs.

U.S. GHG Mitigation Proposals

The United States has described its positions as follows:

- that Annex I countries make robust and absolute emission reductions in the mid-term (i.e., around 2020) from a base year (1990 or 2005);
- that major developing countries take actions in the mid-term that will significantly reduce their emissions compared to business-as-usual paths;
- that least developed countries need not make any commitments to reduce emissions, only to prepare low carbon growth plans for which they will be supported; and
- that other developing countries, likewise, need not make commitments. Rather, they should focus on developing and implementing low carbon growth plans and implementing nationally appropriate mitigation actions (NAMAs) to help guide them on a long-term development path.

Further, the United States outlined a proposal on measuring, reporting and verification (MRV) for all parties, which builds on the existing frameworks, and would introduce enhanced reporting, independent review by experts, and public peer review. The U.S. promised financial support for countries not capable of meeting MRV costs, and said that the “sub-elements” of the broad framework would be different, for instance, for the LDCs and for non-Annex I countries that have more capacity and responsibility.

Source: U.S. Department of State, Telegram: “UN Climate Talks in Bangkok: Progress Slow, Intensity Grows as Copenhagen Nears,” October 19, 2009.

Non-Annex I Parties' Views

The Bali Action Plan included ambiguous language regarding mitigation commitments by developing countries. Its key phrase was:

consideration of mitigation actions that would include: ... (ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable manner;¹¹

China and many large developing countries continue to resist the idea that any non-Annex I countries might take on quantitative and enforceable commitments. However, by mid-2009 some

¹¹ The original version, found in the document FCCC/CP/2007/L.7, distributed early on December 15, 2007, stated: “(ii) Measurable, reportable and verifiable nationally appropriate mitigation actions by developing country parties in the context of sustainable development, supported by technology and enabled by financing and capacity-building;”

non-Annex I countries favored beginning to differentiate among the non-Annex I country parties. Uganda, speaking for the Least Developed Countries (LDCs), expressed the position that all countries will need to take actions, including the LDCs.

Such proposals, and those of the United States and EU, are strongly opposed by many non-Annex I countries, especially Brazil, India and China—among the non-Annex I parties most pressured to take on quantified GHG commitments. They contend that these proposals seek to erase the differentiation between Annex I and developing countries embodied in the UNFCCC. These countries also oppose “Measuring, Reporting, and Verification” (MRV) proposals that would make all countries more accountable for their mitigation commitments.

Adapting to Impacts of Climate Change

For low-income countries, many of which have the populations most vulnerable to climate and climate change, near-term assistance to adapt is as high a priority as mitigating long-term climate change. Key issues include how much financial assistance might be provided; how to measure, report and verify (MRV) whether wealthier countries meet their commitments; and through what mechanisms financial aid would flow.

The G-77/China and Africa Groups wish to establish quantified commitments for financial transfers by the wealthier countries. Some argue for payments as “compensation” for unavoidable climate change impacts, though the UNFCCC mentions only “consideration” of actions (not compensation). Non-Annex I countries voice concern over access to financing, conditions imposed on receiving assistance, criteria to judge “vulnerability,” and the burdens of processes and mechanisms, among additional issues.

The United States has proposed a framework for adaptation action, with the UNFCCC acting as catalyst and the countries as key implementers, assisted by a variety of international institutions. In this plan, adaptation action would be common among all parties, but roles would be differentiated among countries.

Financial Assistance to Low-income Countries

The United States and all other parties to the UNFCCC committed to promoting adaptation, cooperation to develop and deploy new technologies, and a host of additional but unquantified obligations. The wealthier countries (including the United States) also committed to provide financial and technical assistance to underpin developing countries’ efforts to meet their obligations. In the current negotiations, developing countries are calling for financial resources that will be “new, additional, adequate, predictable and sustained,” for mitigation, adaptation, and development and transfer of technologies, to flow through UNFCCC specialized funds. They call for the resources to be publicly financed (not private) and to be provided on a grant or concessional basis.

Financial assistance—its amount, predictability, and “conditionality”—ties into all other aspects of the Copenhagen negotiations. Deep divisions exist among parties over four proposals now in the negotiating text:¹²

¹² AWG-LCA Non-paper No. 34, Revised annex IV to document FCCC/AWGLCA/2009/INF.2 (20/10/09) at (continued...)

- one or more funds established under the UNFCCC Conference of the Parties (COP), managed by one or more Trustees, with funds generated through levies on international maritime transport and aviation; a share of proceeds from accessing international emissions trading; assessed contributions from parties; and voluntary contributions from parties and other donors; OR assessed contributions from Annex I parties as a percent of Gross National Product;
- a World Climate Change Fund or Green Fund under the authority and guidance of the UNFCCC COP, administered by an existing financial institution, with funding from assessed contributions from all parties except the Least Developed Countries (LDCs);
- a Global Fund for Climate (U.S. proposal) as an operating entity of the (existing) financial mechanism (the World Bank's Global Environment Facility), funded by multiyear, voluntary contributions of all parties except LDCs; and
- use of existing financial institutions, such as the Global Environment Facility (GEF), multilateral development banks, etc., with a Facilitative Platform under the authority and Guidance of the COP to register and link needs to support, and to monitor and evaluate the information in the registry.

Amounts of Financing

A variety of international institutions and non-governmental organizations have tried to estimate the costs of adaptation to developing countries and the associated needs for public funding. Definitions and scopes of adaptation in these studies vary, accounting for some of the differences. In particular, some studies consider “all” costs of adaptation to climate change and remaining damages (although none are comprehensive); some include just large-scale adaptation costs (i.e., not most private measures taken by individuals); and some try to discern just the need for public financing for adaptation. As a result, figures range from \$4 billion to several hundreds of billions of dollars annually by the year 2030.¹³ The United Nations Development Programme estimated that an additional US\$86 billion per year would be needed in 2015; the UNFCCC Secretariat estimated that US\$29 billion per year would be needed in 2030. For adaptation alone, the World Bank updated a previous study in September 2009, now estimating the average adaptation cost from 2010 to 2050 to be \$75 billion to \$100 billion annually.¹⁴ For GHG mitigation, the

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http://unfccc.int/files/kyoto_protocol/application/pdf/34fin201009v02.pdf.

¹³ Martin Parry et al., *Assessing the Costs of Adaptation to Climate Change: A Review of the UNFCCC and Other Recent Estimates* (London: International Institute for Environment and Development (IIED), August 2009), <http://74.125.93.132/search?q=cache:KCCoQ47xQdMJ:www.iied.org/pubs/pdfs/11501IIED.pdf+%22Assessing+the+costs+of+adaptation%22&cd=2&hl=en&ct=clnk&gl=us&client=firefox-a>.

¹⁴ World Bank, *Economics of Adaptation to Climate Change: New Methods and Estimates (Consultation Draft)* (World Bank, September 2009), <http://beta.worldbank.org/climatechange/content/economics-adaptation-climate-change-study-homepage>. Concerning the problem of defining adaptation costs, this report says,

One of the biggest challenges of the study has been to operationalize the definition of adaptation costs. The concept is intuitively understood as the costs incurred by societies to adapt to changes in climate. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation costs as the costs of planning, preparing for, facilitating, and implementing adaptation measures, including transaction costs. But this definition is hard to operationalize. For one thing, “development as usual” needs to be conceptually separated from adaptation. That requires deciding whether the costs of development initiatives that enhance climate resilience ought to be counted as part of adaptation

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International Energy Agency's World Energy Outlook 2009¹⁵ concludes that, in a scenario to stabilize atmospheric GHG concentrations at 450 ppm, "the energy sector in non-OECD¹⁶ countries would need around \$200 billion of additional investment in clean energy and efficiency in 2020—including \$70 billion for nationally appropriate mitigation actions (NAMAs) and a similar amount to achieve sectoral standards in transport and industry." The extra investments would be more than offset in the industry, transport, and buildings sectors, says IEA, by savings from energy efficiency improvements. Differences among scopes and methods for estimating incremental financial needs explain part of the range among estimates; no study has been considered definitive.

Heads of State in the European Union (the European Council) propose that 5 to 7 billion euros of public financing, particularly for least developed countries, should be provided in each year of 2010 to 2012, as a "fast-start" in the context of a Copenhagen agreement.¹⁷ The European Council has concluded that 100 billion euros annually by 2020 will be necessary to help developing countries to mitigate and adapt to climate change.

Some non-Annex I countries (e.g., China) call for amounts of public financing that many view as unrealistic—up to 1% of GDP on top of other Overseas Development Assistance.

Public versus Private Financing

Countries differ on the appropriate sources of funds. The G-77 and China argue that developed nations' governments should provide public funds as the main source of climate change financing for mitigation, adaptation, technology cooperation, and capacity building. Annex I nations, however, underscore the importance of private sector finance through GHG trading mechanisms and other investments, with public funds as smaller and more targeted shares. The United States and the EU agree that some public financing should be provided, in particular for capacity building and adaptation, but seek mechanisms for most of the financing to flow from the private sector through market incentives. (For example, GHG "offsets" that would be authorized by S. 1733, the Clean Energy Jobs and American Power Act, the "Kerry-Boxer" bill.)

European Union heads of state concluded that the net incremental costs of up to 100 billion euros by 2020 in developing countries¹⁸ should be met through a combination of non-Annex I countries' own efforts, the international carbon market and international public finance. They propose that the international public finance portion may be in the range of 22 to 50 billion euros per year, but subject to a "fair burden sharing" among parties to the UNFCCC, agreement on how to manage the funds, and application of the funds to "specific mitigation actions and ambitious Low Carbon Development Strategies/Low Carbon Growth Plans." (See section on mitigation

(...continued)

costs. It also requires deciding how to incorporate in those costs the adaptation deficit, defined as countries' inability to deal with current and future climate variability. It requires defining how to deal with uncertainty about climate projections and impacts. And it requires specifying how potential benefits from climate change in some sectors and countries offset, if at all, adaptation costs in another sector or country. (p. 19)

¹⁵ IEA, *World Energy Outlook*, November 2009. <http://www.worldenergyoutlook.org/>.

¹⁶ Organisation for Economic Cooperation and Development

¹⁷ Council of the European Union, *Presidency Conclusions*, 15265/09, October 29-30, 2009. pp. 5-6.

¹⁸ Council of the European Union, *ibid.*

commitments of non-Annex I countries.) They conclude that all parties except the least developed should contribute to the public financing, with assessments based heavily on emission levels, as well as on Gross Domestic Product. EU leaders have stated they will provide their “fair share” of this amount, though they have not specified a precise amount. Their contribution will be conditioned on other countries’ offers.

Public finances have been proposed to come from a variety of levies, including charges on maritime and aviation fuels, a percentage of GHG offsets internationally (such as exists now under the Kyoto Protocol’s Clean Development Mechanism), contribution of a share of national allowances to auction, etc.

To support private sector financing, proposals diverge on whether to retain and revise existing GHG trading mechanisms as vehicles for private investment in GHG mitigation: The non-Annex I countries seek to retain the mechanisms of the Kyoto Protocol, while the EU and United States press for new, more efficient mechanisms than, for example, the Clean Development Mechanism has thus far been. Many different proposals for new mechanisms have surfaced, including crediting for GHG reductions in Nationally Appropriate Mitigation Actions (NAMAs) below business-as-usual trajectories (Korea); NAMA-based emissions trading (New Zealand); and sectoral crediting and trading (EU).

Mechanisms for Financing

Besides the magnitude and terms of financing available, substantial disagreement continues over appropriate mechanisms that would manage publicly provided financing under a new agreement. Much assistance passes through bilateral arrangements, although some countries complain that these are difficult to verify and may represent a shift in funding, not additional funding. Multilaterally, an array of mechanisms is available to help finance capacity building, technology cooperation, GHG mitigation policy development and measures, and adaptation analysis, planning, and actions. Such mechanisms include the Global Environment Facility (GEF) as the financial mechanism of the UNFCCC; the Special Climate Change Fund; and funds for specialized activities (e.g., the Adaptation Fund of the Kyoto Protocol) or groups of countries (e.g., the Least Developed Countries Fund of the Kyoto Protocol). In 2008, multilateral development banks with several governments and stakeholders established the Climate Investment Funds (CIF) under management of the World Bank.¹⁹ Many additional sources of funding, such as through other MDBs, are active. Their processes, terms, and responsiveness vary.

Some countries are concerned about the plethora of funds, administrative and management costs, and strategic provision of funds to maximize the effectiveness of the monies. Many non-Annex I countries complain that much financing is managed bilaterally or through the Multilateral Development Banks, particularly the World Bank, which some believe are not as responsive to the priorities of the recipient countries. These critics prefer financing to be managed by institutions created under the UNFCCC, in which they have “one-country, one-vote,” or at least equal regional representation as the industrialized nations. Also, while Annex I parties generally prefer and promote means for the private sector to finance mitigation and adaptation investment, many non-Annex I countries prefer more “predictable” public sector flows.

¹⁹ See CRS Report RS22989, *The World Bank’s Clean Technology Fund (CTF)*, by Martin A. Weiss.

The four proposals in the current negotiating text contain the main alternatives for mechanisms for publicly provided financing: one or more funds managed by one or more Trustees of the UNFCCC Conference of the Parties (COP); a new fund under the authority and guidance of the COP but managed by an existing international institution; a new fund under the authority and guidance of the COP but managed by the existing financial mechanism of the UNFCCC (i.e., the GEF); and the use of existing financial institutions (i.e., no new mechanisms). The issue of mechanism may not be among the most difficult to resolve in the negotiations.

U.S. Positions on Financing

Although the U.S. delegation provided a proposal for a new financing mechanism in the October 2009 negotiations in Bangkok, it has proposed neither overall multilateral levels of funding under a new agreement nor an amount that the United States might offer. Some Members of Congress and U.S. constituents have pressed for provisions in climate change legislation to provide for funding to assist adaptation in developing countries, and to support cooperation on clean technology and capacity building.

In June 2009, the House passed H.R. 2454, the American Clean Energy and Security Act, with provisions to allow up to 1 billion emissions offsets to come from international sources, which could provide a many-billion-dollar stream of private finance for projects in developing countries. The bill also would provide funds internationally to help tropical deforestation prevention, capacity building, clean technology cooperation, and international adaptation. A parallel bill, S. 1733 and the Chair's Mark, contains similar provisions. Some Members of Congress and advocates have sought to increase allocation of allowances and/or appropriations, to \$2 billion to \$38 billion for international adaptation as well.²⁰ A new U.S. coalition of religious organizations has called for at least \$3.5 billion per year to help poor populations respond to potential floods, natural disasters and droughts associated with warming temperatures.²¹

The United States participates in the financing deliberations with impaired credibility, being almost \$170 million in arrears for its assessed contribution to the Global Environment Facility (the financial mechanism of the UNFCCC and other treaties). The Bush Administration helped establish a new Clean Technology Fund under the World Bank, but the U.S. Congress declined to appropriate the first payment of \$400 million requested for FY2009. Treasury requested \$500 million for FY2010. The Omnibus Appropriations Act, 2009 (P.L. 111-8) permitted up to \$10 million for the Least Developed Countries Fund, under the UNFCCC, to support grants for climate change adaptation programs. To receive the funds, the Global Environment Facility (GEF) must annually report on the criteria it uses to select programs and activities that receive funds, how funded activities meet such criteria, the extent of local involvement in these activities, the amount of funds provided, and the results achieved.

In the House appropriations bill for foreign operations for FY2010 (H.R. 3081, as placed on the Senate calendar), \$75 million would be appropriated for the multilateral Strategic Climate Fund,

²⁰ See, for example, <http://www.eenews.net/climatewire/print/2009/10/09/10>; and http://docs.google.com/gview?a=v&q=cache:I3tTCuJatQMJ:www.actionaid.org/assets/pdf/Climate%2520finance%2520briefing%2520in%2520template%2520May%25202009%2520FINAL.pdf+Oxfam+adaptation+funding+%2412&hl=en&gl=us&sig=AFQjCNEbYHV2hIASCb0s3v5II56_ZBB0Q.

²¹ Christa Marshall, "New religious coalition joins push for adaptation funding" *ClimateWire*, October 9, 2009. <http://www.eenews.net/climatewire/2009/10/09/10>.

\$225 million for the Clean Technology Fund, \$86.5 million for the GEF (a minor portion of which supports the UNFCCC), \$180 million for bilateral GHG mitigation programs under U.S. Agency for International Development, as well as other monies that could be used to support GHG mitigation and climate change adaptation.

The United States is constrained from offering any quantitative financial pledge, including the proposed increases, due to no legislated means to assure predictable private and public financing for international assistance (e.g., by GHG trading mechanisms for private flows, and allocation of GHG allowances for public funds). This has frustrated most other delegations, and may weaken U.S. leverage regarding the financial mechanisms.

Technology Development and Transfer

Because achieving deep GHG reductions would require radical technological change from current patterns, parties generally agree to cooperate to advance and deploy new technologies. The United States and the EU agree that some public financing for technology is needed but that the private sector is better able to achieve the necessary advances and deployment. Many non-Annex I countries consider private investment too unreliable and not necessarily in their developmental interests. They want most funding to be public and managed by a new organization directed by the UNFCCC.

After years of stalled talks regarding technology cooperation, Bangkok saw discussions open up on a wide range of issues including enhanced action on technology, capacity building and enabling environments; greater cooperation on research, development, demonstration, and deployment (RDD&D); technology innovation centers and other institutional arrangements; and financing. Divisions remain among parties. Annex I parties call for enhanced action among all parties to implement the Convention's provisions. The European Union resists creation of any new institutions, calling for reliance on existing financial organizations. The United States proposes a new voluntary fund to which all parties but the least developed would contribute, and from which all could draw. The G-77 countries and China propose creation of new institutional arrangements, funded by the wealthiest parties for any of the non-Annex I parties to use. Some convergence may be evolving around uses for RDD&D, capacity building, policy frameworks and enabling environments. Three components articulated as critical by some parties are accelerated global openness to environmentally sound technologies; increased access to technology information and know-how; and high-quality technology roadmaps for low-carbon economic growth.

In October 2009, the U.S. delegation proposed a "hub and spokes" framework as a new mechanism to support technology cooperation. It would rely on regional centers of excellence, linked through a professional Climate Technology Corps, to a Climate Technology Hub. The U.S. delegation indicates this would increase availability, capacity, and information exchange related to technology. The Hub would be staffed by full-time clean technology experts who would develop and maintain critical analytic tools. The Corps would consist of modeling, policy, finance, system design, and workforce training experts drawn from national development agencies, Multilateral Development Banks, and academia, to assist country-driven programs. The proposal seemed to straddle the competing ambitions of various parties by directly responding to the stated interest for new institutions while offering a possible way forward in negotiations.

One remaining challenge is the handling of intellectual property rights (IPR). Common arguments arise between the importance of IPR as incentives to innovate versus barriers to technology

transfer. Four options regarding IPR, covering a wide range of views, remain in the negotiating draft:²²

- Technology development, diffusion and transfer would occur cooperatively with patent sharing and/or intellectual property free for renewable energy and energy efficiency technologies. Financial support would be provided to buy down the full or partial cost of technologies for developing country parties, taking into account the ability to pay, and provided by the financial mechanism under the UNFCCC.
- Negotiation to constrain limits on access to technologies that help mitigation and adaptation by establishing “global technology pools,” and using the full flexibilities contained in the World Trade Organization’s agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), differential pricing, limited or time restricted patents, etc.
- Compulsory licensing of specific technologies for mitigation and adaptation to climate change, where it can be demonstrated that those patents and licenses act as a barrier to technology transfer and prevent the deployment or diffusion of that technology in a specified country.
- Immediate exclusion of new—and revocation of existing—patents in developing countries on essential technologies required to address mitigation and adaptation.

Some of these options are non-negotiable for the U.S. and other delegations.

Enhancing Carbon Sequestration in Forests

Deforestation accounts for about one-fifth of global carbon dioxide emissions, and poses further ecological risks. Until recently, most non-Annex I countries and many environmental groups opposed addressing forests or giving credits for improving resource management: many feared it was a distraction from abating fossil fuel emissions, while others focused on the environmental integrity challenges of credible measurement and monitoring of GHG reductions in the forest and resource sectors. Forested countries also feared any undermining of national sovereignty, including their management of resources. Widespread agreement has emerged to address carbon sequestration in forests, but with differences over how financial assistance for measures should be provided—through public funding or through GHG trading, or both.

There is no G-77 coordinated position on how to reduce deforestation and forest degradation, as well as improved conservation of natural resources (“REDD+”). Disagreements are apparent over the level of safeguards and the definition of what would be considered “sustainable management of forests.” Nevertheless, most see value in ensuring that all land use activities are recognized as viable mitigation options for both Annex I and non-Annex I countries. The U.S. remains prepared to press for REDD to be integrated into developing country NAMAs and low carbon strategies.²³

²² From AWG Non-paper No. 29, Streamlined text and concepts contained within the reordering and consolidation of text in the revised negotiating text FCCC/AWGLCA/2009/INF.2, annex V) (09/10/09) at http://unfccc.int/files/kyoto_protocol/application/pdf/technology29091009v03.pdf.

²³ U.S. Department of State, op. cit.

The European Union generally agrees, and emphasizes performance-based mechanisms that recognize verified emission reductions.

Measuring, Reporting, and Verification (MRV)

Measuring, reporting and verification (MRV) responsibilities would provide transparency and accountability for other commitments undertaken in a Copenhagen agreement. The practice of measurement, reporting, and verification also assists parties in building their indigenous capacities and fulfilling their commitments. The UNFCCC included commitments from all parties to certain actions that would be included under effective MRV provisions, including national GHG inventories, reporting (“national communications”) of national plans and actions taken, modeling of GHG results, etc. Only Annex I parties, however, have agreed to annual GHG inventories according to UNFCCC guidance and to periodic national communications, while some non-Annex I parties (notably China) have resisted rules that would regularize their reporting. Given concerns about capacities, transparency, and confidence among parties, MRV is arguably an essential part of the multilateral architecture under negotiation.

Under the Bali Action Plan, parties agreed to paragraphs 1b(i) and 1b(ii):

(b) Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of:

(i) Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances;

(ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner (UNFCCC, 2007a).

While the current negotiations include some dispute about appropriate interpretation of that language, most parties agree that “measurable, reportable, and verifiable” should apply to three sets of actions:

- (1) GHG actions and quantified commitments by developed country parties;
- (2) Nationally appropriate mitigation actions (NAMAs) by developing country parties; and
- (3) technology, financing, and capacity building for developing country parties (although it is unclear whether MRV would regard the receipt of these, or the provision of these, the effects of these or all of these options).

Additionally, MRV is part of negotiations to reduce emissions from deforestation and forest degradation, and conservation (REDD+) in developing countries.

Most parties agree that new commitments should build on the existing frameworks under the UNFCCC and, when appropriate, the Kyoto Protocol. MRV proposals under negotiation toward Copenhagen include:

- reporting of all nationally appropriate mitigation actions by developing countries, or only those that receive international support;
- requirements for all parties to provide comparable information and detail in their reporting;
- mechanisms and magnitude of financial and technical assistance to countries that are not (yet) capable of meeting the requirements;
- setting out timing, according to each Party's circumstances, for annual GHG inventory and regular national communications obligations to become binding;
- results-based mechanisms for distributing available resources to improve MRV in developing countries;
- mechanisms for transparency and independent review of reports, whether through international expert panels (as in place under the UNFCCC for Annex I parties) or through agreed, independent mechanisms within parties;
- rules and procedures for MRV in parties that allow them to take part in GHG trading mechanisms (including project-based offsets) to protect environmental integrity;
- linkages between the quality of MRV of a Party and crediting of GHG reductions; and
- methods for quantifying "technology, financing, and capacity-building" provided by Annex I countries and received by developing countries, and for reporting outcomes and effectiveness.

Some non-Annex I parties likely resist proposals because MRV ties them into more rigorous compliance assurance systems under the international regime.²⁴ There are a number of multilateral and bilateral initiatives that have demonstrated progress in improving developing countries' capacities and willingness to report and have their reporting independently verified. (As examples, the United States supported dozens of "Country Studies" aimed at this in the early-to mid-1990s; the World Bank has financed and assisted many parties' communications; and Australia, for instance, has assisted Indonesia to design and begin to establish a national system for MRV of REDD.) Most observers conclude that the efforts have yielded useful results, but that the level and consistency of resources have constrained more widespread progress.

The U.S. delegation has indicated that its position builds on the commitments of all parties under the UNFCCC.²⁵ It argues that MRV is required of all parties. New requirements would cover (1) enhanced reporting (annually for all but the Least Developed Countries); development, implementation, and reporting of low carbon strategies and of actions that would be "inscribed internationally," (2) independent expert reviews; and (3) public peer reviews conducted in sessions with all parties, to promote transparency and accountability. Sub-elements of the MRV system would, however, apply differently to countries, such as to the Least Developed Countries versus those non-Annex I parties with greater responsibilities and capabilities. The U.S. proposal

²⁴ Although many observers talk about "legally binding commitments," the bigger issue arguably is what mechanisms for transparency and assuring compliance exist under the agreement.

²⁵ From various sources, including U.S. Department of State, 2009, op. cit., p. 5.

would include financial support to countries that are not capable of carrying the costs of their MRV obligations.

Some non-Annex I parties have protested that the U.S. proposal does not include enough differentiation among parties. Some of the parties to the Kyoto Protocol have indicated that they seek a stronger compliance and enforcement system, potentially retaining the procedures agreed under the Kyoto Protocol.

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