International Forestry Issues in Climate Change Bills: Comparison of Provisions of S. 1733 and H.R. 2454

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December 22, 2009

Congressional Research Service
7-....
www.crs.gov
R40990

Summary

Deforestation releases substantial amounts of carbon dioxide, about 17% of all anthropogenic greenhouse gas (GHG) emissions. Legislation has been proposed for U.S. targets to reduce GHG emissions. The two primary bills, H.R. 2454 and S. 1733, include provisions that would reduce emissions from deforestation and forest degradation; these activities are referred to as REDD. Both bills would use allowances to build capacity in developing countries and supplement U.S. emissions reductions; both would allow offsets for U.S. industries; and both contain a reserve to stabilize carbon prices.

The bills are generally similar on allowances for REDD activities, but significant differences exist. H.R. 2454 would rely on the U.S. Environmental Protection Agency for implementation; S. 1733 would use the U.S. Agency for International Development. H.R. 2454 contains eligibility criteria and implementation standards for the supplemental emissions reductions, and identifies the types of activities that could be funded. S. 1733 would rely on federal agencies to issue regulations for these details. H.R. 2454 also contains more details on monitoring and reporting.

The bills are similar on REDD offsets, although H.R. 2454 generally contains more details for implementation. Both would limit the quantity of international offsets—1 gigaton or billion metric tons ($GtCO_2$) in H.R. 2454, and 0.5 $GtCO_2$ in S. 1733—but would allow some additional international offsets if domestic offsets are insufficient. Both contain guidelines that require agreements with the developing country, and national baselines and strategic forest plans by the developing country. However, neither defines the types of REDD activities that qualify. Both would allow project level and state or regional level REDD offsets, and both would phase-out such offsets to encourage national level REDD offsets, but neither bill describes how the transition from project level or state level REDD offsets to national offsets is to proceed. Both bills also address the rights and needs of indigenous peoples and forest-dependent communities, requiring due regard to indigenous and local rights and directing consultations with and the participation of indigenous peoples and forest-dependent communities.

There are several concerns about REDD allowances in the bills. H.R. 2454 provides significant details for supplemental emissions reductions, but eligible forests are undefined and the criteria and standards might be insufficient for effective implementation. The bills contain no penalties or consequences for failures to achieve the overall anticipated reductions in carbon release or to measure and monitor the activities. Both bills would use allowances for building capacity (e.g., personnel and equipment) to measure, monitor, and enforce REDD activities in developing countries, but neither bill defines capacity-building activities that could be funded, nor allocates funds between capacity building and supplemental emissions reductions.

There are also concerns about REDD carbon offsets. There are issues for carbon offsets generally—their verification (measuring, monitoring, and reporting carbon sequestration), their additionality (activities not already occurring or required), their permanence, and leakage (merely shifting deforestation to other locations). These issues are exacerbated for REDD offsets, because many developing countries do not have the capacity to address these concerns. In addition, many are concerned that REDD offsets may inhibit developing countries from committing to GHG reductions and from evolving to low-carbon economies.

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Efforts to mitigate climate change have focused on reducing carbon dioxide (CO_2) emissions into the atmosphere. Some of these efforts focus on reducing deforestation, since deforestation is a significant source of CO_2 emissions. Deforestation releases about 1.6 $GtCO_2$ (gigatons or billion metric tons of CO_2) annually, about 17% of all annual anthropogenic greenhouse gas (GHG) emissions.[1] Thus, discussions and negotiations on international climate change mitigation policies, such as in Congress and at the 15th Conference of the Parties to the U.N. Framework Convention on Climate Change (UNFCCC) in Copenhagen in December 2009, typically include reducing emissions from deforestation and forest degradation (REDD).[2]

The two primary climate change bills in the 111th Congress, S. 1733 and H.R. 2454, include REDD activities as part of a strategy to reduce GHG emissions.[3] Both S. 1733 and H.R. 2454 seek to reduce U.S. GHG emissions, among other things. Both would establish "cap-and-trade" systems, where emissions from many economic sectors (accounting for about 85% of U.S. GHG emissions) are capped, with the emissions cap declining over time.[4]

The cap would establish the total quantity of annual allowances. Capped, or covered, entities would be required to acquire allowances to fulfill their compliance obligations. Congress may choose to distribute emission allowances at no cost to capped (or covered) sources or to non-capped entities, or to sell the allowances through auctions. Because allowances to non-covered entities can be sold by the recipients to covered entities, they effectively provide funding to the recipients, generally called allowance value. In both bills, many allowances would be allocated to various entities at no cost; others (especially from the reserves) would be auctioned by the government to covered entities.[5] Both bills would allocate 5% of the allowances to finance REDD activities in developing countries (although the bases for allocating allowances differ); the funding that this would generate depends on the market value of those allowances.

Offsets are GHG emissions reductions by a non-covered entity (including other countries) that can be purchased by covered entities and used to meet their compliance obligations under the emissions cap.[6] REDD activities could be a major source of offsets, because deforestation in

[1] Intergovernmental Panel on Climate Change, "Summary for Policymakers," *Climate Change 2007: The Physical Science Basis—Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, http://ipcc-wg1.ucar.edu/wg1/wg1-report.html. The exact amount of CO_2 emissions from tropical deforestation is not known, with model-based estimates varying widely. Differences are largely the result of differing estimates of rates of deforestation from satellite imagery and extrapolations from ground surveys.

[2] Deforestation is the loss of tree cover, usually as a result of forests being cleared for other land uses, such as farming or ranching. Forest degradation is where some, but not all, of the tree cover is removed or destroyed, often as a result of logging or fuelwood extraction. The remaining forest generally has less canopy cover, and the remaining trees are often damaged. Avoiding degradation can retain more of the carbon in the forest, thus reducing CO_2 emissions.

[3] The bills include numerous other provisions, such as adaptation to ameliorate the unavoidable effects of climate change on plants and animals. (See CRS Report R40911, *Comparison of Climate Change Adaptation Provisions in S. 1733 and H.R. 2454*, coordinated by (name redacted).) While funding for international forest and other adaptation has been discussed, neither bill includes any funding for international adaptation activities, and thus adaptation is not discussed in this report.

[4] For a broader discussion of these bills, see CRS Report R40896, *Climate Change: Comparison of the Cap-and-Trade Provisions in H.R. 2454 and S. 1733*, by (name redacted), (name redacted), and (name redacted).

[5] See CRS Report RL34502, *Emission Allowance Allocation in a Cap-and-Trade Program: Options and Considerations*, by (name redacted).

[6] CRS Report RL34436, *The Role of Offsets in a Greenhouse Gas Emissions Cap-and-Trade Program: Potential Benefits and Concerns*, by (name redacted).

tropical countries is a major source of emissions. Both bills would authorize international offsets from REDD activities in developing countries, within limits.

In addition to allocated allowances and offsets, both bills would establish allowance reserves. The primary purpose of the reserves is for allowance sales to stabilize market prices for allowances. If carbon prices are too high or rise too quickly, reserve allowances could be sold, expanding supply and moderating prices. The proceeds from reserve allowance sales could (under S. 1733) or must (under H.R. 2454) be used for additional REDD activities, thus providing a third source of funding to reduce deforestation.

Advocates support REDD activities to reduce GHG emissions because it will not require new technology, and thus can be implemented quickly, providing time for longer-term solutions that involve the energy sector. Further, some contend that reducing deforestation is a low-cost strategy to reduce GHG emissions. The U.S. Environmental Protection Agency (EPA) estimated that the opportunity for U.S. firms to get credits from international offsets reduces the permit price by 89% under one climate bill, and that nearly 60% of the international offsets will come from REDD activities.[7]

Critics object to relying heavily on REDD for GHG reductions. They are concerned that flooding carbon markets with REDD offsets will detract from other critical GHG-reducing activities, such as developing and implementing new technologies to lower emissions. Other concerns are that REDD projects might not be sustainable in developing countries for long periods of time and that use of REDD in developing countries may inhibit both developed and developing countries from reducing their own emissions.

This report summarizes, compares, and analyzes provisions related to international REDD in H.R. 2454 (as passed the House) and S. 1733 (the revised Chair's mark of 10/30/09).[8] This includes a discussion of major differences between bills and potential issues associated with selected provisions. Three aspects of the bills address international REDD activities: (1) allowances for capacity-building and emissions reductions; (2) international REDD offsets; and (3) allowance reserves.

Allowances and Emissions Reductions from REDD

S. 1733 and H.R. 2454 both would allocate 5% of allowances for REDD activities in developing countries. The aim under both bills is to use the allowance value to reduce deforestation in developing countries. The allowance value could be used in two ways: (1) to build capacity (e.g., develop a deforestation baseline and acquire monitoring technology) for countries to reduce deforestation and to participate in markets for international offset credits, and (2) to directly reduce deforestation emissions and supplement emissions reductions from non-REDD activities.

[7] U.S. Environmental Protection Agency, EPA Analysis of the American Clean Energy and Security Act of 2009, *H.R. 2454* in the 111th Congress, June 23, 2009, http://www.epa.gov/climatechange/economics/pdfs/H.R. 2454_Analysis.pdf.

[8] This report includes only the international provisions of the legislation because: (1) domestic deforestation is not a significant source of CO_2 and (2) the provisions that address domestic forestry are quite different from the provisions that address forestry in other countries.

Supplemental emissions reductions from REDD activities are expected to help the United States reach emission reduction goals, particularly in the first 10-15 years of the program.[9] Under both bills, supplemental emissions reductions from REDD activities are expected to reduce GHG emissions in developing countries by at least 720 million tons of CO_2 in 2020 (a one-year target quantity for 2020), and a cumulative quantity of 6 $GtCO_2$ by 2025. This is in addition to the U.S. emissions reductions targets from covered sources that the bills aim to achieve by 2020, which could be achieved in part through international offsets including REDD activities. (See below.)

Some contend that the supplemental emission reduction targets in both bills might be unrealistic, due to the lack of readiness and unwillingness of some developing countries to participate in the program. [10] They argue that, in the early years of the program, funds from allowances might have to flow largely to capacity-building activities rather than emission-reducing activities, thus delaying progress toward the emission reduction targets. Supporters counter that an abundance of emission reduction opportunities are ready to be funded, and that sub-national or program-level projects are the first steps toward reducing emissions. H.R. 2454 (§754(b)) would allow sub-national deforestation activities and pilot programs that aim to reduce GHG emissions; S. 1733 does not specify that these activities would be allowed under this program, although the regulations required by S. 1733 could include them.

REDD Allowance Provisions in the Bills

The bills contain several conditions on the use of allowance values for implementing REDD to build capacity and reduce emissions in developing countries. The bills differ in (1) which agency is assigned to administer REDD provisions; (2) the conditions placed on developing countries eligible for capacity building and supplemental emissions reductions; and (3) the types of activities, the implementation standards, and the monitoring and reporting requirements. In general, and as discussed below, H.R. 2454 contains more explicit requirements for REDD allowances than does S. 1733. [11] The more explicit requirements and conditions under H.R. 2454 might take several years for countries and projects to qualify, and suggest that S. 1733 could potentially be implemented in less time. However, this likely depends on the time needed to promulgate regulations under S. 1733 as well as the nature of the requirements and conditions in those regulations.

Administering Agency

Different agencies would administer this program under each bill. Under H.R. 2454 (§2(1)), the Administrator of EPA would be authorized to administer the REDD activities funded through allowance values.[12] Under S. 1733 (§751(1)), the Administrator of the U.S. Agency of

[9] The committee report for H.R. 2454 states that "by building capacity and providing powerful incentives to develop national efforts to reduce deforestation, the Committee intends that this program will both achieve significant reductions in emissions from deforestation (more than 6 billion metric tons of emissions) and allow many forest nations to participate in carbon markets, which will expand the supply of available offset credits."

[10] See John Larsen and Robert Hellmayr, *Emission Reductions Under the American Clean Energy and Security Act of 2009*, World Resources Institute, May 19, 2009. However, §781(b) allows EPA to make adjustments (effectively borrowing future year allotments) to meet the 2020 and 2025 supplemental reduction objectives.

[11] H.R. 2454 imposes fewer requirements for capacity building activities to implement REDD than it does for GHG emissions reduction activities.

[12] USAID is given primary responsibility for implementing some activities authorized in H.R. 2454, such as improving (continued...)

International Development (USAID) would be authorized to administer the REDD activities. Under each bill, the authorized administrator would be directed to consult with relevant or appropriate federal agency heads to establish a program to use emission allowances for REDD activities.

These agencies have different missions and histories that would likely affect their implementation of REDD activities. EPA's mission includes enforcing domestic compliance with various environmental regulatory provisions, including air and water pollution control and solid waste disposal.[13] EPA has experience in measuring and monitoring emissions and in enforcing pollution reduction programs. EPA is a larger organization than USAID, with an annual budget of about $10 billion.

In contrast, USAID was created to administer international economic and humanitarian assistance programs; international environmental programs were added later to the agency's mission.[14] USAID currently administers foreign assistance projects, including forestry and forest protection projects, in many countries. USAID has experience in overseeing environmental and economic programs in developing countries. USAID is a smaller organization then EPA, with an annual budget of about $1 billion, although it administers more than $20 billion in annual foreign assistance funding.

Eligibility

Developing countries would be eligible for funding under this program in both bills. S. 1733 does not specify eligibility factors for developing countries; instead it would direct USAID to develop a program within two years to reduce GHG through REDD activities in developing countries. This would provide some flexibility for USAID to develop criteria for including and prioritizing countries that can participate in the program.

H.R. 2454 includes a set of eligibility criteria for developing countries to participate in the supplemental emission reduction program. EPA, in consultation with USAID, would be required to determine that the developing country is experiencing deforestation or forest degradation, or has standing forests that might be at risk of deforestation or degradation. In addition, the country must have entered into a bilateral or multilateral agreement with the United States establishing conditions for its participation in the program. S. 1733 contains similar requirements for carbon offsets, but not for supplemental emissions reductions.

Neither bill defines what constitutes a forest, making it difficult to understand the type, location, and extent of forested land that might be eligible for REDD activities. S. 1733 does define deforestation and forest degradation, but without a definition of forest or forested land, the implications of these definitions are uncertain. There are several published definitions of a forest, usually reflecting the concerns or interests of various entities. Definitions commonly define the

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forest governance and law enforcement, and building capacity for monitoring and measuring deforestation.

[13] Office of the Federal Register, National Archives and Records Administration, *The United States Government Manual, 2008-2009,* Washington, DC, June 1, 2008, pp. 379-383.

[14] *The United States Government Manual, 2008-2009,* pp. 538-541.

percent tree (canopy) cover in a forest or some minimum level of tree or woody biomass growth.[15]

In both bills, emissions reduction activities funded under this section would not be eligible for international offset credits. The intent might be to prevent funding the same project twice, once from allowances and a second time as an offset. However, REDD activities funded by allowances could later become offsets. Indeed, both bills phase out supplemental emissions reductions, transitioning from REDD activities funded from supplemental emission reductions into offset generating activities. By providing the opportunity to later qualify for offsets, projects with initial investments from this program might have a greater incentive to remain intact, or to extend their permanence.

Types of Activities

The types of REDD activities that can be funded with allowances are defined in H.R. 2454, but not in S. 1733. H.R. 2454 specifies authorized activities, such as reducing national and sub-national deforestation; capacity-building to measure, monitor, and verify deforestation, leakage prevention, forest governance, and enforcement; and reducing illegal logging. H.R. 2454 further specifies that activities for reducing emissions from forest degradation also can qualify; S. 1733 does not specify this activity.

Implementation Standards

H.R. 2454 defines mechanisms for providing allowances to address REDD in developing countries; S. 1733 does not. Under H.R. 2454, EPA would be authorized to distribute emission allowances to: (1) a country; (2) a public or private group; or to (3) an international fund established by an international agreement to which the United States is a party. For its REDD activities under H.R. 2454, the Administrator of USAID has discretion over how to distribute allowances. H.R. 2454 further states that, if support is given to an international organization, the agency responsible for selecting the activities is to ensure that mechanisms to enforce the requirements of the program are established. Under H.R. 2454, it is unclear if public or private groups must be affiliated with the country where the project is to occur to receive support.

Intruding upon national sovereignty can be an issue associated with some U.S. overseas development assistance programs, if the assistance is used for land acquisition or protection decisions. For example, national sovereignty became an issue in Bolivia in 1987 when a conservation organization was reported to have obtained title to forested lands; there was a public outcry and ensuing political crisis when the Bolivian people thought a large part of their country had been given to a foreign organization.[16] It is unclear if REDD allowances could be used to purchase lands or property in the country (e.g., forest preserves).

[15] See, for example, the 40% canopy closure recommended for northern spotted owl habitat (Jack Ward Thomas et al., *A Conservation Strategy for the Northern Spotted Owl*, Interagency Scientific Committee to Address the Conservation of the Northern Spotted Owl, Portland, OR, May 1990) and the growth rate of 20 cubic feet of industrial wood per acre per year for commercial timberland (W. Brad Smith et al., *Forest Resources of the United States, 2002*, USDA Forest Service, Northern Research Station, Gen. Tech. Rept. NC-241, St. Paul, MN, 2004).

[16] John Walsh, "Bolivia Swaps Debt for Conservation: Purchase of Portion of Debt at Discount by U.S. Group Permits Creation of Conservation Buffer Zone for Reserve," *Science*, vol. 237 (1987), p. 596.

H.R. 2454 would establish a set of standards for implementing REDD activities for supplemental emissions reductions. These include:

- Development of a national deforestation baseline for each participating country that is consistent with national mitigation commitments or actions toward deforestation; that establishes a trajectory to achieve zero net deforestation no later than 20 years after it is created; and that is adjusted over time to take into account changing national circumstances;
- Verification that supplemental emissions are achieved prior to compensation;
- Use of a discount factor to account for uncertainty in the measuring and monitoring techniques for sub-national REDD activities; and
- Assurance that activities have collateral benefits, such as being designed with widely accepted forest management practices, improving biodiversity, being implemented with the participation of indigenous and local people, and equitably sharing profits with indigenous and local people.

S. 1733 does not specify such standards.

Indigenous Peoples and Forest-Dependent Communities

Significant sums are likely to flow to developing countries under this program, but their distribution might not include the indigenous and local communities that depend on forests and their resources. Some contend that REDD activities could force native people off their land, increase corruption, and create incentives to deny land rights to local populations.[17] H.R. 2454 addresses this issue by involving local and indigenous people in the implementation process and ensuring safeguards for human rights.

H.R. 2454 also would require EPA to ensure that safeguards are established and enforced to protect the rights of indigenous and local communities and to promote consultation and equitable sharing of benefits. S. 1733 does not contain provisions stating similar criteria for implementing REDD activities for this program. However, both bills contain provisions authorizing international offsets related to REDD (see below) with several references to protecting the rights of local and indigenous populations, as well as equitably sharing benefits.

Reporting and Monitoring

H.R. 2454 has several provisions on reporting and monitoring REDD activities under this program; S. 1733 does not. H.R. 2454 would require an annual report from EPA and USAID to the House Committees on Energy and Commerce and on Foreign Affairs and the Senate Committees on Environment and Public Works and on Foreign Relations, beginning on January 1, 2014. The report is to include the amount of supplemental emissions reductions funded by emission allowances, the distribution of allowances to each recipient, a description of the REDD activities implemented, and a description of what was accomplished through each of the activities. Every four years thereafter, a review of the activities implemented under this program

[17] See, for example, Kate Dooley et al., *Cutting Corners: World Bank's Forest and Carbon Fund Fails Forests and Peoples*, FERN/Forest Peoples Programme, November 2008, p. p.8.

is to be provided. This review is to include the effects of the REDD activities on carbon stocks in the country that received support under this program, number of countries that can participate in offset markets, and factors that address indigenous rights, biodiversity, and leakage. S. 1733 does not specify requirements for reports, but does not preclude them from being included in the regulations to be promulgated by USAID.

Potential Issues Affecting the Effectiveness of Allowances in Both Bills

There are some potential issues that could affect the supplemental emission reduction program in both bills, including lack of implementation capacity in developing countries, oversight of REDD activities and enforcement of rules, and permanence of GHG emissions reductions.

Implementation Capacity

Several developing countries which are expected to qualify for REDD activities for supplemental emissions reduction do not currently have the capacity to implement REDD activities within the conditions under H.R. 2454; S. 1733 does not contain comparable conditions or requirements for supplemental emissions allowances, but USAID could include similar provisions in regulation. Developing this capacity could delay the distribution of emissions allowances under this program. The United Nations REDD Programme (UNREDD) is assisting countries to implement REDD activities and has 33 participating countries.[18] Few countries have submitted progress reports and implemented REDD-ready activities (e.g., developing a national baseline and monitoring strategies). H.R. 2454 further requires countries to enter into a bilateral or multilateral agreement establishing the condition of its participation, further delaying implementation, depending on the conditions of the agreement. Before distribution of emission allowances, concurrence from the Secretary of State is required. It is unclear if the Secretary of State will be evaluating countries based on political criteria, similar to other programs such as debt-for-nature swaps under the Tropical Forest Conservation Act (TFCA, P.L. 105-214; 22 U.S.C. §2431).[19] For activities that generate supplemental emissions reductions, compensation from allowances will be granted only after the emissions have been achieved and verified. This would require funding from the developing country to implement the activity, and implies that the country has a national deforestation baseline and the capacity to measure and monitor GHG emissions reductions. Attaining all of these conditions in a developing country could take time and resources. Indeed, some might opt for creating offset credits to trade in international carbon markets with their projects rather than accepting allowance funds for emissions reductions.

Oversight and Enforcement of REDD

This program is intended to provide significant amounts of funding to developing countries to conduct REDD activities with little leverage for ensuring activities are implemented, monitored, and enforced. Monitoring foreign assistance activities is difficult because the United States has no

[18] The Programme was officially announced at the 13th Conference of the Parties to the UNFCCC in Bali, Indonesia, in December 2008, although preliminary work had begun earlier that year.

[19] Under the TFCA, an eligible country must have a democratically elected government, must cooperate with the United States on drug control, and must not engage in gross violations of human rights or support terrorist activities.

jurisdiction to enforce laws and policies in foreign countries. Neither bill directly addresses enforcement of activities in countries receiving allowances under this program or discusses potential consequences if guidelines are not met. This issue could be addressed, in part, through reporting and monitoring. H.R. 2454 does contain requirements for reporting and reviewing REDD activities under this program. For example, in §754(f), H.R. 2454 would authorize a publicly accessible registry of supplemental emissions reductions achieved through this program annually, and §755 would require an annual report on the quantity of supplemental emissions reductions and description of the REDD activities implemented and allowances distributed. S. 1733 and H.R. 2454 (§731(d) of both bills) also would require a scientific review of offsets and supplemental emissions reductions activities at five-year intervals. This review could analyze scientific and technical information on offsets and supplemental emission reduction activities (e.g., project monitoring, audits, evaluation of net emissions of offset projects) and recommend changes in protocols or to the overall offset program.

Neither bill discusses any penalties or consequences for not following guidelines or maintaining the integrity of projects that are supported through allowances in this program.[20] (There are provisions that discuss penalties for offset reversals.) Nor do the bills establish an environmental justice mechanism where disputes or claims can be heard, discussed or settled. Some U.S. environmental initiatives that provide international development assistance related to the environment have approached enforcement and oversight in different ways. For example, under the TFCA, a fund that provides grants to local non-governmental organizations is overseen by an independent board. The U.S. government, the government of the beneficiary country, and individuals who represent a broad range of environmental, academic, and scientific organizations in the beneficiary country may each appoint one or two representatives.

Another example of existing oversight structures is the dispute resolution entity in the U.S.-Peru Trade Promotion Agreement (TPA).[21] The TPA requires that both Parties adopt laws and measures to fulfill each Party's obligations under multilateral environmental agreements, such as Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Further, the TPA requires the Parties to enforce their own environmental laws and establishes a policy mechanism to address public complaints that a Party is not effectively enforcing its environmental laws, whether or not the failure is trade related. Complaints may be filed by individuals and organizations of each Party to the agreement and would be addressed according to a set of procedures outlined in the TPA.[22]

"Permanence" of GHG Reductions

Ensuring the permanence of GHG emissions reductions through REDD activities is a significant issue.[23] Ensuring permanence for GHG reductions in developing countries could be difficult due to changes in the economic viability of REDD activities, inaccurate or misleading monitoring for

[20] There are provisions in both bills that discuss the integrity of REDD offsets that could be applied to supplemental emissions reductions, as well.

[21] For background on the TPA, see CRS Report RL34108, *U.S.-Peru Economic Relations and the U.S.-Peru Trade Promotion Agreement*, by (name redacted).

[22] The TPA contains an annex on forest sector governance that specifically addresses the Parties' commitments to combat trade associated with illegal logging and illegal trade of wildlife.

[23] One of the hallmarks of emissions reduction programs and proposals is that the reductions permanently reduce GHG emissions.

compliance, and inconsistent government support for REDD. Permanence of reductions could be supported by sustained funding incentives. Still, supporters argue that, even if permanence of reductions cannot be guaranteed, REDD activities are still useful. They contend that capturing carbon in forests may be the only way to reduce carbon emissions significantly in the short term, until a technological solution emerges.[24] Further, they contend that some REDD activities might have long-term consequences, such as the need to implement new forest governance systems and facilitate sustainable forestry management activities. For activities under supplemental emissions reductions, neither bill discusses permanence of GHG reductions; however, both contain monitoring and reporting requirements that might uncover changes in the carbon emissions reductions from REDD projects.[25]

International REDD Offsets

International offsets are a mechanism for covered entities to "offset" their emissions by purchasing credits for activities that reduce GHG emissions elsewhere, including in foreign countries. REDD activities are one category of international offsets under both bills.

REDD Offset Provisions in the Bills

The bills include several conditions and requirements for the use of offsets from REDD activities in other countries. The bills differ on the amount of international offsets that can be purchased by a covered entity, on the guidelines for REDD offsets, on the types of activities that can qualify, and on the transparency of the treatment of indigenous people and local communities. In addition, while offsets are generally established at the national level, both bills allow offsets at the sub-national or regional level as well as project-specific offsets, under prescribed conditions.

Quantity of International Offsets Allowed

Each bill limits the amount of offsets that can come from international activities, including the offsets from REDD activities that are expected to provide a majority of the international offsets. Overall, both H.R. 2454 and S. 1733 limit total (domestic and international) offsets at 2 $GtCO_2$ annually.[26] Each bill, however, has a different limit on the number of international offsets that can be generated. Under H.R. 2454, not more than one-half of all offsets (i.e., 1 $GtCO_2$) can come from international offset credits. Under S. 1733, not more than one-quarter of offsets (i.e., 0.5 $GtCO_2$) can come from international offset credits. Both bills specify conditions under which these limits can be modified. Specifically, if the estimated use of domestic offsets are expected to be below 0.9 $GtCO_2$ annually, limits on the use of international offsets can be modified. Under H.R. 2454, the ceiling on international offset credits can be increased by the amount that the estimated domestic offset usage falls below 1 $GtCO_2$, up to an additional 0.5 $GtCO_2$. For

[24] See, for example, Lydia P. Olander et al., *International Forest Carbon and the Climate Change Challenge: Issues and Options*, Nicholas Institute for Environmental Policy Solutions, Nicholas Institute Report, June 2009, p. 35.

[25] Permanence of GHG reductions is addressed with respect to international REDD offsets in both bills and is discussed in the offset section of this report, below.

[26] The 2 $GtCO_2$ is an aggregate annual limit. Each covered entity is subject to percentage limitations; the 2 $GtCO_2$ total would only be reached if all covered entities maximized their use of offsets. Thus, the actual use of offsets is likely to be less than the aggregate annual limit.

example, if the domestic offset usage is 0.9 billion tons, the international offset credits could be 1.1 $GtCO_2$ (1 $GtCO_2$ allowed domestic offsets – 0.9 $GtCO_2$ estimated domestic offsets = 0.1 $GtCO_2$ additional international offsets). Therefore under H.R. 2454, the potential for international offset credits is 1.5 billion tons annually. Under S. 1733, potential additional international offset credits is determined the same way, but limited to an additional 0.75 $GtCO_2$ of international offset credits. This has the potential to generate up to 1.25 $GtCO_2$ of international offsets annually under S. 1733, 0.25 $GtCO_2$ less than under H.R. 2454.

Guidelines for REDD Offsets

Both bills would require countries to meet certain eligibility standards to establish salable international offsets. The requirements include 1) there is bilateral or multilateral agreement between the United States and the host country; 2) the country is a developing country; and 3) the agreement between the United States and the host country ensures that requirements are met and offset credits are distributed appropriately. S. 1733 contains an additional provision requiring that the offset projects be subject to civil and regulatory actions in U.S. federal courts.

In both bills, the quantity of international REDD offset credits a country can establish would be determined by comparing deforestation emissions after the REDD action to an already-established baseline of emissions from deforestation. In both bills, credits would be issued after the emissions reductions have been realized and measured; no credits could be given in anticipation of emissions reductions. Funding for projects to create REDD-based offsets would have to be provided upfront, before the reductions have occurred and offsets have been sold.

Both bills contain several additional requirements for offsets, including having a land or forest sector strategic plan in place. The requirements for the plan are more extensive in S. 1733 than in H.R. 2454, but several criteria are the same. Similar criteria include an assessment of drivers of deforestation; an estimate of the country's emissions from deforestation and forest degradation; identification of improvements in data collection, monitoring, and institutional capacity to implement a deforestation reduction program; and a strategy for transitioning to low-emissions development from forest and land use activities. S. 1733 contains additional provisions that address transparency (who receives the benefits), local and indigenous people's participation, and monitoring, among other things. Most aspects of land use plans in both bills would fall under the jurisdiction of the host country and be subject to its laws. It is uncertain if meeting these criteria would be required to participate in an offset program, or if they are guidelines for implementation.

The bills use parallel characteristics for the required deforestation baseline. Baseline calculations are to be national in scope; consistent with mitigation commitments; consider the deforestation rates from at least five years in the past; establish a trajectory that would result in zero net deforestation within 20 years, adjusted over time to take into account changing national circumstances; designed to account for significant sources of GHG emissions in the country; and consistent with the baseline established for supplemental emissions reductions. Neither bill clarifies what type of changing circumstances would warrant a change in the national deforestation baseline. A possible example might be improved technology for measuring emissions that shows a significant difference from previous measurements or a natural disaster that alters forest cover. Any change in the baseline could be significant, since it would affect the quantity of offset credits a country could sell.

Types of Activities Authorized

For international offsets associated with REDD, three categories of activities would qualify in both bills: (1) national level activities under developing countries that meet eligibility requirements; (2) state or province level activities within developing countries that meet certain requirements; and (3) program and project level activities in a developing country that is responsible for less than 1% of global GHG emissions, and less than 3% of global forest-sector and land use change emissions. State or province level activities and program and project level activities have distinct provisions that are discussed below.

Actual REDD activities eligible for international offsets are not listed in either bill, and are left to the discretion of the President under S. 1733 and of the EPA Administrator under H.R. 2454. Some project types to be considered for the initial list under S. 1733 include projects involving afforestation or reforestation of acreage not forested as of January 1, 2009; forest management resulting in an increase of forest carbon stores; reductions in GHG emissions from restoring forests; and changes in carbon stocks attributable to land use change and forestry activity (e.g., reduced deforestation and agroforestry). Both bills also would allow EPA to expand the scope of REDD activities that could receive offsets to include reductions in forest degradation and losses in soil carbon associated with forested wetlands or peatlands.

State or Province Level Activities

In both bills, state- or province-level REDD activities could qualify for offsets if the national government is not ready, willing, or able to participate. The national government must demonstrate an effort to transition to a national program with a strategic land use plan. Eligibility requirements for these activities vary between the bills, although both would require that eligible states or provinces follow guidelines for REDD offsets set under national level emissions. Under S. 1733, eligible states or provinces must be affected by deforestation activities and have the technical and institutional capacity to implement REDD. H.R. 2454 emphasizes that the state or province must be a major emitter of GHG from tropical deforestation, on a scale commensurate to the emissions of other countries, but does not include capacity requirements.

Both bills would require the creation of a state or province level baseline of carbon emissions from deforestation and would direct that offsets be issued based on the difference between the baseline and the emissions reductions for the state or province. Further, both bills have a *phase-out* provision prohibiting offset credits for state and province level activities after five years.

Project and Program Level Activities

Project and program level activities that generate REDD offsets are also authorized in both bills. These activities are intended to give projects and programs within a developing country an opportunity to generate offsets for a limited period of time, while the host country is developing a national plan.

Both bills would authorize EPA to create a list of eligible countries for offsets from project or program level activities. REDD project credits could only occur in countries that account for less than 1% of global GHG emissions and less than 3% of global forest sector emissions. In terms of global forest sector emissions, large emitting countries such as Brazil and Indonesia (among others) would not be eligible under the bills. It appears that project and program level REDD

activities would not preclude state and provincial level REDD activities, and that activities at different scales could potentially be done concurrently. Eligible countries for these activities also must be making progress towards implementing a national level plan under both bills. S. 1733 also would require that countries make efforts to develop a monitoring program to assess leakage, and a land use plan that identifies intact, primary, and managed forest areas. It appears that these sections are intended to require countries to make progress towards implementing a national level REDD program. However, this section allows international REDD offsets at the project or program level for countries not interested in a national level program. Brazil, for example, has expressed hesitancy at implementing a national offset program, but its states could sell REDD offsets under this program.

Both bills would phase out the project or program level activities after a certain period. Under S. 1733, project and program level offsets would be phased out after eight years; under H.R. 2454, they would be phased out in five years. Both bills would allow for an extension of project and program offsets if certain criteria are met, such as if the country is among the least developed among developing countries according to the United Nations. Under S. 1733, the extension could be for up to five years; under H.R. 2454, the extension could be up to eight years. Extensions could allow the program to last up to 13 years in both bills.

Without proper monitoring and protections, sub-national and project or program activities could cause "leakage" to neighboring areas within the host country or to neighboring countries.[27] For this reason, some contend that all REDD activities should be measured against a national baseline, rather than one developed for an individual project or state. Measuring at the national level might also reduce concerns about permanence of GHG emissions reductions at the project level, since GHG emissions reductions would be aggregated among projects.

Indigenous Peoples and Forest-Dependent Communities

Addressing the rights of indigenous and local people is a recurring theme throughout both bills. Some are concerned that funds from REDD offsets will be disproportionately given to wealthier landowners who have large holdings, access to funds, and a secure title to their land. Rural and poor landowners might not benefit from REDD activities and could be at a disadvantage in some cases. For example, REDD might lead to conflicts in efforts to secure title, and therefore would likely favor those with more resources.[28] Furthermore, a majority of land in developing countries is owned by the government, thus putting local people at risk of displacement. REDD activities could also depress local economies by taking away land used to produce agricultural commodities and wood and other forest products and by eliminating the associated infrastructure.

Under the offset program, both bills would direct EPA to ensure the establishment and enforcement of legal regimes, processes, standards, and safeguards that (1) give due regard to the rights and interests of local communities, indigenous peoples, forest-dependent communities, and vulnerable social groups; (2) promote consultations with, and full participation of, forest-dependent communities and indigenous peoples during the design, planning, implementation, and monitoring and evaluation of activities; and (3) encourage equitable sharing of profits and

[27] Leakage is an issue for offsets, especially international deforestation offsets, where the emissions reduction in one location is countered by increased emissions in another, possibly neighboring, location.

[28] Bruce M. Campbell, "Beyond Copenhagen: REDD+, Agriculture, Adaptation Strategies and Poverty," *Global Environmental Change*, vol. 19 (2009), pp. 397-399.

benefits derived from international offset credits with local communities, indigenous peoples, and forest-dependent communities. Ensuring that these provisions are adhered to in foreign countries could be challenging. One approach could be establishing a dispute resolution mechanism in the offset agreement with the host country. This would allow a third-party to oversee disputes related to offsets and their implementation. The decision-making authority of this entity could be specified in the agreement as well. This type of policy mechanism has been used in some free trade agreements, such as the North American Free Trade Agreement and more recently in the Central American Free Trade Agreement.

Potential Issues Affecting REDD Offsets in Both Bills

There are numerous concerns about REDD offsets. These concerns include verifiability (measuring, monitoring, and reporting), additionality, leakage, and permanence.[29] Other concerns relate to REDD projects more specifically, and are similar to the concerns about REDD allowance implementation, discussed above.

Some developing countries may not have the capacity to address concerns about REDD offsets—particularly the ability to enforce laws and land tenure (ownership), to prevent illegal logging and other activities, and to measure and monitor forest carbon levels. While the REDD allowances described above can be used to build capacity, allowance funding might be focused on achieving the supplemental emissions reductions, and not provide sufficient funding to build governance capacity in developing countries to allow them to participate in the REDD offset markets.

A related concern, discussed briefly above, is the transition in developing countries from the REDD supplemental emissions reductions program to the REDD offset markets. While the bills clearly anticipate this transition, with the phase-out of supplemental emissions reductions, the pathway for the transition is not clear. In addition, the bills phase-out the project/ program and regional/state REDD offsets, with a transition to national REDD offsets, but the pathway for this transition is also unclear. In particular, it is unclear how near-term failures (e.g., carbon emissions from wildfires) in the supplemental program and in project or state REDD offsets might affect the national deforestation baseline and other criteria necessary for a national REDD offsets.

Another issue is the long-term participation of developing countries in global efforts to reduce GHG emissions. If developing countries participate actively in the REDD offset market, it might prevent those countries from using REDD to offset emissions from domestic development. This might prevent economic growth and continue the impoverished state of many developing countries.

Finally, host nations might act strategically, establishing a national deforestation baseline to create the most favorable conditions or maximum opportunities for REDD offsets. Entities that develop offsets (e.g., offset aggregators) have similar incentives to minimize pre-existing carbon baselines so as to maximize the carbon sequestration that can be sold. However, where offset projects will likely require independent, third-party verification of carbon changes from the baseline conditions, there is no comparable independent review of the national deforestation baselines for REDD offsets. Because of the bilateral or multi-lateral agreements needed for REDD offsets, the

[29] See CRS Report RL34560, *Forest Carbon Markets: Potential and Drawbacks*, by (name redacted) and (name redacted); also see CRS Report RS22964, *Measuring and Monitoring Carbon in the Agricultural and Forestry Sectors*, by (name redacted) and (name redacted).

baselines might be determined, or at least influenced by political considerations, rather than objective standards, raising questions about the reality of additional carbon sequestration from REDD activities.

Allowance Reserve Auction

A third source of money for REDD activities might come from the expenditure of proceeds from the auction of allowances in a strategic reserve. Under both bills, a portion of the allowances would be deposited in a strategic reserve (H.R. 2454) or market stability reserve (S. 1733). The purpose of the reserve is to provide a supply of allowances that can be auctioned off to stabilize prices if allowance markets become highly volatile. Reserve allowances would be auctioned separately from quarterly auctions of other allowances.

Under H.R. 2454, EPA would use the proceeds from each strategic reserve auction to purchase international offsets from REDD activities. These offsets would be converted back into emissions allowances (with 1.25 offsets needed for each 1 allowance) and placed in the strategic reserve account to refill the reserve to its size before the auction. Once the reserve is replenished, additional allowances from international offsets (to some extent) would be allocated and auctioned as part of the normal allowance auction in a future year. For each of the first five years, EPA may auction up to 5% of the emissions allowances established for each year. The percentage increases incrementally during each five years.

Under S. 1733, the expenditure of proceeds from the Market Stability Reserve (similar in function to the Strategic Reserve under H.R. 2454) could be used to purchase either domestic or international offset credits. This could enhance the domestic offset credit sector, since domestic offsets are expected to be available sooner than international offsets. Further, S. 1733 would not limit purchases to international REDD offsets, and therefore other types of international offsets could presumably be purchased. When the offsets are converted back into emissions allowances, it would be at a one-to-one ratio under S. 1733.

The Strategic Reserve under H.R. 2454 and the Market Stability Reserve under S. 1733 have the potential to generate large sums of funds for REDD offsets. This potential depends on the price of offsets in the market and how that compares to the price of reserves. REDD activities would likely benefit more under H.R. 2454 since proceeds can only be used to purchase international REDD offsets.

Conclusion

Deforestation is a significant source of global CO_2 emissions. The two primary climate change bills, H.R. 2454 and S. 1733, generally include similar processes to reduce emissions from deforestation and forest degradation (REDD). Both would use allowances for capacity building in developing countries and for supplemental emissions reductions. Both would allow international REDD offsets for covered entities in the United States. Both contain a reserve to stabilize carbon offset prices and possibly supplement REDD efforts. H.R. 2454 generally contains more details on the implementation of these programs; S. 1733 leaves more of the details to be determined in regulation. H.R. 2454 would use the U.S. Environmental Protection Agency as the primary federal administrator of these REDD-related programs; S. 1733 would rely substantially on the U.S. Agency for International Development for implementation.

Allowances for REDD activities could include both capacity building and supplemental emissions reductions. The pending legislation provides significant details on the supplemental emissions reductions, although "forest" is undefined and concerns about the effectiveness of implementation for supplemental reductions will persist until countries can demonstrate their capacity. The bills do not identify how to balance funding between supplemental emissions reduction and capacity building, although developing country capacity for implementing REDD is critical to both the supplemental reductions and REDD offsets. Furthermore, the activities included in "capacity building" are ill-defined.

Carbon offsets from REDD activities offer a substantial opportunity to reduce global CO_2 emissions. However, concerns persist about offsets generally and about REDD offsets in particular. Many developing countries do not have the ability (personnel and equipment) to verify (to measure, monitor, and report on) avoided deforestation, and may have difficulty acquiring or developing the ability. Because of existing forest protection programs, many question whether REDD activities would merely substitute for efforts that a country would undertake anyway. Furthermore, avoiding deforestation in one location may merely displace it to another location (leakage). Many also question the capacity of developing countries to provide permanence in avoided deforestation. In addition, the bills allow for project level or state level REDD activities, with a transition to national programs, but the process for making the transition is largely undefined. Many also question whether REDD offsets in developing countries might undermine global efforts to get all nations to participate in reducing GHG emissions and might inhibit those countries from developing low-carbon economies.

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