

# The Implications of International Greenhouse Gas Offsets on Global Climate Mitigation

## Key Findings

- **International greenhouse gas offset credits from developing countries could play a major role in fulfillment of developed countries' emission reduction pledges under the Cancún Agreements, accounting for as much as a third of developed countries' pledged reductions in 2020.**
- **However, the rules and methods to account for international offset flows remain uncertain. In particular, clarity is needed on whether both the developing countries generating the offsets and the developed countries buying them will be allowed to count the same emission reductions toward their respective pledges.**
- **Our analysis of potential offset demand and supply suggests that double-counting of international offsets, if not addressed, could effectively reduce the ambition of current pledges by up to 1.6 billion tons CO<sub>2</sub>e in 2020, equivalent to roughly 10 percent of the total abatement required in 2020 to stay on a 2°C pathway. To the extent that offsets do not represent real, additional reductions, then the effective dilution of pledges could be even greater.**
- **We outline several policy approaches that could reduce the risk of double-counting and enhance the credibility of using international offsets for pledge attainment and the environmental integrity of the Cancún Agreements.**

## International offsets in context

National and international climate policy has focused on meeting emission targets or “pledges,” often through the implementation of emission trading systems for greenhouse gases. Most proposed trading systems have included international greenhouse gas offsets as a central feature. In principle, international offsets provide a means to meet emission targets or pledges in a more flexible and economically efficient manner, while ideally also delivering other benefits such as additional finance, technology transfer, and local sustainability benefits in host countries and sectors. To the extent that each ton of offset credit represents a real, additional, and permanent ton of emission reduction, international offsets simply shift the location of emissions (and emission reductions) from one country to another.

Ratified by 192 countries, the Kyoto Protocol created the basis for the principal international cap-and-trade system to date, with international offsets issued through the Clean Development Mechanism (CDM) for activities in developing countries, and to a lesser extent, through Joint Implementation (JI).

The European Union's emissions trading system (EU ETS) and proposed climate policies in the United States have included international offsets both to contain costs for regulated entities and to increase compliance flexibility for entities under the cap. For example, legislation considered in the U.S. Congress in 2009 and 2010 would have allowed for up to 2 billion tons per year of offsets from developing countries and uncapped domestic sectors (such as agriculture and forestry) to be used to meet reduction goals. In addition, Japan is already a major player in the market for international offsets, and could rely on them heavily to meet its ambitious emissions target for 2020.



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With the Agreements reached in Cancún in December 2010, the future of international offsets has become particularly uncertain. The uncertainties exist on many levels, from the fate of United Nations Framework Convention on Climate Change (UNFCCC) negotiations over a post-2012 international framework, to the possible development of new multilateral and bilateral market mechanisms. This analysis focuses on one important question: how international offsets will be counted in gauging progress toward emission reduction pledges.

## Many questions to answer

To date, 42 developed countries have submitted pledges, stated as a particular percent reduction (commonly between 17 percent and 30 percent) from a certain base year (commonly 1990, 2000, or 2005). Together, the pledges have been projected to reduce emissions by up to 4 billion tons (Gt) CO<sub>2</sub>e in 2020 from “business as usual.” Furthermore, over 40 developing countries have submitted Nationally Appropriate Mitigation Actions (NAMA), which several countries have expressed in terms of national emissions reductions by 2020. Both developing country targets and developing country actions have been widely referred to as “pledges.”

The role of international offsets in fulfilling those pledges remains unclear. There is ambiguity in the existing agreements, and most countries have not taken an official position. The European Union has said offsets must be supplemental – *i.e.*, account for less than 50 percent of emission reductions – and that offset credits must “count towards action of those purchasing and not towards the action of the country selling emission reductions.” This statement stands in contrast to Brazil, which has announced its interest in counting international offsets towards its pledge, stating that the use of CDM credits “is not excluded.” The United States and many other developed countries have thus far been silent on these questions.

The mechanisms by which offsets will be generated are also in flux. In response to longstanding criticisms, CDM reforms are under way. New mechanisms could also emerge: the Cancún Agreements suggest establishing “of one or more market-based mechanisms” to support pledge achievement. Possible new options could include NAMA crediting and sectoral crediting; REDD (Reducing Emissions from Deforestation and Degradation) could produce a large volume of credits, particularly in Brazil, Indonesia, and the Congo. In addition, some regions, Japan and the California in particular, are developing new bilateral offset mechanisms in advance of common international accounting rules, which could lead to a proliferation of diverse offsets units of differing quality.

### Offsets and a 2°C pathway

Ultimately, international climate policy should put nations on a path closer to the 1.5°C or 2°C goal that they have embraced, but as a recent United Nations Environment Programme (UNEP) study shows,<sup>1</sup> not only do the present pledges fall short of this goal, but loose accounting rules and the use of surplus emission units could further increase this emissions gap. Under lenient accounting rules, the pledges, even if met, might fall 7 to 9 Gt CO<sub>2</sub>e short of needed 2020 abatement for a 2°C trajectory, the study found. It also suggested that double-counting of international offsets could increase the gap by up to 1.3 Gt CO<sub>2</sub>e, presuming that developed countries used the offsets to meet up to one-third of their pledges. In our analysis, we take a deeper look at the risks associated with double-counting, by applying a model that considers the dynamics of offset supply and demand, looking at regional abatement costs and opportunities and at past experience with offset issuance.

### The potential scope for international offsets in 2020

To explore how international offsets might be used to meet emissions pledges, we built a spreadsheet model to analyze potential outcomes, based on estimates of relative abatement potential and costs among countries, and on additional assumptions regarding accounting rules, offset mechanisms, and country pledges for the year 2020. (Our full report and its appendices explain these assumptions in detail.) We explored two main scenarios: *Offsets Count Twice*, in which both the buyer and seller country count the offset towards its emissions pledge; and *Offsets Count for Buyer Only*, which has been the understanding under the Kyoto Protocol.

(Note that without robust, internationally coordinated offset accounting rules, there is also a risk of counting emission reductions *even more than twice* – if in addition to offsets counting for both



Shade grown coffee, Honduras © Adalberto H. Vega/flickr

buyer and seller, multiple crediting systems cover the same regions and sectors, and each system issues offsets for the same avoided emissions. Although we do not analyze such scenarios in depth, they underscore the need for mechanisms to avoid such risks.)

Given the uncertainty about future carbon markets, for each scenario we consider two cases: In the *current mechanisms* case, we assume the market will continue to grow at rates observed in the CDM in 2008 and 2009, prior to the precipitous slowdown in CDM project activity due to the global economic recession and uncertainty in post-2012 demand. At these rates of growth, expected annual offset issuance would increase from about 0.3 Gt CO<sub>2</sub>e annually in 2010 to about 1.3 Gt CO<sub>2</sub>e annually in 2020. To achieve such rates of growth, CDM reforms, such as greater standardization in methodologies and procedures, would likely be needed. In the *expanded mechanisms* case, which corresponds to the vision in the Cancún Agreements, we assume instead that new instruments to expand offset supply (*e.g.*, REDD, sectoral crediting) become available, creating new abatement opportunities.

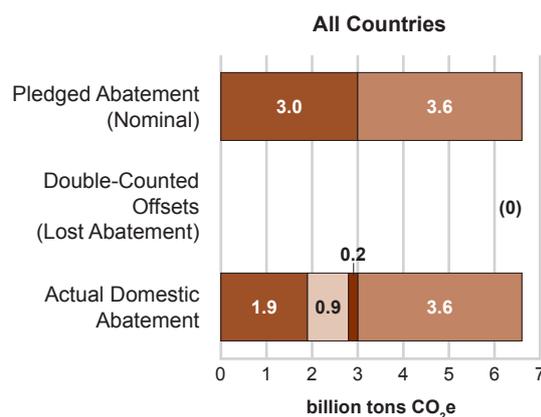
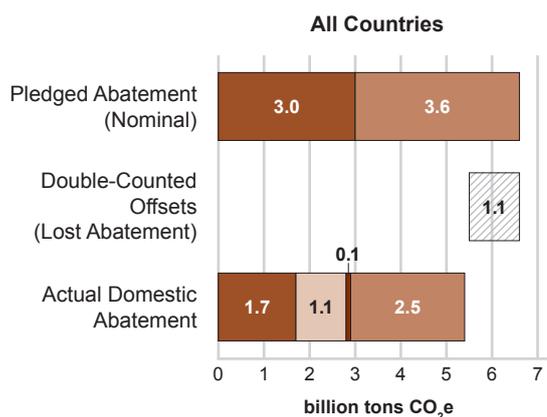
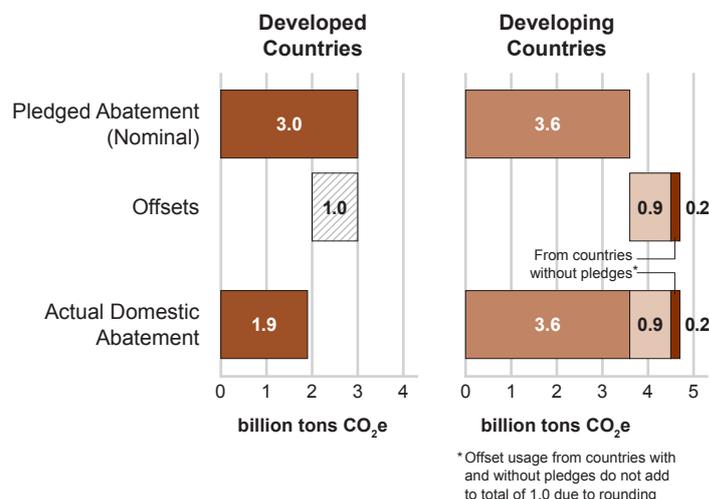
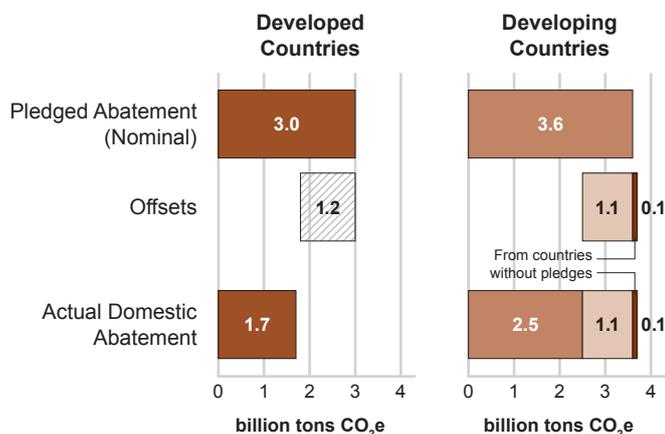
These two cases of offset supply, combined with two cases of pledge ambition (lower and higher, reflecting some countries’ choice to offer a lower pledge along with a higher, more ambitious pledge conditional on action or finance from other countries), combine to form four estimates of possible offset use in both the *Offsets Count Twice* and *Offsets Count for Buyer Only* scenarios.

### Scenario 1: Offsets Count Twice

The volume of offset transactions in this scenario is 1.2 Gt CO<sub>2</sub>e under lower-ambition pledges and 1.3 Gt CO<sub>2</sub>e under higher-ambition pledges, where 1.3 Gt CO<sub>2</sub>e is the maximum quantity allowed in our model (based on the *current mechanisms* case). Under this forecast, the United States, Europe, and other developed countries (*e.g.*, Japan, Canada) all use offsets for over one-quarter of their abatement needs under the lower ambition pledges. Most of these offsets – estimated at 1.1 Gt CO<sub>2</sub>e – are estimated to come from developing countries that have submitted quantified pledges, especially China and India. Since, in this scenario, those offsets are counted by the host (developing) countries as well as by the buyer countries, total (global) abatement is 1.1 Gt CO<sub>2</sub>e less than the nominal pledges. Figure 1 displays how double-counting results in substantially less global abatement than pledged under the lower pledge ambition case.

Across all countries, this scenario suggests that nearly one-fifth of total pledged abatement in 2020 is double-counted, resulting in a loss of abatement nearly equivalent to the current emis-

<sup>1</sup> United Nations Environment Programme (2010). *The Emissions Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2°C or 1.5°C? A Preliminary Assessment*. Available at [http://www.unep.org/publications/ebooks/emissionsgapreport/pdfs/The\\_EMISSIONS\\_GAP\\_REPORT.pdf](http://www.unep.org/publications/ebooks/emissionsgapreport/pdfs/The_EMISSIONS_GAP_REPORT.pdf).



**Figure 1: Offset Usage and Accounting Under Offsets Count Twice Scenario**

(Low Pledge Ambition, Offset Use Limited by Potential of Current Mechanisms )

sions of the world’s fifth largest emitter, Japan. And this presumes limited growth in the offset supply; under the *expanded mechanisms* case, our model projects offset usage of 1.2 (under lower pledge ambition) to 1.6 Gt CO<sub>2</sub>e (under higher pledge ambition). If a large fraction of these offsets were sourced from countries without pledges – which would require accessing abatement potential in buildings, transportation, and agriculture that is still difficult to tap and credit – double-counting of assets could be as low as 0.6 Gt CO<sub>2</sub>e. If all these offsets were sourced from countries without pledges, however (leading to nearly all being double-counted), then in the higher-pledge ambition case, double-counting could be as high as 1.6 Gt CO<sub>2</sub>e.

The results of our analysis raise serious concerns, especially in the context of the UNEP estimate that nominal pledges already fall short of the reductions needed for a 2°C pathway by at least 5 Gt CO<sub>2</sub>e. Double-counting of international offsets could further dilute the pledges by **up to 1.6 Gt CO<sub>2</sub>e in 2020, or 10 percent of the total abatement required in 2020 to stay on a 2°C pathway.** Thus offset double-counting threatens not only the future credibility of international offset mechanisms, but the environmental integrity of the Cancún Agreements.

### Scenario 2: Offsets Count for Buyer Only

This scenario presumes that offsets are counted largely as they are under the Kyoto Protocol and current domestic emission trading systems. We estimate offset usage under the

**Figure 2: Offset Usage and Accounting Under Offsets Count for Buyer Only Scenario**

(Low Pledge Ambition Case, Offset Use Limited by Potential of Current Mechanisms)

lower pledge case at 1.0 Gt CO<sub>2</sub>e, slightly lower than the 1.2 Gt CO<sub>2</sub>e estimated under the double-counting scenario – a decline attributable to decreased offset supply from China and other developing countries that would need to pursue more internal abatement if offsets cannot be counted towards attainment of their pledges. Offset usage under the higher pledge case is even lower – estimated here at 0.9 Gt CO<sub>2</sub>e, as deepened pledges in China (and, to a lesser extent, India and Brazil) further restrict offset supply. Under the higher pledge case, our model indicates that Europe’s conditional 30 percent pledge increases the region’s demand for abatement and leads it to be the dominant buyer of offsets, leaving the United States to meet almost all of its pledge through domestic action.

If developing countries with pledges issued the 0.9 Gt CO<sub>2</sub>e of offsets projected in Figure 2, then under accounting rules in place for existing regimes such as JI, where offset host countries have emissions targets, these countries would not be able to count those reductions toward pledge achievement figures. This could be addressed, for instance, by adding the amount of offsets issued to a country’s emission total when reviewing pledge attainment. Thus, in effect, to meet their targets, developing countries would need about 4.5 Gt CO<sub>2</sub>e of abatement, 25 percent more than the amount implied by their pledges – an outcome that may dissuade some developing countries from issuing offsets, especially for low-cost actions.

## Policy options and considerations

Our analysis shows the importance of establishing robust, internationally coordinated offset accounting rules, but it also highlights conflicting priorities in defining those rules. Below, we outline some policy options and their implications for developed and developing nations:

- **Counting offsets for the buyer only** is the most straightforward accounting remedy, and consistent with existing mechanisms. However, it goes against the stated positions of some developing countries, and could prevent host nations from taking credit for their lowest-cost or most attractive abatement options. Such issues could be addressed by guaranteeing the provision of sufficient additional finance not associated with offsets, or by allowing credit issuance only for higher-cost options, or those otherwise difficult to finance or implement.
- **Sharing the credit** from a given offset activity as a function of the financial or other contribution of each country (or by a fixed 50/50 or other ratio) could also help address these concerns. The mechanics of how such scenarios would be implemented are unclear, however, and they could sharply reduce offset developers' income. Thus the host government may need to participate in the market, subsidizing a portion of each project, or else international finance mechanisms could be used to provide matching funds or other complementary support.
- **Clearly partitioning potential sources of offsets** – whether by sector, subsector, or gas – from the actions that may be used by developing countries to fulfill pledges, could limit double-counting, while also giving clarity to offset project developers, since sources of offsets and associated financing (the international carbon market) would be clarified. While offering a fairly clean method to avoid double-counting, this option might weaken the ambition of pledges, if key, fast-growing sectors of developing country economies were excluded from pledges.
- **Setting up a comprehensive international transaction log (ITL)**, linked to domestic registries, such as an expanded version of the system now used by the UNFCCC to track transfers among Parties under the Kyoto Protocol, could help prevent double-counting, and also reduce some of the market uncertainty created by the development of new offset mechanisms.
- **Developing and using consistent and stringent offset methodologies** is another important tool in managing the environmental risks of international offset transactions. Offset methodologies should be consistent across regions, sectors and project types as well as consistent across current (CDM) and potential new mechanisms. Furthermore, new offset mechanisms should award a similar level of credits for similar activities, through the use of similar baseline and monitoring methodologies. Consistency will be essential in ensuring that a ton is a ton across accounting systems, even if it is impossible to ever know with any certainty whether a ton of offsets equals a ton of reductions, due to the counterfactual nature of offsets.
- **The design of new crediting mechanisms** could build in, from the outset, a partitioning of credit for emissions reductions among host countries, offset mechanisms, and other additional finance from developed countries. Some proposed approaches to sectoral and NAMA crediting mechanisms (including REDD+ crediting) would work in just this fashion, by setting separate baselines for unilateral, supported, and credited actions. At the same time, NAMA crediting is an unpopular concept among some developing countries, and sectoral mechanisms face significant implementation challenges.

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