CDM Watch
Scrutinizing Carbon Offsets

CDM Watch Policy Brief

A NEW LOOK AT LOOPHOLES

Version 1.1[1]

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INTRODUCTION

To date, 42 developed countries (Annex 1) have submitted pledges. Fulfilment of the developed country pledges is projected to reduce emissions by up to 4 billion tons (Gt) CO2e in 2020 from "business as usual" (UNEP 2010). This is about one third of the estimated 12 GtCO2e of emissions reductions that would be needed to remain on a path consistent with keeping warming below 2°C (UNEP 2011). Unfortunately, weaknesses in international emissions accounting could substantially weaken these already insufficient pledges, negating much if not all of their intended emissions benefits. In this paper, we address the following five "loopholes" in the existing negotiation framework, examine their impact, and list possible policy solutions to close them:

- Hot Air – surplus allowances (AAUs) from the first commitment period.
- LULUCF weak accounting rules
- CDM credits that do not represent real emissions reductions.
- Double counting of emissions reductions
- Emissions from International aviation and shipping

In this analysis, we compare the cumulative emissions reduction that could be achieved by the current pledges with the cumulative size of the loopholes. We translated the pledges into a commitment period from 2013 to 2020, the year used in the submitted pledges. Under such an 8 year commitment period the current pledges of 42 Annex 1 (A1) countries translate to approximately 18 Gt of cumulative emissions reductions by 2020. Table 1 and Figure 1 show the estimated cumulative size of the loopholes by 2020.

RESULTS

According to our calculations, based on several sources including the UNEP reports, these loopholes could be between 14.5 and 27.2 Gt of CO_2e (see figure 1). If used fully, these credits could more than negate the current A1 pledges, in the worst case, these loopholes could provide significantly more permits than Annex 1 countries would

[1] Version 1.1 includes slightly revised figures. Estimates for CDM and bunker fuel loopholes were slightly reduced because we received feedback on the data we used to calculate the loopholes.

need to technically fulfil the current pledges. This means that current loopholes could leave A1 countries with sufficient allowances and credits to continue along a BAU trajectory, and could even enable the carryover of surplus allowances beyond 2020, continuing to undermine the environmental integrity of the climate regime.

Figure 1: Comparison of Loopholes to pledged emission reductions from A1 countries.

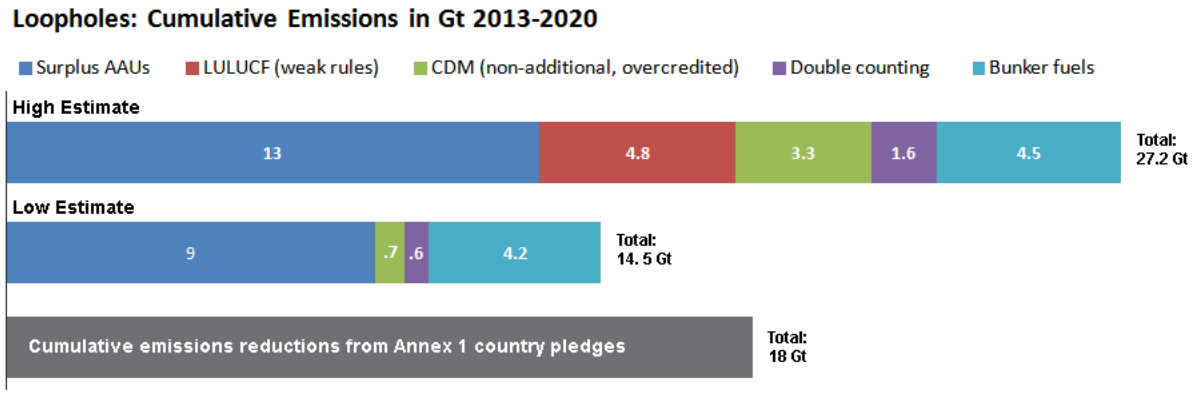

Table 1: Loopholes and their high and low estimated sizes

Loophole	**Total estimated size of loopholes 2013-2020 in Gt CO_2e**
Hot Air – surplus allowances (AAUs) from the first commitment period	9 – 13
LULUCF weak accounting rules	0 – 6.4
CDM credits that do not represent real emissions reductions.	0.7 – 3.3
Double counting of emissions reductions	0.6 – 1.6*
Bunker fuels: emissions from International aviation and shipping	4.2 – 4.5
Combined effect of these loopholes	**14.5 – 27.2**

*Only for 2020

In a similar study, the Stockholm Environment Institute (SEI) found that even when using a conservative estimate of the aggregate impact of five loopholes, Annex 1 countries could increase emissions well above 1990 levels, allowing them to increase their emissions more than 21% over their stated pledges (Kartha 2011).

The recently released UNEP report comes to similar findings: *[W]e find that the "lenient" use of LULUCF credits and surplus emission units could completely cancel out the impact of the Annex I pledges in the unconditional case, and significantly reduce their impact in the conditional case."* (UNEP 2011)

Our analysis provides a slightly new way of looking at a problem that others have analyzed for considerable time. Clearly, strong action is required in Durban at the COP 17 and beyond to effectively and efficiently close these loopholes if we want to preserve the possibility of staying below 2 degrees warming. What follows is a brief explanation of our cumulative approach and summary of each loophole and suggested policy solutions.

COMPARISON OF CUMULATIVE EMISSIONS

A cumulative approach offers a simple way to visualize and comprehend the size of the current loopholes compared to the pledges that have been made by A1 countries. More importantly, scientists have calculated that cumulative carbon emissions by 2050 cannot be more than 890 billion tones of CO_2 if we want to have an 80% chance of staying below 2 degrees warming (Meinshausen et al 2009). Over 400 billion tons have already been emitted between 2000 and 2011 – leaving a remaining budget of approximately 490 billion tons. It is important to

set the reduction pledges and the loopholes in context with the overall carbon budget. The estimated increase in cumulative emissions that the loopholes could enable represents 3-6% of the remaining carbon budget.

To calculate the 18 Gt of cumulative emissions reductions by 2020, we took the UNEP (2011) 2020 estimate of 4 Gt CO_2e in emissions reductions from "business as usual." This estimate includes the current pledges of 42 A1 countries. We assumed that commitments are translated into a step-wise, linear reduction from 2012 emission levels to the 2020 pledge level as shown in table 1.

Table 1: Assumed trajectory of emissions reductions of the 42 A1 pledges

Year	*2012*	2013	2014	2015	2016	2017	2018	2019	2020	**Total 2013-2020**
Reductions Gt of CO_2e	0	0.5	1	1.5	2	2.5	3	3.5	4	**18**

The assumption of a linear reduction from 2012 emissions to the pledged emissions in 2020 is a generous translation from pledges into cumulative emissions reductions. This is because these pledges were made under a pledge-and-review system and not under a binding commitment period. This means the pledges will not necessarily be translated into QUELROS as was required under the first commitment period of the Kyoto Protocol. Under a pledge-and-review system parties only commit to meeting their reduction target in 2020 but pledges are silent about the way countries get there. If countries start cutting their emissions reductions late, the cumulative emissions reductions will be far less than if they start immediately. Therefore the 18 billion tons is likely a high estimate of the cumulative emissions reductions that the current pledges represent. If the pledges were to represent fewer cumulative reductions, the impact of the loopholes would be even greater.

'HOT AIR'– SURPLUS ALLOWANCES (AAUS) FROM THE FIRST KYOTO COMMITMENT PERIOD

In Kyoto it was vital to get buy-in from the Eastern European countries of the former USSR in order to ensure that the Kyoto Protocol could come into force. Therefore their emissions reduction targets were set quite leniently. This held especially true for the two largest former USSR countries: Russia and Ukraine. Their Kyoto commitment required them to keep emissions to 1990 levels, even though their emissions had already dropped well below 1990 levels by the time the Kyoto Protocol targets were negotiated. Due to their post-Soviet economic declines, Russia's emissions had declined by a third, and Ukraine's by one half between 1990 and 1997. The drastic decline in GHG emissions has lead to Russia and Ukraine having a very large surplus of allowances (AAUs).

SIZE OF LOOPHOLE:

According to several widely-respected sources, the surplus of AAUs from the first Kyoto commitment period (2008-2012) amount to 9-13 Gt CO_2e (UNEP 2011, WWF 2010, den Elzen et al. 2010).

SOLUTIONS:

Currently in the AWG-KP text[2] there are 4 options on how to deal with AAUs. It is unlikely that countries will adopt the solution with the greatest environmental integrity (this is proposed Option 4) which is to agree to retire all of those credits. Alternative solutions that would decrease the AAU loophole substantially include a very limited

[2] FCCC/KP/AWG/2011/CRP.2/Rev.1

carry-over of AAUs surplus between the 1st and 2nd commitment period with the legally binding restrictions (proposed Options 2 and 3).[3]

In addition, it is vital to avoid a new AAU surplus in the next commitment period. One paper estimates that weak pledges by some countries could generate an added surplus of up to 4 Gt during 2013-2020[4] (not included in our estimates). To avoid future 'hot air issues', 2020 reduction targets for any Annex I country and not only those presently owing surplus AAUs must be substantively lower than current baseline emission estimates.

LULUCF WEAK ACCOUNTING RULES

In many developed countries, net emissions from forest management comprise a significant portion of total emissions from the land use, land-use change and forestry (LULUCF) sector. However, some proposals for LULUCF accounting create reference level projections for forest management based on projected business-as-usual (BAU) conditions, such that increases in harvesting could lead to reduction of carbon stocks without appearing as an emission for national accounting. Conversely, countries could generate LULUCF credits while maintaining current carbon stocks. Furthermore, accounting for emissions from managing other land such as croplands and grazing lands is optional allowing countries simply to ignore emissions from these sectors if they choose.

SIZE OF LOOPHOLE

According to UNEP (2011), the loophole size for weak LULUCF rules could up to 0.6 Gt CO_2e annually (UNEP 2011). This means the resulting cumulative size of the LULUFC loophole could be up to 4.8 Gt CO_2e over the 8 year period until 2020. We use 0 Gt for our low estimate and 4.8 Gt CO_2e for our high estimate.

SOLUTIONS

New LULUCF rules need to increase accountability and strengthen the level of ambition of developed countries so that forestry and land use sectors deliver emissions reductions. Specifically this can be done by:

- Ensuring that accounting for increases in net emissions from forest management relative to historical net emissions is mandatory for Annex I countries.
- Investing in improved data and technical and administrative capacity to account for emissions and removals from cropland management, grazing land management, revegetation and rewetting and drainage to enable accounting for these activities to become mandatory.
- Ensuring that all bioenergy emissions from domestic and imported feedstocks of wood and crops are included in LULUCF or energy sector accounting.
- Only allowing extraordinary natural disturbances that are outside of human control to be factored out of LULUCF accounting.

CDM CREDITS THAT DO NOT REPRESENT REAL EMISSIONS REDUCTIONS

There are two main issues that undermine the integrity of the CDM and lead to an increase in the size of the loophole:

- **Additionality**, the methodologies for proving that CDM projects are "additional" and would not have occurred in the absence of the CDM, have long been criticised as ineffective. Carbon credits from such

[3] Please refer to the updated CAN position on the AAU surplus for details on the options and the restrictions.

[4] "Pressing the surplus reset button», Climate Strategies

free-riders (non-additional projects) do not represent real emissions reductions, and in fact lead to an increase in global greenhouse gas emissions because the credits enable emissions to rise in Annex 1 countries.

- **Over-crediting can** occur even with additional projects when the rules on how to calculate the achieved emission reductions for CDM projects are too loose, generating more carbon credits than the amount of reductions actually achieved by the CDM project. The resulting carbon credits also lead to an increase in global emissions.

SIZE OF LOOPHOLE

The number of non-additional credits from projects in the CDM has been suggested to be anywhere between 20% to beyond 50% (e.g. Schneider 2007, Haya 2009). There are no overall estimates on over-crediting but it has been shown to be a serious issue for a number of projects that have delivered very large numbers of CERs, including HFC-23 and coal power projects. Projections on how many CERs will be generated 2012-2020 vary quite considerably from 3.5 to 6.6 billion (IGES Nov 2011, UNEP RISO Oct 2011). To account for the combined effects of non-additionality and over crediting, we took a low estimate of 20% and a high estimate of 50% of CERs that do not represent real emissions reductions. By 2020, the estimated cumulative loophole from the CDM could therefore be anywhere between 0.7 – 3.3 Gt CO_2e .

SOLUTIONS

There are several effective ways to revise current CDM rules to strengthen the environmental integrity of the CDM. The current rules on additionality and baseline setting have to be significantly revised. The CMP has to give the CDM Executive clear guidance on doing so. Such revisions will not impact already registered projects. Projects that have a very high likelihood of delivering CERs that do not represent real emissions reductions have to be banned. For this reason the CMP should ban coal power projects. Parties can furthermore unilaterally ban the use of CERs of such projects types in their respective countries, the way the EU did last year for HFC-23 and adipic acid credits. Furthermore, standardised approaches, currently strongly advocated in the CDM and for new market based mechanisms have to be implemented very conservatively to ensure that loopholes from offset mechanisms do not further increase. Furthermore, other mechanisms, such as the GCF, should be promptly funded and operationalized, to provide a more reliable means of supporting legitimate mitigation (and adaptation) measures in developing countries.

DOUBLE COUNTING OF EMISSIONS REDUCTIONS

New market based mechanisms are being discussed here in Durban. Possible new carbon crediting mechanisms could include NAMA crediting, sectoral crediting and REDD crediting. In addition, some regions, Japan and the California in particular, are developing new bilateral offset mechanisms which will lead to a proliferation of diverse offsets units of differing quality.

The rules and methods to account for international offset flows remain uncertain. In particular, it is unclear 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, leading to double counting.

With the proliferation of bilateral offset schemes, there is risk of counting emission reductions *even more than twice* – if in addition to offsets counting for both buyer and seller, multiple crediting systems cover the same regions and sectors, and each system issues offsets for the same avoided emissions. Furthermore, there is a danger of *further over*-counting, if Annex 1 countries also count CDM investments toward their financing obligations.

SIZE OF LOOPHOLE

Double-counting of international offsets could further dilute the pledges by 0.6 to 1.6 Gt CO_2e in 2020 (Erickson and Lazarus 2011). Note that these estimates refer only to the year 2020 and are not cumulative until 2020 because we assume it will be only from 2020 onwards that NA1 will have binding emissions reduction targets. Double counting between A1 and NA1 countries can only occur when NA1 countries have commitments.

SOLUTIONS

Robust, internationally coordinated offset accounting rules are vital to avoid double counting. A pledge-and-review approach will make it much more difficult to ensure the integrity of offsetting schemes and to avoid double counting. Legally binding reduction pledges and internationally agreed MRV rules are necessary.

INTERNATIONAL AVIATION AND SHIPPING

Emissions from international aviation and shipping (often referred to as bunker fuel emissions) are currently not accounted for under the Kyoto Protocol. As such, Annex I Parties' emissions from this sector can continue to increase without affecting compliance with their emission reduction commitments. It is difficult to assign emissions of these sectors to individual countries because aviation and shipping are global sectors and the bulk of their emissions take place in international waters or airspace. Discussions of how to allocate these emissions to Parties started under the UNFCCC in 1996 but remained inconclusive. Responsibility was given to the International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO) to find a global solution under the Kyoto Protocol. However negotiations in these bodies have proven equally difficult as developing countries argue that any global measure should respect the UNFCCC principle of common but differentiated responsibilities, effectively calling for an exemption of developing countries. The EU has included international aviation in its emissions trading scheme from 2012 due to the slow progress to agree global measures. Foreign carriers are included in the scheme which is estimated to reduce emissions by 183$MtCO_2$ in 2020 (EU 2006).

SIZE OF LOOPHOLE

The International Energy Agency (IEA) provides data for marine and aviation emissions from A1 and from NA1 countries starting form 1990 (IEA 2011). We used these IEA numbers to project yearly emissions from 2012-2020. We calculated a high and a low estimate of cumulative emissions based on the lowest and the highest growth rate in each sector using 1990, 1995 and 2000 as a base year.

Aviation		
Base year of historic growth rate	Growth rate	Cumulative emissions 2012-2020 in million tons CO_2e
2000	1.14%	2138
1995	2.33%	2336
Maritime		
2000	0.05%	2023
1995	0.62%	2112
Total		
Low estimate (2000)		4161
High estimate (1995)		4448

The resulting cumulative maritime and aviation emissions from A1 countries from 2012-2020 are 4.2 - 4.5 Gt of CO_2. Our growth rates are likely to be a low estimate, since ICAO expects aviation to grow 4.6% per year through 2025[5]. Our high estimate predicts A1 and NA1 emissions from bunkers to be 1.3 Gt in 2020. UNEP predicts that under BAU assumptions, global aviation and shipping combined could be between 1.7 to 2.5 Gt CO_2 in 2020. The Potsdam Institute assume total emission to be 1.8 Gt in 2020 (Rogelj et al 2010).

SOLUTIONS

There are several ways such bunker emissions could be addressed. For example, aviation and marine emission could be included in national inventories of Annex I Parties. Better still, emission reductions targets in line with the Cancun 2 degrees goal should be agreed and the International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO) mandated to develop and agree on global sectoral policies within a limited timeframe and subject to UNFCCC review. [6]

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[5] www.icao.int/Act_Global

[6] Article 2.2. of the Protocol requires Annex 1 countries to work through ICAO and IMO to limit and reduce these emissions. Talks are ongoing in these bodies to develop global market-based measures to do this. The IMO agreed in mid 2011 the Energy Efficiency Design Index (EEDI) which requires new ships to have improved energy efficiency. A CO_2 standard intended to reduce emissions from new aircraft below business-as-usual projections remains under development in ICAO.

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