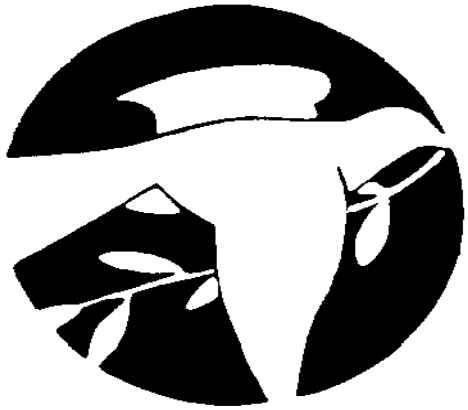
GREENPEACE

Undermining the Kyoto Protocol: Environmental Effectiveness versus Political Expediency?

Bill Hare, Greenpeace International

Conference on
"Implementing the Kyoto Protocol"
Royal Institute of International Affairs
14-15 June, Chatham House, London



Greenpeace International

Undermining the Kyoto Protocol: Environmental Effectiveness versus Political Expediency?

Summary and Conclusions

A new analysis of the potential loopholes in the Kyoto Protocol shows that the proposals on the table in the UN negotiations could completely undermine the Protocol's already limited environmental effectiveness. Based on proposals made by Parties, official emission data and projections, recent economic and other analyses, it is now clear that the potential (and actual) loopholes in the Kyoto Protocol **equal or exceed** the reduction requirements of the Protocol. This represents a potentially fundamental breach of the environmental integrity of the Kyoto Protocol.

Revised official projections for emissions in 2010 show that the emissions from the industrialized countries in the Protocol (Annex B group) as a whole are likely to be 8% above 1990 levels. The Kyoto Protocol requires that these Parties, as a group, be 5.2% below 1990 levels by 2010. The OECD members of Annex B are projected to be 16% above 1990 levels in 2010. However the Kyoto Protocol requires that this group of Parties (when their individual allocations are taken into account) be 6.6% below 1990 levels in 2010. Rather than take steps to reduce emission from these levels countries such as the US, Canada, Australia, New Zealand and Japan are trying to open up loopholes in the Protocol.

At the recently completed meeting (11 June 1999) of the UN FCCC in Bonn, Governments from countries such as the USA, Australia, Canada, Japan (and some developing countries such as Saudi Arabia) have worked hard to remove the 'rivets' that hold the environmental effectiveness of the Protocol together. If enough 'rivets' are removed then the Protocol will not reduce emissions at all and instead will mandate a substantial increase in emissions.

Issues that threaten the environmental effectiveness of the protocol include:

- Proposals to allow emission credit for agricultural activities, forest harvesting and regrowth (eg additional Land Use Change and Forestry Activities under Article 3.4). Parties such as Canada, the USA and Australia have resisted efforts to require them to provide basic quantitative data on the effects of these proposed activities, which are essential inputs to the scientific assessment process now underway on this issue[1].

- Unlimited use of the Clean Development Mechanism would allow industrial countries to increase their own emissions with no guarantee that emissions were reduced elsewhere by a compensating amount.

- Unlimited "Hot Air" emission trading threatens to undermine the integrity of the emission trading system as well as increase emission more than would otherwise be the case.

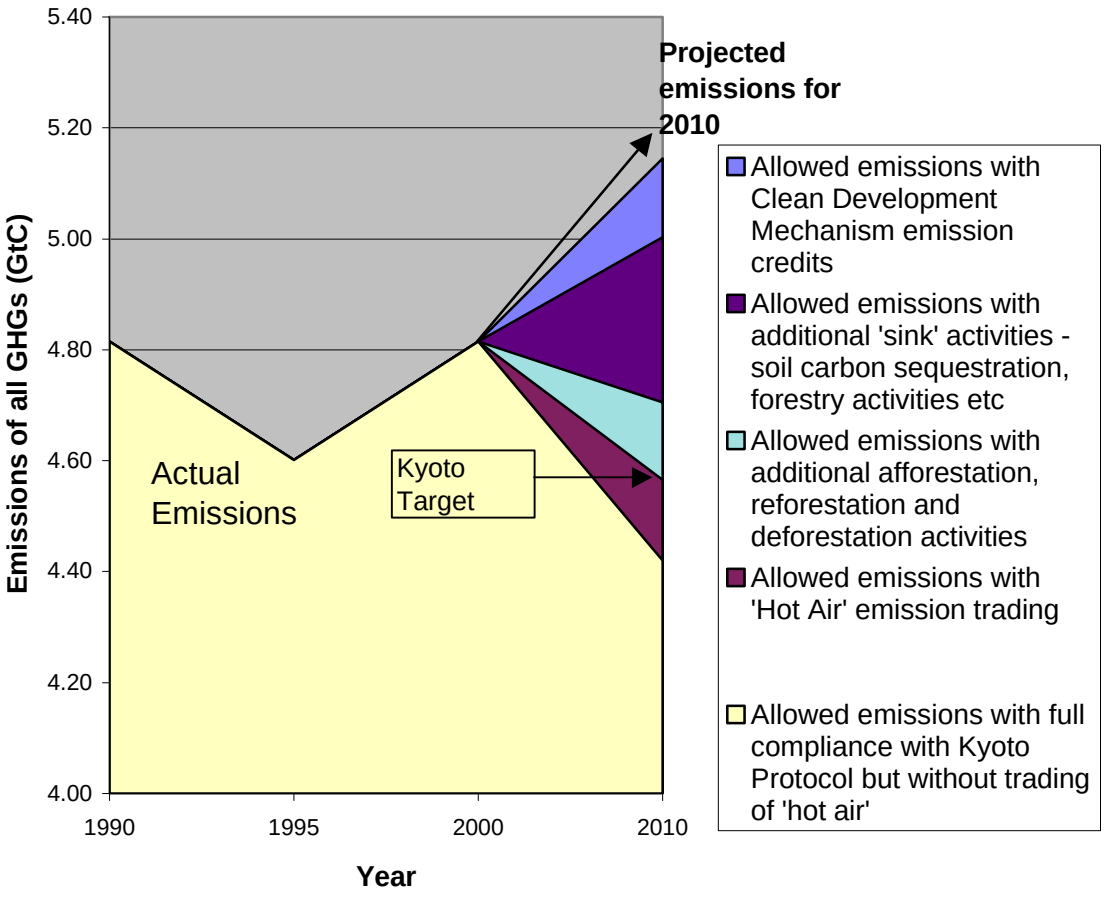
[1] An IPCC Special Report on Land Use, Land Use Change and Forestry under the Kyoto Protocol is being prepared at present and is scheduled for completion in May 2000, whereafter its findings will be considered by the UN FCCC Subsidiary Bodies in June 2000.

- Continued exemption of international aviation and shipping fuels from the Kyoto Protocol and not firm agreement to consider when to include them in controls. This means that international flights by airlines such as British Airways, KLM, United, American airlines - are exempted from controls and are the only such group to be so exempted.

Even in area of emission reporting and emission projection rules (Methodological issues for National Communications) the USA, Australia, Japan and Canada have launched what appears to be a broad assault to remove requirements that they report on actions they are taking to reduce emissions.

Finally, some have sought to criticise concern expressed about the issue of loopholes in the Kyoto Protocol as one of "environmental theology" versus "environmental effectiveness". The argument being that trying to close all the loopholes and make the Protocol 100% watertight would mean that the protocol would never enter into force. Whilst all concerned, including Greenpeace, acknowledge that the flexibility embodied in the trading mechanisms of the protocol were essential to the agreement, the fundamental question of its environmentally effective implementation remains of paramount importance. The onus is now one those Parties proposing the loopholes outlined in this paper to show that we are wrong – and we want to be shown that we are wrong.

Effect of "Loopholes" on the Kyoto Protocol Target



Undermining the Kyoto Protocol: Environmental Effectiveness versus Political Expediency?[2]

Introduction

The issue of the environmental effectiveness of the Kyoto Protocol is often lost in the discussion over the details of its implementation. It is well known that the Protocol, with its nominal reduction target of 5.2% relative to 1990 for the industrialized countries included in Annex B to the Protocol will have only a marginal effect on the build up of greenhouse gases in the atmosphere. Prof Bert Bolin, Chairman Emeritus of the Intergovernmental Panel on Climate Change has calculated that the Kyoto Protocol slows the projected rise in global temperatures by only one-tenth to two-tenths of a degree Centigrade by 2050. The rise in CO2 levels in the atmosphere, projected to be up 8% above 1990 levels by 2010, will only by about only 0.4 percent lower if the Kyoto Protocol is strictly adhered too.

Given these considerations the he Kyoto Protocol is only a small step towards global climate protection. However even this small step is under threat as the "details" of the implementation of the protocol are negotiated. An assessment of the potential and actual "loopholes "in the Kyoto Protocol indicates that rather than the nominal 5.2% emissions reduction, an increase above 1990 levels in both gross industrial emissions and emissions to the atmosphere can be expected.

In 1998 Greenpeace estimated that loopholes in the Kyoto Protocol could lead to a small increase (1-2%) in emissions rather than the 5.2% decrease for Annex B Parties as a whole relative to 1990 levels required by the Protocol.

We have now recalculated the potential loopholes in the Kyoto Protocol. It is now clear that the proposals of Parties such as the USA, Canada, Australia and Japan, if adopted would mean that no real action is required under the Protocol. The paper below outlines the basis for this calculation.

Loopholes in the Protocol

There are three kinds of loophole problem can be identified:

- **Inflation of Assigned Amounts**[3]**.** By far the land use and forestry (sink) provisions of the protocol (Article 3.3 and potentially Article 3.4) provide the greatest potential to allow for Parties to inflate their emission budgets.

[2] This paper is based on the recent (10/11 June 1999) Greenpeace International submission to the to UN FCCC Subsidiary Bodies 10th Session, Bonn, 10 June, 1999, "Whither the Kyoto Protocol? Expanding Loopholes Could Destroy Environmental Effectiveness. Updated Analysis of Loopholes in the Kyoto Protocol".

[3] Inflation of assigned amounts (also known as extra-budgetary crediting) can result in emissions to the atmosphere being higher than would otherwise have been the case. This situation arises where the allowed increase in the gross emissions is not offset by real decreases in emissions from the activities leading to the inflation of the assigned amount.

The Clean Development Mechanism (CDM) also provides a mechanism for systematic and large increases in the overall assigned amount of Annex I Parties. These problems can be addressed in the implementation of the Kyoto Protocol[4]. Both the sink provisions and the CDM credits are likely to result in overall emissions to the atmosphere being higher than they would otherwise have been. Other provisions of the protocol that are not open for negotiations also allow an inflation of the allowed emission of Parties, which degrade the effectiveness of the target (see the final section of this paper).

- **Exclusion of sources**[5]. The Kyoto protocol's emission obligations do not include international aviation and marine transport emissions. According to the second compilation and synthesis of second national communications (FCCC/CP/1998/11) "these emissions increased by about 10 per cent from 1990 to 1995, one of the largest rates of increase for any category".

- **Hot air emission trading**[6]. Hot air does not inflate the assigned amount but can result in emissions being higher than they would otherwise have been.

Loopholes will bust the Kyoto Protocol unless fixed

In 1998 Greenpeace estimated that loopholes in the Kyoto Protocol could lead to a small increase (1-2%) in emissions rather than the 5.2% decrease for Annex B Parties as a whole relative to 1990 levels required by the Protocol.

We have now recalculated the potential loopholes in the Kyoto Protocol and they equal or exceed the reduction requirements of the Protocol, representing a potentially fundamental breach of the environmental integrity of the Kyoto Protocol.

We have updated our earlier analysis in the light of proposals made by Parties in their submissions before the 10th sessions of the UN FCCC Subsidiary Bodies on Science and Technologies and on Implementation (SBSTA/SBI-10) recently completed in

[4] Two other provisions built into the Protocol in paragraph 7 and 8 of Article 3 inflate the budget. The inclusion of land use change emissions in the baseline for Australia and the option of choosing 1990 or 1995 as the baseline for HFCs, PFCs and SF6 both inflate the budget. The land-use change baseline provision inflates the budget by about 0.9% above what it would otherwise have been. The land-use change emissions built into the baseline would have decreased very substantially in the absence of the Kyoto Protocol (and have in fact done so) hence all, or nearly all, of these emissions would not otherwise have happened. The baseline change for HFCs etc inflates the budget by about 0.6% and if this had not been included these emissions would not have happened. Neither of these provisions can be affected by decisions of the COP.

[5] Exclusion of sources from the assigned amounts of Parties results in overall emissions to the atmosphere increasing, when the excluded sources are increasing. This is the case for the examples discussed here.

[6] This is a specific situation arising when a Party has an emission allocation above what its emissions would actually in the absence of the Kyoto Protocol. If the emission allocation cannot be transferred this would not present a problem, and the total emissions from the Annex B Parties would be below the total of the assigned amounts. If the emission allocation is transferrable via emission trading or in some other way, then the existence of hot air results in overall emissions being higher than they would otherwise be (but not higher than the overall assigned amount).

Bonn, at the Mechanisms Workshop in Bonn, the Land Use, Land Use Change and Forestry Workshop in Indianapolis, USA in April. We have used updated emission inventory data and economic and other analysis available before and during this session. Proposals from a number of Parties would:

- Add a large number additional agricultural and other land use activities under Article 3.4 and for "generous" interpretations of the terms afforestation, reforestation and deforestation under Article 3.3 of the Kyoto Protocol;

- Allow uncontrolled use of the CDM to meet emission obligations;

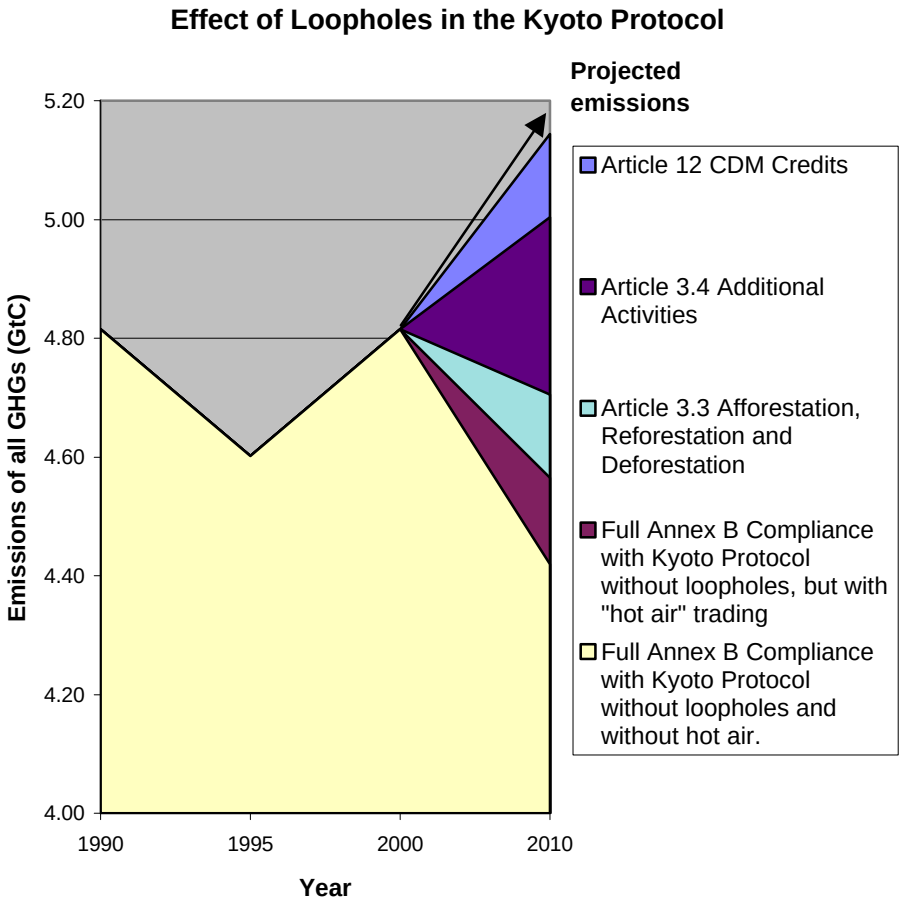
- Allow uncontrolled use of "Hot Air" emission credits;

- Failure to agree to control international aviation and marine transport emissions.

The loopholes now appear to represent a fundamental breach of the environmental integrity of the Protocol. Conservative, mid-range estimates of the loopholes and the use of new emissions data from the Parties shows that the available loopholes equal or exceed the reductions required under the Protocol. Emission data submitted by Parties confirms that the Kyoto protocol effectively only requires a **return** to 1995 emission levels by 2010.

Effect of Loopholes

The effect of a conservative estimation of the various elements of the Kyoto Protocol that **add** to the Assigned Amounts of Annex B Parties (Articles 3.3, 3.4, and the CDM under Article 12) indicate that there are sufficient possibilities available to permit Annex B Parties to "meet" their commitments without significant domestic action. (See Figure below).



The figure above shows that proposed loopholes[7] in the Kyoto Protocol would allow Annex I Parties to emit almost without control between now and 2010. In this figure the arrow represents the projected emissions for Annex B Parties and the solid areas of the graph are comprise of the different broad areas of the loopholes.

The above graph shows actual emission to 1995 and projected emissions for 2000 and 2010 taken from Parties official communications to the FCCC. The lower part of the graph shows the emission from 2000-2010 **if** there were no "hot air" trading. The middle part shows the effect of "hot air" emission trading on emissions. The upper part of shows the effects of the loopholes outlined below. The arrow shows the **projected** emissions (see next section).

[7] The use of the term loophole in this section refers to potential additions to Parties assigned amounts under Article 3 that add to the allowed emission during the first commitment period beyond that which would otherwise have occurred. Specifically these are Article 3.3, 3.4, 12 and 17 issues. The final section in this paper and its graph uses the idea of a loophole in a broader sense as it includes sources that are omitted from the Kyoto Protocol, notably the international aviation and marine fuel (bunker) emissions.

Emission Trends

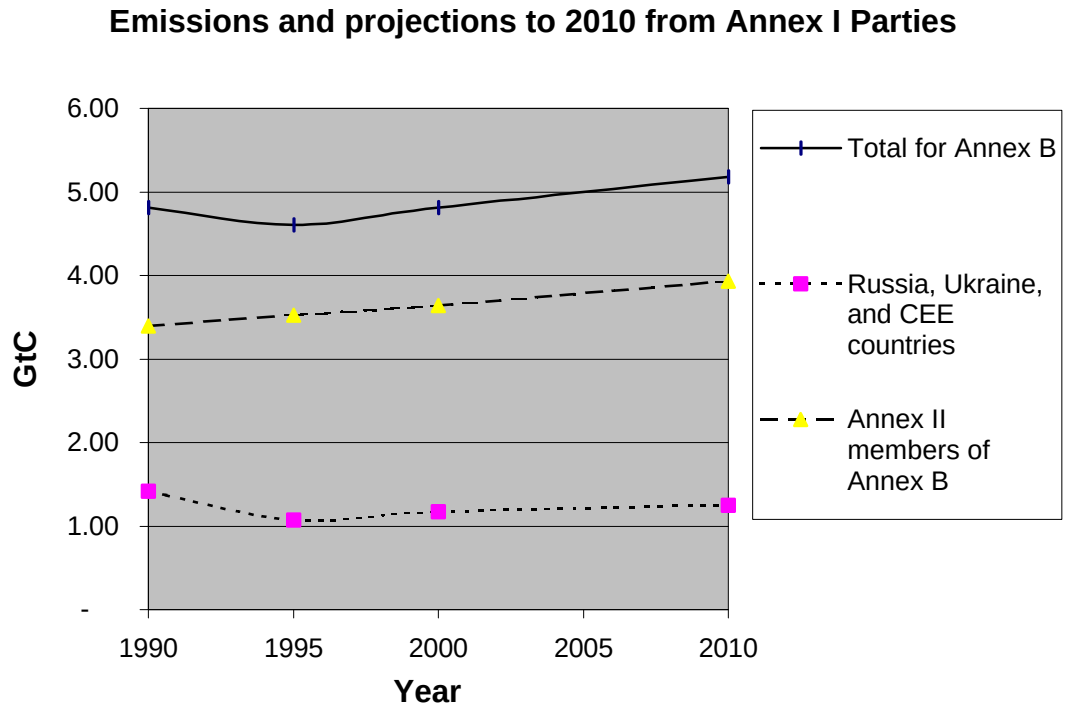
Based on the data and emission projections submitted by Parties (and significant amendments made in the course of or subsequent to In Depth Reviews of National Communications (eg Russia), emissions in 2010 are projected for the Annex B group as a whole to be **8% above** 1990 levels. The Kyoto Protocol requires that these Parties be **5.2% below** 1990 levels by 2010.

In 1995 emissions from the Annex I Parties as whole were some **4.4% below 1990** levels and are projected to rise, in the absence of policy action to equal 1990 emissions by 2000.

As a group Russia, the Ukraine and Central and East European Parties in Annex B are projected to be **12% below** 1990 levels in 2010. The Kyoto Protocol requires that this group of Parties (when their individual allocations are taken into account) be **1.8% below** 1990 levels in 2010.

The OECD members of Annex B (not including Hungary) are expected to be **16% above** 1990 levels in 2010. The Kyoto Protocol requires that this group of Parties (when their individual allocations are taken into account) be **6.6% below** 1990 levels in 2010. Some Parties have projected their emissions for 2010 on the basis of climate policy mitigation measures in general consistent with their Kyoto Protocol obligations (eg Germany, Denmark), but most have not. For these Parties the projections from National Communications and revised inventories show that reduction of about 760 MtC[8] from expected 2010 levels will be needed to meet the Kyoto obligations. This is below the middle of the range reported by a number of sources (580-1160 MtC in 2010).

[8] Million tonnes of carbon equivalent.



These projections imply that the "Hot Air" available for trading is equivalent to about 4.3% of the 1990 emissions of the OECD members of Annex B (not including Hungary). If these assigned amount units were **not** available for transfer then the Kyoto Protocol would generate a reduction of 8.2% relative to 1990 levels.

Emissions and projections for Parties reporting data in FCCC/SBI/1999/5/Add.1 and FCCC/CP/1998/11/Add.2, taking into account the IDR[9] of the Russian National Communication and the data in the Ukrainian National Communication. Owing to the issues referred to in these documents we have had to make some simplifying assumption in order to compile the data and projections into one combined table covering all gases where at all possible. The set of Parties included in this table are those that have provided sufficient data to enable common estimates to be made (covering about 98% of reported Annex I emissions).

[9] In Depth Review of National Communications.

Emissions for 1990, 1995 and projected emissions for 2000 and 2010

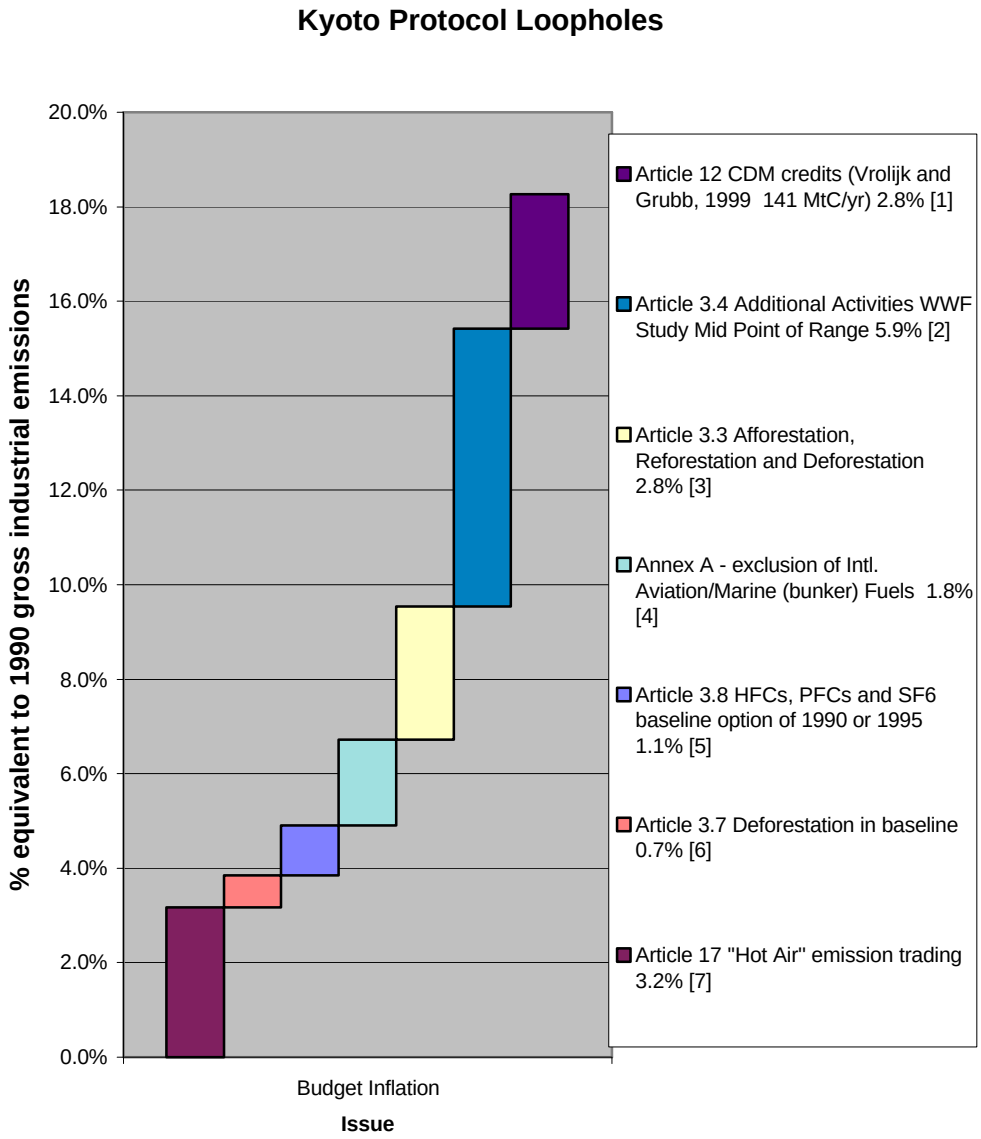
Emissions (GtC[10])	1990	1995	2000	2010	2010 Assigned Amounts	Projected Emissions in 2010 relative to 1990
Total for Annex B	4.81	4.60	4.82	5.18	4.57	108%
Russia, Ukraine, and CEE countries	1.42	1.07	1.17	1.25	1.39	88%
Annex II members of Annex B	3.40	3.53	3.64	3.93	3.17	116%
% relative to 1990	100.0%	95.6%	100.0%	107.6%		

Updating the Loophole Analysis

We have based our updated analysis based on:

1) Revised emissions data and projections from the Parties (FCCC/SBI/1999/5/Add.1 and FCCC/CP/1998/11/Add.2), the IDR of the Russian National Communication and the data in the Ukrainian National Communication. This enables estimation of the Hot Air potential based on all gases and on country projections, rather than those done by national or international agencies for CO_2 alone. HFC, PFC and SF6 coverage is broader and there have been significant changes in the LUCF category which for example affect Article 3.7 (the Australia clause).
2) Published economic analyses of the size of the potential CDM credit market in the context of emission trading and taking into account pre-budget period banking of credits under the CDM.
3) Proposed categories of additional activities under Article 3.4 and for definitions of afforestation and reforestation under Article 3.3. We have used quantitative data generated by analyses of Article 3.4 done for the World Wide Fund for Nature in relation to the USA and by Global Change Strategies International for the Canadian Round Table on Sinks on soil sequestration potential within the Annex B group of countries.

[10] Billion tonnes of carbon equivalent.



Note: Percentages in the legend to this graph refer to a proportion of Annex B gross 1990 emissions and may differ slightly from those in the tables at the end of this paper.

NOTES

[1] Article 12 CDM Market size estimates

A sample of the range of CDM market size estimates are outlined below from "The Potential Size of the CDM" by Christiaan Vrolijk in Global Greenhouse Emission Trader, Issue 6, February, 1999.

For the case shown here we have used the lower end of the market size estimates and that hot air is available for trading. If hot air is not available for trading then the CDM market is likely to be higher than we have shown.

Estimates for the CDM Market

CDM Certified Emission Reduction Unit size estimates (MtC/yr)	Low	Mid point	High	Price $/tC
Haites, 1998	266	419	572	37
US Administration.	144	244	344	24-42
Austin et al (has large biomass component)	397	560	723	13-26
Vrolijk and Grubb	103	122	141	
Range (Minimum, Mid Point and Maximum)	103	336	723	13-42

Note: Compiled Tables 1 and 2 from Christiaan Vrolijk "The Potential Size of the CDM Market", in Global Greenhouse Emission Trader, Issue 6, February, 1999

[2] Article 3.4 Additional Activities

We have used the WWF USA study of Additional Activities under Article 3.4 for the USA which was released in Bonn[11] as the basis for an extrapolation by simply scaling the estimates as a proportion of the 1990 Gross Emissions of Annex I as a whole. This gives an order of magnitude estimate for Article 3.4 inflation of the Assigned Amounts of Annex I Parties. As a consistency check it is useful to note that the paper prepared for the Canadian Government's Sinks round table on additional soil carbon sequestration potential for a range of Annex I Parties during the first commitment period estimates additional activities at the upper end of the WWF USA study (eg equivalent to approximately 8% of the 1990 gross emissions).

For the estimate given above we have used the mid-point of the WWF study - additional activities equivalent to 6.1% of Annex I gross emissions in 1990, which would effectively be added to these Parties assigned amounts. For better estimates we await data from Parties.

Annex I as a whole	Low Estimate	WWF Study Lower estimate	WWF Study Mid Point of Range	WWF Study Upper estimate
Size of A3.4 Activities Relative to 1990 Gross Emissions	2%	3.5%	6.1%	8.7%
Size of addition to Assigned Amount of Annex I (GtC)	0.10	0.17	0.30	0.43
Emission Reduction/Increase Relative to 1990 if included in Assigned Amounts	-2.9%	-1.4%	1.2%	3.8%

[11] Gurney, K. (1999) Review of U.S. Sequestration Potential under Article 3.4 of the Kyoto Protocol: Estimates and Methodological Issues, WWF USA, Washington D.C.

[3] Article 3.3 Afforestation, Reforestation and Deforestation.

As with the earlier Greenpeace Analysis we have assumed, in the absence of data from Parties, a fixed percentage of the relevant areas of the LUCF projections to 2010 being defined as fitting within the Article 3.3 definitions. We await data from Parties.

[4] Exemption for International Aviation and Marine Fuels (Bunkers)

We have assumed a medium range growth for international aviation and marine fuels. We have note accounted for the additional effect of CO_2 combustion in the upper troposphere and lower stratosphere from subsonic aircraft. Whilst the IPCC Special Report on Aviation and Global Atmosphere has found that the direct effect of CO_2 must be multiplied by a factor of 2 to 4 to get the true effect, this cannot be applied to the base year emissions of Parties in a scientifically consistent way. This is because the base year emissions make use of 100 year GWPs to compute CO_2 equivalent emissions and the enhanced effect for air traffic is computed on a different basis. If one were to do this on a consistent basis it would increase the relative significance of aviation emissions by a significant amount.

On a CO_2 alone basis the loophole in the Kyoto Protocol is equivalent to about 2% degradation in the Protocol's target.

[5] Article 3.8 baseline choice for HFCs, PFCs and SF6

This permits Parties to choose between 1990 and 1995 emissions of these gases for the purposes of computing their assigned amounts. Based on date submitted by Parties this increase the amount of emission to the atmosphere by about 1% relative to a 1990 only baseline.

[6] Article 3.7 provision for including Land Use Change emissions (deforestation) in the baseline

The so-called Australia clause permits Parties whose Land Use Change and Forestry sector is a source of emission in the base year to count their Land Use Change emissions (deforestation) in the calculation of their assigned amounts. This has the effect of increasing the allowed emissions for the Annex I emissions as a whole by about 0.7%. The Australian baseline for deforestation has been reduced because of an inventory change for the Land Use emissions term compared to the earlier analysis. The UK also has a land clearance term that is added into its base year emissions.

[7] Hot Air

This is little changed at 150 MtC from the estimates provided in 1998 as it is based on the revisions to the Russian National Communication consequent upon the IDR. Other estimates are available however we have stayed with the data and projections available under the FCCC reporting system. The volume estimated here is in the middle of the range of estimates in the literature.

FOR MORE INFORMATION
Bill Hare
Climate Policy Director, Greenpeace International
Keizersgracht 176,
1016 DW Amsterdam,
The Netherlands
Phone: +31-20-523-6222
Fax: +31-20-523-6200
Email: bhare@ams.greenpeace.org