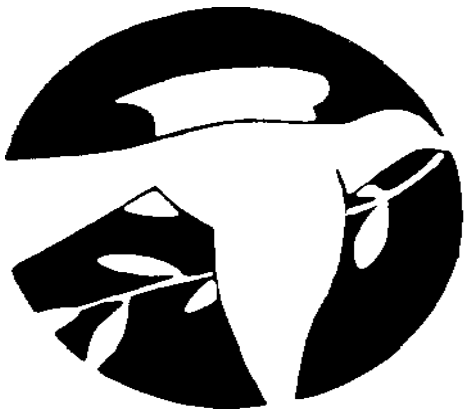
GREENPEACE

Trampas al Protocolo de Kioto: Intentos de anular su eficacia ambiental



Noviembre 2000

Resumen

Greenpeace ha actualizado de nuevo su análisis de las implicaciones que tendrían sobre las emisiones las propuestas hechas por muchos países (que son Partes del Protocolo de Kioto) referentes a un amplio rango de actividades adicionales de cambios en el uso de la tierra y forestales, comercio incontrolado de emisiones, y otros temas. Se han hecho estimaciones de los efectos de las propuestas de cambio de uso de la tierra y actividades forestales, usando las estimaciones hechas por el Panel Intergubernamental del Cambio Climático (IPCC) en su Informe Especial sobre el Cambio en el Uso de la Tierra y Bosques, en su Resumen destinado a los Responsables de las Políticas.

Este análisis muestra que si se adoptan todas, o incluso una parte significativa de las opciones que están sobre la mesa, sobre todo las del grupo "paraguas", entonces se requerirá de las partes del Anexo I la adopción de muy pocas, si acaso alguna, acción local. En otras palabras, las trampas que se están negociando en el Protocolo de Kioto **igualan o exceden** los requerimientos de reducción de emisiones del Protocolo.

El Protocolo de Kioto requiere que las Partes del Anexo B, como grupo, estén un 5,2% por debajo de los niveles de 1990 en el 2010. En cuanto a las Partes que pertenecen a la OCDE (cuando se tienen en cuenta sus asignaciones individuales) el Protocolo de Kioto requiere que estén un 6,6% por debajo de los niveles de 1990 en el 2010.

Los niveles de referencia usados en este informe para el crecimiento de las emisiones son las proyecciones oficiales más recientes basadas en las Comunicaciones Nacionales de emisiones del Anexo B en el 2010 para la Convención Marco de Naciones Unidas sobre el Cambio Climático (CMCC). Estas proyecciones muestran que es probable que las emisiones de estos países, como un total, estén un 8% por encima de los niveles de 1990, en ausencia de acciones para implementar el Protocolo de Kioto. Los miembros de la OCDE del anexo B se estima que estén un 16% por encima de los niveles de 1990 en el 2010, mientras que los otros - Rusia, Ucrania y los países de la Europa Central y del Este – se estima que estén un 12% por debajo de los niveles de 1990 en 2010.

Estas proyecciones significan que los países de la OCDE tendrían que reducir sus emisiones en 770 MtC/año (millones de toneladas de carbono por año) en el 2010. Por el contrario Rusia, Ucrania y los países de la Europa Central y del Este tendrían un exceso de emisiones permitidas sobre las emisiones reales de aproximadamente 150 MtC/año en el 2010 (estas se conocen como "aire caliente" o el "exceso"). Metidas dentro del compromiso final de Kioto quedaron varias trampas pequeñas, que no entran ahora en las negociaciones, pero que reducen el esfuerzo requerido de reducción global de las emisiones en aproximadamente 90 MtC/año. Estas incluyen una autorización para que los países (básicamente Australia) que están deforestando añadan sus emisiones por deforestación de 1990 a sus emisiones permitidas en el 2010 y una cláusula que permite a los países elegir cómo contabilizan sus emisiones de gases industriales (HFCs, PFCs y SF_6). Todo esto deja en aproximadamente unas 680 MtC/año el esfuerzo de reducción requerido a los países de la OCDE (la diferencia entre 770 y 90).

Las trampas que se están negociando son:

- El comercio ilimitado de las emisiones de "Aire Caliente" permitiría que todos estos 150 MtC/año fueran comprados por los países de la OCDE, lo que, por tanto, permitiría que sus emisiones se incrementaran en esta cantidad. Si todos ellos fueran usados por los países de la OCDE para "cumplir" con sus obligaciones de emisiones, entonces el total que quedaría como esfuerzo de reducción de emisiones sería de 530 MtC/año.

- Bajo el Protocolo de Kioto, cada tonelada de carbono secuestrado que se contabilice bajo el artículo 3.3 (reforestación o deforestación) o el artículo 3.4 (actividades adicionales) da como resultado que se emita a la atmósfera una tonelada adicional de carbono procedente de combustibles fósiles. La implementación de la primera categoría requiere de la definición de actividades forestales, de deforestación y de reforestación. La manipulación de estas definiciones puede llevar a que cantidades bastante grandes de carbono secuestrado se contabilicen como créditos, lo que, por tanto, permita aumentos en las emisiones de los países. Esto podría ser bastante pequeño (del orden de 30 MtC/año) o muy grande (200MtC/año)

dependiendo de las definiciones adoptadas por las partes. En el mejor de los casos, entonces quedarían unos 500 MtC/año de esfuerzo remanente de reducción de emisiones.

- Además de la reforestación o deforestación citadas anteriormente, el Protocolo de Kioto establece que se pueden acordar actividades adicionales de cambio de uso de la tierra y de suelo forestal y agrícola. Se han hecho propuestas que permitirían créditos de emisión para un amplio grupo de actividades de uso de la tierra, incluyendo la protección de suelo agrícola, los cultivos forestales y la regeneración (es decir, Actividades adicionales de Cambio de Uso de la Tierra y Forestales bajo el artículo 3.4). Si se acordase esto, el IPCC ha calculado que ello permitiría que se reclamaran más de 200 MtC/año para 2010. A este nivel, tan sólo quedarían 300 MtC/año de esfuerzo de reducción de emisiones a escala nacional.

  Es probable que los cálculos del IPCC sean conservadores, si se considera indicativa la escala de actividades adicionales propuestas por los Estados Unidos. La siguiente tabla muestra que, si fuera aceptada dicha propuesta, los Estados Unidos podrían cumplir aproximadamente un 50-75% de su tarea de reducción a partir de las actividades adicionales bajo el artículo 3.4 en el primer período de compromiso. En otras palabras, se permitiría que sus emisiones aumentaran considerablemente como consecuencia de la aceptación de las actividades adicionales.

Actividad adicional propuesta por EE.UU. en su Presentación del 1/8/2000	**Bajo** MtC/año	**Medio** MtC/año	**Alto** MtC/año
Gestión forestal	245	288	332
Gestión de tierras de cultivo	9	16	24
Gestión de tierras de pastos	3	8	23
Total	**257**	**312**	**379**
Esfuerzo de reducción estimada de EE.UU. en el 2010 (MtC/año)		491	
Proporción del esfuerzo de reducción debido a actividades Adicionales	52%	64%	77%

- El Mecanismo de desarrollo limpio (MDL) permite a los países industrializados reclamar créditos por actividades llevadas a cabo en países en vías de desarrollo. Cada crédito MDL que se reclame permite un aumento de la cantidad correspondiente en las emisiones de combustibles fósiles y otras emisiones industriales del país industrializado. El tamaño del mercado del MDL es potencialmente muy grande, del orden de varios centenares de millones de toneladas de carbono al año, sin tener en cuenta el cambio en el uso de la tierra o los proyectos forestales. Una cantidad mínima sería del orden de los 100 MtC/año, con una cantidad probable que estaría más bien en el orden de los 200 MtC/año. En otras palabras, se requerirían sólo 100-200 MtC/año de esfuerzo de reducción a escala nacional.
- Si se permiten las actividades de cambio de uso de la tierra y las actividades forestales en el MDL, entonces el suministro disponible de créditos MDL sería mucho mayor, del orden de los 700 MtC/año en el 2010. Incluso si sólo una parte de éstos estuviera disponible, entonces quedaría muy poco incentivo para la toma de acciones sobre las emisiones nacionales.
- Finalmente, la continua exención del Protocolo de Kioto de los combustibles de aviación y navegación marítima internacional, y sin ningún acuerdo en firme para considerar cuándo y cómo incluirlos en los controles, añade otros 90MtC/año a las emisiones a la atmósfera (por encima de los niveles de 1990) en 2010.

La siguiente tabla resume la magnitud de las trampas que hemos evaluado, considerando dos posibles escenarios (según se contabilicen el 50% o la totalidad de las "actividades adicionales" evaluadas en el informe del IPCC):

Magnitud de las trampas

Categoría de trampa	Escenario 1 (MtC/año)	Escenario 2 (MtC/año)
Artículo 3.7: Deforestación en el nivel de referencia	34	34
Artículo 3.8: Nivel de referencia opcional de 1990 ó 1995 para los HFCs, PFCs y SF6	53	53
Artículo 17: Comercio de emisiones de "Aire caliente"	150	150
Artículo 3.3: Reforestación y Deforestación	27	27
Artículo 3.4: Actividades Adicionales en 2010	144	288
Artículo 12: MDL - Actividades Adicionales en Partes que no son del Anexo I (Informe Especial del IPCC)	71,7	717
Artículo 12: Créditos MDL	292	292
Anexo A: Exclusión de Combustibles (bunker) de Aviación/Navegación Marítima Internacional	90	90
Total	827	1.617
Requerido para cumplir el Objetivo de Kioto	770	770

Teniendo todo esto en cuenta, queda claro que las opciones sobre la mesa en el momento presente en cuanto a trampas casi eliminarían la necesidad de tomar acciones en el ámbito nacional sobre las emisiones de combustibles fósiles y de otros gases industriales. En otras palabras, *más que reducir las emisiones de la OCDE en cerca de un 7%, el resultado final de unas reglas del Protocolo de Kioto que no tengan una integridad medioambiental podría ser* ***un aumento en las emisiones de la OCDE del orden del 15%*** (lo que es del mismo orden de magnitud que sus emisiones de "seguir como hasta ahora" en 2010).

A continuación, se adjunta el texto original en inglés del informe de Greenpeace Internacional.

Cheating the Kyoto Protocol: Loopholes and environmental effectiveness

Introduction

It is well known that the Kyoto 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. Professor Bert Bolin, Chairman Emeritus of the IPCC 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 be about 0.4 percent lower if the Kyoto Protocol is strictly adhered too.

Given these considerations the 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. This paper presents an analysis of the implications of some of the major proposals on the table for COP6.

Loopholes in the Protocol

- Loopholes are defined here as devices which increase the industrial emissions of greenhouse gases to the atmosphere compared to 1990 levels above the level that would otherwise have occurred. There are three kinds of "loophole" problems in relation to emissions of industrial greenhouse gases to the atmosphere that can be identified:

- **Inflation of Assigned Amounts.** 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. 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. 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**. 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 or "surplus" trading**. Hot air or "surplus" trading does not inflate the assigned amount but can result in emissions being higher than they would otherwise have been.

Loopholes on the table

Proposals from a number of Parties would:

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

- 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 and permit the inclusion of land use change and forestry activities in the CDM.

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

The quantification of these loopholes starts with an assessment of emission trends and projections to the first commitment period.

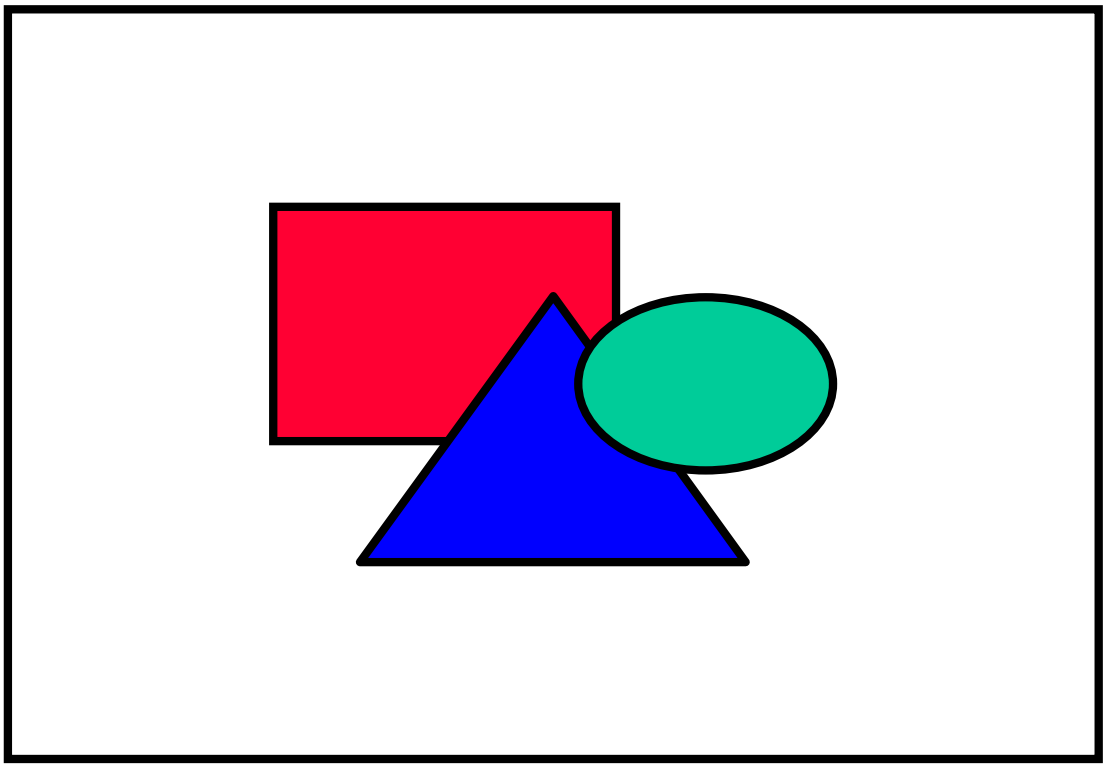
Emission Trends

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 a 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 a reduction of about 770 MtC 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).



These projections imply that the "Hot Air" available for trading is around 150 MtC/yr, equivalent to about 4.3% of the 1990 emissions from 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.

Table 1 Emissions for 1990, 1995 and projected emissions for 2000 and 2010

Emissions (GtC)	1990	1995	2000	2010	2010 Assigned Amounts	Projected Emissions in 2010 relative to 1990	Difference between Emissions and Assigned Amount
Total for Annex B	4,93	4,70	4,92	5,29	4,67	107%	0,62
Russia, Ukraine, and CEE countries	1,47	1,11	1,21	1,29	1,44	88%	(0,15)
Annex II members of Annex B	3,46	3,59	3,71	4,01	3,23	116%	0,77
% relative to 1990	100,0%	95,5%	99,9%	107,5%	94,8%		

Note: This table has been compiled from the reported 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 of the Russian National Communication and 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 Parties providing the projections, which have been combined to produce this table, cover 98% of reported Annex I emissions in 1990. The projections have been scaled to account for the Parties not reporting projections in order to harmonize with the base year 1990 emissions used in this analysis.

Quantification of the loopholes

[1] Deforestation in the baseline: Article 3.7 provision for including Land Use Change emissions

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 by about 34 MtC/yr as a whole or about 0.7%. The Australian baseline for deforestation has been reduced compared to earlier inventory because of a change in the methodology used to estimate the Land Use emissions term. The UK also has a land clearance term that may be added into its base year emissions.

[2] Choice of baseline year for HFCs, PFCs and SF6 - Article 3.8

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 increases the assigned amount of Annex I Parties by about 53 MtC/yr. This is equivalent to an increase in emission to the atmosphere of about 1% relative to 1990 emissions.

[3] Hot Air or Russian Surplus

There are a range of hot air (Russian surplus) estimates in the literature. Table 2 from a recent review shows that the range in the literature is large (92-374 MtC/yr). The lowest estimate in Table 2 of 92MtC/yr is based on National Communications submitted by Parties for CO2 only and not including the Ukrainian National Communication.

An independent estimate has been made here based on the revisions to the Russian National Communication consequent upon Russian In Depth Review, the Ukrainian National Communication, accounting for non-CO2 greenhouse gases as far as possible and using the projections of Parties for 2010. As is shown in Table 1, see previous page, the estimated "hot air" or surplus of the Russian Federation, the Ukraine and Central and East European Countries based on this analysis is 150 MtC/yr in 2010. As this estimate is consistent with the data and projections available under the FCCC reporting system and represents a reasonably conservative estimate of the Russian surplus this is the volume used in this analysis.

Table 2 Estimates of the Amount of Hot Air in 2010 (MtC equivalent)

	National communications	EPPA[a]	GREEN[a]	IEA[a]	SGM	IIASA[a]	EIA[a]
Former Soviet Union	81	111	130	n.a.[b]	247	275	324
Eastern Europe	11	0	0	n.a.[b]	42	69	50
Total	92	111	130	156	289	344	374

Source: Zhong Xiang Zhang (1999) "Estimating the Size of the Potential Market for All Three Flexibility Mechanisms under the Kyoto Protocol", Faculty of Law and Faculty of Economics, University of Groningen. Final Report prepared for the Asian Development Bank under Contract TA-5592-REG, November 1999. Original notes: [a] Only for CO_2 emissions; [b] n.a. = not available. *Sources:* Edmonds *et al.* (1998); Ellerman and Decaux (1998); EIA (1999); IEA (1998); OECD (1999); UNFCCC (1997a, 1997b, 1998a, 1999b); Victor *et al.* (1998)

[4] Article 3.3 Afforestation, Reforestation and Deforestation.

The IPCC Special Report on Land Use, Land Use Change and Forestry produced estimates of Afforestation, Reforestation and Deforestation by 2010 by estimating these terms in 1990 and assuming that they remained unchanged into the first commitment period. For the purposes of this analysis we have assumed that deforestation in the Annex I Parties will be reduced to zero by the first commitment period and there will be no increase in afforestation and reforestation activities in the first commitment period above current levels. Table 3 shows the results of these assumptions with a mid-range estimate of 26,5 MtC/yr sequestered in 2010, which is equivalent to about 0.5% of 1990 industrial emissions.

Table 3 Afforestation, Reforestation and Deforestation Estimates

Afforestation, Reforestation and Deforestation (MtC/yr)	Low	Mid	High
IPCC Special Report Estimates based on IPCC Definitional Scenarios			
Afforestation and Reforestation	7	26,5	46
Deforestation in 1990	-90	-90	-90
Net Sequestration/Emissions	-83	-63,5	-44
Estimates used in this analysis based on IPCC Definitional scenarios			
No deforestation in 2010 no increase in Afforestation and Reforestation above 1990 levels	**7**	**26,5**	**46**

The choice of this scenario has been motivated by a number of factors which include: the IPCC used Food and Agricultural Organization (FAO) estimates of deforestation in 1990, which are significantly higher than the Land Use Change emissions reported by Parties for that year; since 1990 these emissions appear to have declined significantly; the UNFCCC reporting data are what will be used for compliance purposes. It should be noted that it may be unrealistic to expect that Afforestation and Reforestation activities will not increase above 1990 levels as the Kyoto Protocol provides an incentive to expand these.

Should Parties choose to use the FAO definitional scenarios for accounting for Afforestation, Reforestation and Deforestation (ARD) activities then the ARD credits in the first commitment period could be very substantially greater than indicated here.

[5] Article 3.4 Additional Activities

The IPCC Special Report on Land Use, Land Use Change and Forestry has produced estimates for feasible additional activities by 2010 in the Annex I Parties up to about 520 MtC/yr. The Summary for Policy Makers (SPM) has interpreted this work producing estimates for these in the first commitment period which sum to 288 MtC/yr based on an assessment of what is probable and assuming an ambitious policy agenda. The SPM notes that this estimate is likely to be on the high side.

Table 4 Relative potential in 2010 for net change in carbon stock through some improved management and changed land-use activities

Activity	**MtC/yr**
A Annex 1 Countries	
a. Improved Management within a Land Use	
Forest Management	100
Cropland Management	75
Grazing Land Management	70
Agroforestry	12
Rice Paddies	1
Urban Land Management	1
b. Land Use Change	
Conversion of Cropland to Grassland	24
Agroforestry	0
Wetland Reforestation	4
Restoring Severely Degraded Land	1
Total Annex I	**288**
B Global Estimates	
c. Improved Management within a Land Use	
Forest Management	170
Cropland Management	125
Grazing Land Management	240
Agroforestry	26
Rice Paddies	7
Urban Land Management	2
d. Land Use Change	
Conversion of Cropland to Grassland	38
Agroforestry	390
Wetland Reforestation	4
Restoring Severely Degraded Land	3
Total Global	**1005**

The IPCC estimate - and therefore our scenario - is likely to be conservative if the scale of additional activities proposed by the US is any indication. The table below shows that if accepted the US would be able to meet about 50-75% of its abatement task from additional activities under Article 3.4 in the

first commitment period. In other words its emissions would be allowed to increase substantially as a consequence of the acceptance of additional activities.

Additional Activity proposed by the USA in its 1 August 2000 Submission	Lower MtC/yr	Middle MtC/yr	Upper MtC/yr
Forest management	245	288	332
Cropland management	9	16	24
Grazing land management	3	8	23
Total	**257**	**312**	**379**
Estimated US abatement effort in 2010 MtC/yr		491	
Proportion of abatement effort met by Additional activities	52%	64%	77%

[6] Article 12 CDM Land Use Change and Forestry (LUCF)

Table 4 shows the estimated potential for some LUCF activities globally from which can be inferred that the non-Annex I potential for 2010 is of the order of 700 MtC/yr. This estimate does not include forest conservation for which the estimated potential is somewhat larger and at a lower overall cost.

[7] Article 12 CDM Market size estimates

Estimates for the CDM market size in the literature vary substantially because of a variety of factors including differences in baseline growth of emissions and the availability of "hot air", differing mitigation cost assumptions and modelling approaches.

Table 5 shows the estimated market size of the CDM from a recent study conducted for the Asia Development Ban (ADB). It shows that for a total mitigation effort 621 MtC/yr in 2010 the demand for CDM credits varies between 169 and 292 MtC/yr, depending upon requirements for domestic action. This is in the context of where about 105 MtC/yr of hot air is available, somewhat lower than the 150 MtC/yr used in this analysis.

Table 5 Estimates of the Contributions of Three Flexibility Mechanisms under the Four Trading Scenarios in 2010

Scenarios	Domestic actions	Hot air	Emissions trading and JI	CDM	Total supply
No limits	171.7	105.0	51.8	292.1	620.6
50% of reduction from BAU emissions	310.3	105.0	36.1	169.2	620.6
BAU = Business As Usual					

Source: Table 6 of Zhong Xiang Zhang (1999) "Estimating the Size of the Potential Market for All Three Flexibility Mechanisms under the Kyoto Protocol", Faculty of Law and Faculty of Economics, University of Groningen. Final Report prepared for the Asian Development Bank under Contract TA-5592-REG, November 1999.

Table 6 shows a range of other estimates from the recent literature drawn from "The Potential Size of the CDM" by Christiaan Vrolijk in Global Greenhouse Emission Trader, Issue 6, February, 1999.

Table 6 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

For the purposes of this work the "no limits" case from Table 5 will be used as the basic estimate for the demand for CDM credits. This scenario estimates the CDM size assuming no controls on emission trading. As with other estimates here it is indicative. It should be noted that this does not include land use change and forestry activities, which would most likely be cheaper and hence expand the available supply.

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

We have assumed a medium range growth for international aviation and marine fuels and have not 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 an increase of 90 MtC/yr in 2010 above 1990 levels, or about a 1.8 % degradation in the Protocol's target.

Overall Magnitude of the Loopholes

Table 8 summarizes the magnitude of the loopholes estimated here.

Two arbitrary but indicative scenarios are used to illustrate the scale of the problem.

Scenario 1 varies the sinks categories for Article 3.4 Additional activities and CDM activities by taking 50% and 10% respectively of the estimates made in the IPCC Special report on Land Use, Land Use Change and Forestry for "additional activities" in Annex I and non Annex countries.

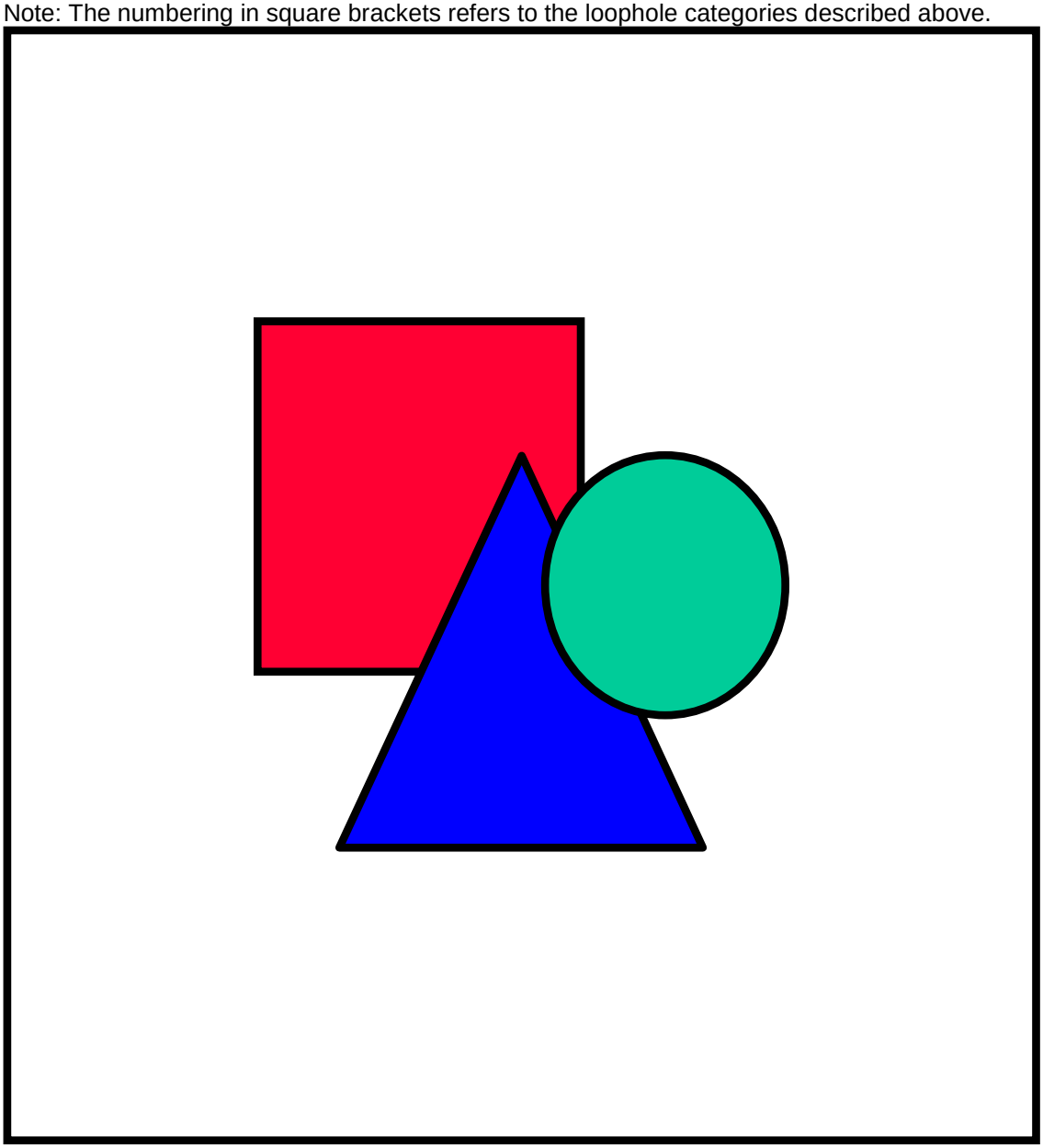
Scenario 2 uses the full estimate made in the IPCC special report for "additional activities" in both Annex I and Non Annex I Parties. The figure below shows the overall magnitude of these two scenarios compared to the estimate emission abatement required of 770 MtC/yr in 2010 in order to meet the Kyoto targets for the OECD countries.

Table _8 Magnitude of loopholes

Loophole category	Scenario 1 (MtC/yr)	Scenario 2 (MtC/yr)
Article 3.7 Deforestation in baseline [1]	34	34
Article 3.8 HFCs, PFCs and SF6 baseline option of 1990 or 1995 [2]	53	53
Article 17 "Hot Air" emission trading [3]	150	150
Article 3.3 Afforestation, Reforestation and Deforestation [4]	27	27
Article 3.4 Additional Activities in 2010 [5]	144	288

Article 12 CDM - Additional Activities in Non Annex I Parties IPCC Special Report [6]	71,7	717
Article 12 CDM credits [7]	292	292
Annex A – exclusion of Intl. Aviation/Marine (bunker) Fuels [8]	90	90
Total	827	1,617
Required to meet Kyoto Target	770	770

Note: The numbering in square brackets refers to the loophole categories described above.



Note: The scenario numbers refer to two scenarios for quantification of the loopholes: Scenario 1 varies the sinks categories for additional activities and CDM activities by taking 50% of the IPCC estimates for additional activities in the Annex I Parties and 10% of that estimated for Non Annex I Parties. Scenario 2 shows the full estimate made in the IPCC special report for "additional activities" in both Annex I and Non Annex I Parties.

Conclusions

The loopholes now appear to represent a fundamental breach of the environmental integrity of the Protocol. The available loopholes equal or exceed the reductions required under the Protocol and there are sufficient possibilities available to permit Annex B Parties to "meet" their commitments without significant domestic action.

COP6 will have to decide to close these loopholes in order to maintain the environmental integrity of the Kyoto Protocol. Otherwise rather than reduce OECD emissions by nearly 7% the end result of rules for the Kyoto Protocol could be an increase in OECD emissions of the order of 15%.

FOR MORE INFORMATION
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