LLM Dissertation

Can the Kyoto Protocol to the United Nations Framework Convention on Climate Change Achieve its Ultimate Objective?

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Can the Kyoto Protocol to the UNFCCC Achieve its Ultimate Objective?

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[1] Carl Sagan, Moveon.org: http://www.moveon.org/gore3/speech.html (accessed on 12 January 2004)

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Preface

Hardly a day goes by without reading, in the national and international media, about new evidence of catastrophic climate change, be it droughts, floods, fires, storms or wildlife extinction.

But are we to blame? Are anthropogenic (human-induced) interferences with the climate system causing climate change? Are the emissions from factories and cars changing the relationship between us and nature? Will we destroy the basic conditions that have allowed life to thrive on Earth? These are the questions which have caused so much soul-searching amongst people over the past few decades with regard to climate change.

It is not within the scope of this paper to prove or disprove the existence of dangerous anthropogenic climate change. What is important from an international environmental law perspective is whether or not the nations of the world believe there is a climate change problem, and if they do what rules must be put in place to deal with the problem.

That first significant step towards legally recognising that there is a climate change problem was taken in 1992 with the signing of the United Nations Framework Convention on Climate Change (referred to in this paper as the UNFCCC or the Convention). This Convention was a direct consequence of scientific evidence, produced by the Intergovernmental Panel on Climate Change (IPCC), showing the devastating effects of dangerous anthropogenic greenhouse gases caught in the atmosphere.[1]

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[1] Website of the United Nations Framework Convention on Climate Change *A guide to the Climate Change Convention and the Kyoto Protocol:* http://unfccc.int/resource/guideconvkp-p.pdf (accessed on 4 January 2004)

A second major step towards legally binding commitments to reducing greenhouse gas emissions was made, after intensive negotiations, in Kyoto, Japan, with the signing of a Protocol to the Framework Convention. The Kyoto Protocol (the Protocol) signed in 1997, is significant because it introduces for the first time, legally binding obligations on developed countries to reduce their emissions of greenhouse gasses.[2]

In 1995 the IPCC released a report which concluded that the climate may have already started responding to past emissions. It recommended that, in order to stabilise atmospheric concentrations of greenhouse gases at 1990 levels, it would be necessary to reduce current anthropogenic emissions by 60%.[3] This figure went far beyond the reductions to which even the most environmentally progressive Parties were prepared to commit.[4]

So, can the Protocol to the UNFCCC achieve its ultimate objective, which is to stabilise greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system?

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[2] Website of Greenpeace *Guide to the Kyoto Protocol*: http://www.greenpeace.org (accessed on 4 January 2004) at 7.
[3] Website of the Intergovernmental Panel on Climate Change: http://www.ipcc.ch/ (accessed on 5 January 2004).
[4] Coghlan *Prospects and pitfalls of the Kyoto Protocol to the United Nations Framework Convention on Climate Change*: http://ask.elibrary.com (accessed on 12 January 2004) at 3.

Part 1

Introduction

This paper is divided into two parts. Part 1 will look at the international legislation governing climate change in particular the UNFCCC and the Protocol. Part 2 will look at the issues and debates surrounding climate change legislation.

In 1992 the UNFCCC was signed as a direct consequence of scientific evidence, produced by the IPCC, which endorsed the view that anthropogenic greenhouse gases caught in the atmosphere are causing disturbing effects on the climate system. Led by the UN General Assembly the UNFCCC was formulated and signed by countries at the United Nations Conference on the Environment, also known as the 'Earth Summit' in Rio de Janeiro, in 1992.[5] It came into force on 21 March 1994, and there are currently 188 countries party to it, which makes it one of the most universally supported of all international environmental conventions.[6]

The primary objective of the UNFCCC is to reduce dangerous anthropogenic interference with the Earth's climate system. Countries party to the Convention made commitments to reduce their emissions through various measures, such as the development of national programmes to slow climate change, the sharing of technology and encouraging scientific research. However it is only a framework convention and the commitments are not legally binding, nor does it set specific emissions targets.

[5] Guide to the Kyoto Protocol n 2 at 7.
[6] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 3.

The Kyoto Protocol was signed in 1997 and introduced legally binding obligations on developed countries to reduce their emissions of greenhouse gasses. Developing countries successfully argued that they have a right to reach the same levels of economic prosperity as developed countries, so no emissions reduction requirements were placed on them.[7] The Protocol has been the source of heated international debate and has still not entered into force.

The first Part of this paper will briefly discuss the objectives and principles set out in the UNFCCC. Secondly the relevant articles in the Kyoto Protocol will be discussed before examining the mechanisms, provided for in the Protocol, by which countries will attempt to reduce their emissions. The Second Part of this paper will look into the key areas of disagreement amongst the Parties to the Protocol.

It is however useful to first briefly discuss the science behind the perceived necessity to undertake these extensive efforts to reduce greenhouse gas emissions.

[7] Paulsson *Emissions for Sale: The Ethics of Emissions Trading*: http://www.ep.liu.se/exjobb (accessed on 16 January 2003) at 16.

Chapter 1

What are we doing to our Planet?

The IPCC was established in 1988 by the United Nations Environment Program (UNEP) and the World Meteorological Organisation (WMO). It is led by government scientists but includes academic scientists and researchers from many nations.[8]

The IPCC's periodic assessment reports and technical papers play an important role in the creation of climate change policies. The First Assessment Report was published in 1990 and calculated that an immediate 60% reduction in CO_2 emissions was needed to stop the build-up of carbon dioxide in the atmosphere. In 1995 its Second Assessment Report concluded that, 'the Global mean surface temperature has increased by between about 0.3 and 0.6 degrees Celsius since the late 19th century and on the balance of evidence there is a discernable human influence on global climate.'[9] This conclusion is sometimes credited as being the political impetus that created the Kyoto Protocol.[10]

The IPCC released its Third Assessment Report in 2001, which states that climate change during the 20th century was more pronounced than previously thought. The estimate for the rise in global average temperature since 1900 was upgraded to 0.6°C, and the projected increase in average global temperature by 2100 was upgraded to 1.4 - 5.8°C.[11]

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[8] McGinness *Climate Change and the Kyoto Protocol*: http://www.parliament.uk/commons/lib/research/rp2001 (accessed on 16 January 2003) at 7.
[9] Intergovernmental Panel on Climate Change n 3.
[10] Website of CO2e.com: A:\CO2e_com.htm (accessed on 5 January 2004).
[11] Intergovernmental Panel on Climate Change n 3.

Since then, the IPCC has released further reports which suggest that over the coming century that average temperatures will rise between 1°-3.5°C, while sea levels will rise between 15 and 100 cms.[12]

The Scientific Theory behind Climate Change

According to the IPCC, the Earth's atmosphere acts as a filter for solar rays. About half of the ultraviolet radiation given off by the sun is either absorbed by the atmosphere or reflected back into space. Most of the 50% that does get through heats the Earth's surface and is eventually reflected back into space as infrared radiation. The trapping of infrared radiation in the atmosphere is a natural phenomenon, known as the 'greenhouse effect'. Without the 'greenhouse effect' the Earth would be to cold for human existence.[13]

However, when carbon-based fossil fuels are burned, gases such as carbon dioxide, methane and nitrous oxide are emitted. These gases add to the atmospheric layer which is permeable to ultraviolet, but not infrared radiation. As more fossil fuels are burned, the layer of greenhouse gases thickens, solar radiation continues to pass through unimpeded but heat reflected from the Earth finds it harder to escape into space. This is thought to result in the gradual increase in the Earth's temperature known as 'global warming'.[14]

Global climate dynamics are however unpredictable. Climactic models show that the short to medium term impacts of an increase in the atmosphere's concentration of greenhouse gases will likely lead to increased warming in some areas with cooling in others. The

[12] CO2e.com n 10.
[13] CO2e.com n 10.
[14] CO2e.com n 10.

unpredictability of the global climate system's response to an increase in greenhouse gases has recast the term 'global warming' into its now accepted, 'global climate change'.[15]

Scepticism towards Climate Change

However other scientists such as Professor Singer[16], at the University of Virginia, state that the science behind global warming is far from settled and unfortunately nothing, or almost nothing, is certain. He says there is no conclusive evidence of global warming and it may take decades before it is possible to develop any substantial evidence. The reason for this is that global climate is by nature always fluctuating, and even if there is anthropogenic global warming, we cannot be sure what temperature we are supposed to be at, as climate shifts are a natural part of life on Earth.[17]

The sceptical approach provokes a common reality with regard to scientific knowledge, which is that 'uncertainties exist'. A scientific expert in court could be forced to admit that he is not certain. This uncertainty can be used to indefinitely delay reasonable action to deal with a threat and highlights the problem of requiring 'scientific proof' before regulations can be introduced.[18]

The reason that sceptics can throw doubt on the predictions of the IPCC is due to the huge complexity of climate science and the many variables involved in such studies. However

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[15] CO2e.com n 10.
[16] Singer *Hot Talk Cold Science: Global Warmings Unfinished Debate* at 23.
[17] Singer n 16.
[18] Carasso *We Must Err on the Side of Global Warming Caution*: http://www.commondreams.org/views01/0520-04.htm (accessed on 27 January 2004).

this problem is not new to international environmental law and the precautionary principle is used to counter it.

Principle 15 of the Rio Declaration[19] states that:

"In order to protect the environment, the precautionary approach shall be widely applied. ... Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental damage."

In other words, scientific uncertainty cannot be used as a reason to do nothing. However, the precautionary principle is not infallible and should not be used if the cost exceeds the benefit. For instance, requiring countries to reduce greenhouse gas emissions to combat global warming may hamper economic growth and create hunger and poor health. In certain circumstances ethical considerations can therefore outweigh environmental concerns.

As mentioned above it is not within the scope of this paper to prove or disprove the existence of dangerous anthropogenic climate change. What is important is that in order for the world community to act effectively, countries must make decisions according to the best information available to them and once that decision has been made they must act with resolve and purpose. As stated above most countries, by signing the UNFCCC, agreed that there is a danger of anthropogenic climate change. The decision has been made, now decisive action is required unless irrefutable evidence to the contrary arises.

[19] Website of the United Nations Environmental Progame: http://www.unep.org/ (accessed on 12 March 2004).

The onus must now be shifted and proof that anthropogenic climate change does not exist must be presented in order to alter policy.

The UNFCCC was the first important step to finding a common cause of action to reduce anthropogenic climate change. The next chapter briefly sets out the background, objective and principles of the Convention.

Chapter 2

United Nations Framework Convention on Climate Change

Introduction

As mentioned above the UNFCCC was formulated with the aim of being adopted at the 'Earth Summit' in Rio de Janeiro in 1992. It took only 15 months to negotiate despite involving nearly all the world's nations, as well as observers from business, industry and environmental organisations. The deadline for signature was met and two years later in 1994 it came into force. There are currently 188 countries party to it.[20]

However, from the beginning differences of opinion amongst the parties were expressed. Some countries, mostly in the European Union, wanted legally binding limits on greenhouse gas emissions included in the Convention. Others, led by the United States, argued against legally binding emissions cuts because of scientific uncertainties regarding climate change, but their most important concern was the economic cost of cutting energy consumption.[21]

The Convention was therefore a compromise which resulted in it being legally weak and ambiguously worded. It required that industrialised countries 'aim' to return their greenhouse gas emissions to 1990 levels by the year 2000.[22]

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[20] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 3.
[21] Guide to the Kyoto Protocol n 2 at 2.
[22] Guide to the Kyoto Protocol n 2 at 2.

Nevertheless, the Convention is important in that it recognises that there is an anthropogenic climate change problem and it is the first global initiative to combat this problem. It is a framework convention and has no binding obligations, however it does establish an objective to be pursued and it sets out principles to be followed. It spells out commitments for different groups of countries according to their circumstances and provides a set of institutions to enable governments to monitor implementation efforts.[23]

This chapter briefly looks at the objective of the Convention, the principles to be followed and the different commitments of the parties to the Convention.

The Objective of the Convention

The Convention sets as an 'ultimate objective,' the stabilising of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This objective is cited in Article 2;[24]

"To achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner".

[23] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 5.
[24] Website of United Nations Framework Convention on Climate Change: http://unfccc.int/ (accessed on 15 January 2004)

The objective does not specify what these concentrations should be, only that they be at a level that is not dangerous. Defining what is meant by 'dangerous' involves social and economic considerations as well as scientific judgement. This wide definition allows the Convention's objective to remain significant no matter how the science evolves.[25]

The Convention states that the level of greenhouse gas concentration should be reached in a time frame that allows ecosystems to adapt naturally, food security to be preserved and economic development to proceed in a sustainable manner.[26] This suggests that a certain level of anthropogenic interference is acceptable, that some change in the climate is inevitable and that adaptive as well as preventive measures are called for.[27]

The objective allows for a wide interpretation in order to balance scientific findings with the economic risks that countries are willing to accept. However in interpreting these trade-offs the Convention provides the parties with certain principles to guide their decisions.

The Convention's Principles

The convention states that in implementing its provisions, parties are guided by certain principles, many of which are common to other environmental treaties.

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[25] Website of the United Nations Framework Convention on Climate Change *Understanding Climate Change: A beginner's Guide to the UN Framework Convention and its Kyoto Protocol*: http://unfccc.int/resource/beginner.html (accessed on 20 January 2004) at 7.
[26] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 6.
[27] Understanding Climate Change n 25 at 7.

Intergenerational Equity

Article 3.1 states that;

"The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity"[28]

The principle of intergenerational equity has become an accepted principle across many international environmental treaties. It recognises that the preservation of the Earth and its resources is important to current and future generations, in order to safeguard our long-term survival. The specific needs and specific circumstances of developing countries, particularly those vulnerable to the adverse effects of climate change, is also recognised by the Convention.

The Precautionary Principle

Article 3.3 states that;

"The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to

[28] United Nations Framework Convention on Climate Change n 24.

deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost".[29]

The precautionary approach, as discussed above, is a recognition that although doubts surround climate change, waiting for certainty before taking action runs the risk of being too late to prevent the worst impacts.[30]

The Leadership Principle

Article 3.1 also states that;

"The developed country Parties should take the lead in combating climate change and the adverse effects thereof".[31]

The Convention notes that the largest share of historical and current emissions originates in developed countries. It states that these countries should take the lead in combating climate change. The Convention applies specific commitments on developed countries. These commitments are discussed below.[32]

[29] United Nations Framework Convention on Climate Change n 24.
[30] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 6.
[31] United Nations Framework Convention on Climate Change n 24.
[32] Understanding Climate Change n 25 at 13.

The Cost-Effectiveness Principle

Article 3.3 also states that;

"Policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost".[33]

The convention recognises that climate change and development are interlinked and that energy use, land use, and population growth are relevant to both. The Convention sees sustainable economic growth and development as essential to the successful resolution of the climate change problem. It therefore calls for policies and measures dealing with climate change to be cost-effective.[34]

The above principles are a general guide to all Parties to the Convention, however in addition to the principles, the Convention established individual commitments for each country.

Commitments of the Parties

The commitments of the parties are set out in Article 4. All Parties to the Convention are subject to their common but differentiated responsibilities.

[33] United Nations Framework Convention on Climate Change n 24.
[34] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 6.

Although climate change is a global issue and must be tackled as such, the Parties recognised that industrialised countries have historically contributed more to the problem and also have more resources with which to remedy it. Developing countries argued that they are more vulnerable to the adverse effects of climate change and their capacity to respond is lower.[35] Therefore in order to share the burden of reducing emissions equitably the Convention provides common but differentiated responsibilities.

Countries are divided into three main groups according to their differing commitments:

Annex 1 Parties include the industrialised countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition, such as the Russian Federation, the Baltic States, and several Central and Eastern European States.

A requirement that affects only Annex 1 Parties is that they must adopt climate change policies and measures with the aim of reducing their greenhouse gas emissions to 1990 levels by the year 2000. This provision obliges them to set an example of firm resolve to deal with climate change.

Annex 2 Parties consist of the OECD members of Annex 1, but not the economies in transition Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change. In addition, they have to 'take all

[35] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 6.

practicable steps' to promote the development and transfer of environmentally friendly technologies to developing counties.

The third group is classified as 'least developed countries' and they are given special consideration under the Convention on account of their limited capacity to respond to climate change and adapt to its adverse effects. This group includes countries which are prone to flooding, desertification and drought, as well as countries that rely heavily on income from fossil fuel production and commerce. Parties are urged to take full account of the special situation of these countries when considering funding and technology-transfer activities.

Further, all Parties to the Convention are subject to general commitments in responding to climate change, such as compiling inventories of their greenhouse gas emissions. They must also submit reports on actions that are being taken to implement the Convention and report on progress that has been made.[36]

Conference of the Parties

The Parties to the Convention meet annually at the Conference of the Parties (COP) to assess implementation and strategies on reducing emissions.

The Convention required the first meeting of the Parties to the Convention (COP1) to review the adequacy of the commitment to return emissions to 1990 levels by 2000.

[36] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 6.

In the lead up to COP1, held in Berlin in 1995, it became clear that few OECD countries were making sufficient efforts to achieve their commitment to return emissions to 1990 levels by 2000. In fact projections of future emissions showed a continued rise in greenhouse gas emissions as a result of increasing fossil fuel use.[37]

The Annex 1 Parties agreed that their commitments were inadequate but they failed to agree on new concrete emission targets. Instead, in a document known as 'the Berlin Mandate', they agreed to set up a new negotiating process in order to strengthen their commitments. They proposed to do this by negotiating new emissions reduction targets with the aim of adopting them in a legal instrument at the third COP.[38]

By COP3 in Kyoto, Japan, it had become clear to most countries that the voluntary approach to emissions reduction was inadequate. It had therefore become necessary to translate the UNFCCC from political will into legal obligation, especially in light of the IPCC's second major assessment on climate change, which concluded that the world climate may have already started responding to past emissions.[39]

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[37] Guide to the Kyoto Protocol n 2 at 2.
[38] Guide to the Kyoto Protocol n 2 at 2.
[39] Understanding Climate Change n 25 at 19.

Conclusion

The UNFCCC establishes a framework and a process for agreeing to specific action later. The diplomats who wrote the Convention saw it as a launching pad for potential further action in the future. Because of scientific uncertainty, together with political and economic considerations, they recognised that it would not be possible in 1992 for countries to agree on a detailed convention dealing with emissions reduction. But by establishing a framework of general principles and institutions, it got things started.

The Convention is designed to allow countries to weaken or strengthen it in response to new scientific developments. For example, they can agree to take more specific actions by adopting 'amendments' or 'protocols', which is what happened on 11 December 1997 with the adoption of the Kyoto Protocol.[40]

[40] Understanding Climate Change n 25 at 10.

Chapter 3

The Kyoto Protocol

Introduction

In 1997, emissions levels continued to rise around the world and more and more countries came to accept that a firm and binding commitment by developed countries was necessary to reduce these emissions.[41] The negotiators at COP3 in Kyoto were therefore determined to implement strong commitments especially in light of the fact that the year 2000 was approaching, and with it the Conventions non-binding 'aim' for Annex 1 countries.[42]

Also of importance was the release in 1995 of the IPCC's Second Assessment Report, which concluded that the climate might have already started responding to past emissions. It also recommended that, in order to stabilise atmospheric concentrations of greenhouse gases at 1990 levels, it would be necessary to reduce current anthropogenic emissions by 60%.[43] This figure went far beyond the reductions to which even the most environmentally progressive Parties were prepared to commit.[44]

The commitments stipulated in the Protocol are dealt with below, however ultimately, developed countries agreed to reduce, between 2008 and 2012, emissions of six particular greenhouse gases by at least 5.2% from 1990 levels.[45] As mentioned above, under the Protocol these reduction targets are legally binding. Again, developing countries

[41] Understanding Climate Change n 25 at 20.
[42] Understanding Climate Change n 25 at 20.
[43] Intergovernmental Panel on Climate Change n 3.
[44] Coghlan n 4 at 3.
[45] Coghlan n 4 at 3.

successfully argued that they have a right to reach the same levels of economic prosperity as developed countries, so no emissions reduction requirements were placed on them.[46]

The Protocol has generated considerable disagreement amongst the Parties, therefore before looking at the mechanics of the Protocol it is important to consider the political manoeuvrings which led to the final agreement.

The Politics behind the Protocol

The negotiation of the Protocol involved a compromise between two major positions, on the one hand, the support for formal caps on emissions and on the other, the preference for creating mechanisms to help make emission reductions more cost effective. The first position was headed by European nations, while the United States and the so-called Umbrella Group supported the latter.[47] The Umbrella Group, comprised of Australia, Canada, Iceland, Japan, New Zealand, Russia, Ukraine and the United States, favoured unlimited emissions trading and the use of the widest range of options for emissions reductions. They supported the use of so-called flexibility mechanisms, including forestry sequestration (sinks).[48] The flexibility mechanisms will be discussed in chapter 4 and sinks will be discussed in chapter 2 of Part 2. The European Union was cautious about emissions trading and the use of sinks, favouring restrictions on the use of the flexibility mechanisms, by means of a cap, in order to ensure domestic emissions reductions.[49]

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[46] Paulsson n 7 at 16.
[47] CO2e.com n 10.
[48] CO2e.com n 10.
[49] CO2e.com n 10.

Developing countries were also in favour of a formal emissions cap on developed countries, however they were split with regard to the flexibility mechanisms. In general, South America was positive towards flexibility mechanisms, while the rest of the developing world took a more sceptical approach, particularly China and the small island states.[50]

The Association of Small Island States, (AOSIS) represent the extreme end of the climate change debate, as they fight for their continuing physical existence, while China and the Group of 77 (G77) comprise of most of the world's poorest nations. They emphasised the developed world's responsibilities under the leadership principle established at the Rio Earth Summit.[51]

Although not formally recognised as negotiating parties at the Kyoto COP, the influence of Non-Governmental Organisations, such as environmental groups and particularly energy industry lobbyists, has been considerable throughout the climate change mitigation process.[52]

The great challenge from a legal perspective has been to design a structure and accompanying mechanisms which fairly and effectively accommodates these various, often competing positions[53] and the compromise that was finally reached tried to incorporate all these different views.[54] Although many difficult decisions were left to

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[50] CO2e.com n 10.
[51] Coghlan n 4 at 2.
[52] Coghlan n 4 at 3.
[53] Coghlan n 4 at 3.
[54] Ott *The Kyoto protocol: unfinished business: United Nations Framework Convention on Climate Change*: http://ask.elibrary.com (accessed on 12 January 2004).

subsequent COPs to negotiate, the Kyoto Protocol, adopted at COP3 in 1997, set out specific objectives.

The Emission Reduction Objective

Article 3 contains the quantified emission limitation and reduction objective of the Protocol, but for the purposes of this paper Article 3(1) is the most important obligation. It states that;

"The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012'.[55]

This Article contains the core of the Protocol and it is therefore important to examine it in detail.

[55] Kyoto Protocol to the United Nations Framework Convention on Climate Change n 24.

The Annexes

Annex I countries are the industrialised countries and economies in transition listed in Annex I of the UNFCCC.

The Protocol has two annexes. Annex A lists the 6 main greenhouse gases to be reduced and Annex B lists the differentiated reduction targets of industrialised countries. In practice Annex I of the Convention and Annex B of the Protocol are used almost interchangeably.[56]

Greenhouse Gases

The six greenhouse gases specified in the Protocol are:

Carbon dioxide (CO_2)

Methane (CH_4)

Nitrous oxide (N_20)

Hydrofluorocarbons (HFCs)

Perfluorocarbons (PFCs)

Sulphur hexafluoride (SF_6)

[56] CO2e.com n 10.

Approximately 25 other gases, such as chloroform and carbon monoxide, qualify as climate-changing greenhouse gases, but only the above six are released in sufficient quantities to justify regulation under the Protocol.[57]

The above six gases are combined in a 'basket' so that reductions in each gas are credited towards a single target number. This is because the respective radiating force of each of these gases is different. The 'global warming potential' of each gas, as determined by the IPCC, is used to calculate the overall obligation. Cuts in individual gases are therefore translated into 'CO_2 equivalents' that can be added up to produce one figure.[58]

Cuts in the three major gases, carbon dioxide, methane, and nitrous oxide, will be measured against a base year of 1990, with exceptions for some counties with economies in transition. Cuts in the three long-lived industrial gases, HFCs, PFCs and SF_6 can be measured against either a 1990 or 1995 baseline.[59]

Assigned amounts

Each country listed in Annex B has an assigned amount of emissions that must be reduced by the first commitment period. This assigned amount is calculated pursuant to each countries, 'quantified emission limitation and reduction commitments' and is also listed in Annex B. This means that there is no uniform target for all countries, instead the targets

[57] CO2e.com n 10.
[58] Understanding Climate Change n 25 at 20.
[59] Understanding Climate Change n 25 at 20.

are differentiated to reflect national circumstances such as climate, geography, demographics, development patterns and available energy resources.[60]

However, of the negotiated targets, only those for the United States, the European Union, and Japan follow any kind of logic, in that they are based on per capita emissions and previous efforts to reduce consumption of fossil fuels. By contrast, the targets for most other parties were based primarily on pledges or their 'willingness to pay'.[61]

The European Union as well as most Eastern European countries have to reduce emissions by 8%, the United States by 7% and Canada and Japan by 6%. Exceptions were granted to some Eastern European countries, with Hungary and Poland having to reduce by only 6% and Croatia by only 5%. But some countries targets allow an increase in emissions, for example Australia can increase emissions by 8%, Iceland 10%; and Norway 1%. This is mainly the result of tough negotiating and stubbornness on the part of these countries. Other examples of tough negotiating are reflected in the obligations to merely stabilise emissions in the case of New Zealand, the Russian Federation, and Ukraine.[62]

Parties therefore have two commitments, one specific and one general. The specific commitment is the individual limitation and reduction target for each state listed in Annex B. The general commitment requires all Parties to cut their aggregate emissions by at least 5% below 1990 levels over the first commitment period.[63]

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[60] Grubb *International Emissions Trading under the Kyoto Protocol: Core Issues in Implementation* at 21.
[61] Ott n 54.
[62] Ott n 54.
[63] French *1997 Kyoto Protocol to the 1992 UN Framework Convention on Climate Change* at 232.

Duncan French[64] is of the opinion that the general or collective commitment is based on what the Parties to the Protocol estimate would be achieved if all Annex B countries complied with their individual obligations. He bases this assumption on the fact that the words 'with a view to reducing,' in Article 3(1) is not the language of compulsion. However, he points out further that, until it is know which countries will ratify the Protocol the collective 5% reduction cannot be determined. Without United States participation, this 5% is much harder to achieve. These are issues which will have to be resolved at subsequent COPs when or if the Protocol enters into force.[65]

Article 3(1) states that Parties may either individually or jointly meet their targets. The European Union succeeded in introducing its 'bubble concept' into the final text of the Protocol, in Article 4. According to this arrangement, the European Union's member states can jointly fulfil their reduction obligations. The bubble countries must set out their respective obligations for each Party and these will remain operative for the full commitment period, and new members to the European Union do not affect the obligations for this period. In terms of Article 4.6, as long as the European Union achieves its overall reduction target of 8%, all of its member states will be deemed to be in compliance. However, should it fail to achieve its target, both those members that have not achieved their individual targets and the European Union, as a whole, will not be in compliance. Article 4 is framed in general terms and therefore allows all other parties to enter in 'bubble' agreements of their own.[66]

[64] French n 63 at 232.
[65] French n 63 at 232.
[66] Ott n 54.

Under this plan, less developed European Union countries will be able to increase their emissions while the more industrialised countries will bear the burden of net reductions.[67] The disadvantage of the 'bubble' concept is that it has undermined the ability of some European countries to press for higher reduction targets for all industrialised countries.

Commitment Period

Finally in terms of Article 3 (1) Annex B countries are committed to reducing their overall emissions of gases listed in Annex A by at least 5% below 1990 levels in the commitment period 2008 to 2012.

The use of a 'commitment period' rather than a precise date, gives greater flexibility to states in fulfilling their obligations. In terms of the Protocol each country's emissions levels will be calculated as an average of the years 2008-2012.[68] Under this arrangement, each country's allowed annual emissions are multiplied by five to determine the overall target for this period. Overshooting the target in any given year therefore becomes irrelevant.

The commitment period of five years was originally proposed by the United States to avert the danger that a single-year target might pose due to fluctuations in economic performance or extreme weather conditions and to provide Parties with additional flexibility.[69]

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[67] CO2e.com n 10.
[68] Understanding Climate Change n 25 at 20.
[69] Ott n 54.

The European Union accepted this concept but tried to push for an earlier commitment period of 2003 to 2007. This failed but they did manage to include the soft provision in Article 3.2 that each Party shall by 2005 have made 'demonstrable progress' in achieving its commitments. However, as yet there are no indicators to measure achievement of this target.[70]

Conclusion

The Protocol was adopted at the third conference of the Parties to the UNFCCC on 11 December 1997 and it established legally binding emission reduction targets on industrialised countries. In terms of the Protocol, emissions are to be reduced in aggregate by at least 5% below 1990 levels by 2008-2012.[71] As mentioned above, an important characteristic of these targets is that they are legally binding as opposed to the voluntary targets set by the Convention.[72]

If it enters into force the Protocol will affect virtually all major sectors of the economy and according to the United Nations, is the most far-reaching agreement on the environment and sustainable development ever adopted.[73] For this reason the Protocol's entry into force threshold is set very high, requiring at least 55 countries, including countries that produced 55% of the 1990 emissions, to ratify.[74]

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[70] Ott n 54.
[71] Grubb n 60 at 21.
[72] Ott n 54.
[73] Understanding Climate Change n 25 at 18.
[74] Paulsson n 7 at 21.

To date the Protocol is not yet in force, and in 2001 the Bush administration declared that the United States would not ratify. However the Protocol is still relevant because it may enter into force without the United States, if Russia ratifies. The likelihood of the Protocol entering into force is dealt with in chapter 5 of Part 2.

The Protocol's main objective is to reduce anthropogenic greenhouse gases in the atmosphere. In order to allow countries to reduce their emissions in the most cost effective manner, flexibility mechanisms were introduced into the Protocol. These flexibility mechanisms are discussed in the next chapter.

Chapter 4

Flexibility Mechanisms

Introduction

As stated above one of the most important developments under the Protocol was the acceptance by industrialised countries that greenhouse gas mitigation must be legally binding. Equally important, however, are the means by which emissions reductions are to be met under the Protocol. The flexibility mechanisms will hopefully achieve emission reductions through the use of co-operative efforts. The idea of co-operative effort has evolved into three mechanisms. Firstly there are Joint Implementation (JI) projects, which reduce emissions within industrialised countries. Secondly there is emissions trading, which allows countries with binding commitments to trade assigned amount units amongst Annex 1 countries and finally the Clean Development Mechanism (CDM), which enables emissions reductions achieved in developing countries to be credited to Annex1 countries.

These flexibility mechanisms essentially allow a country to trade its assigned amount of emissions reductions to another country, if its 2008-2012 emissions are expected to be lower than its initial assigned amount. The transfer of these emissions reductions may take place through all three flexibility mechanisms.

In other words, at the end of a commitment period, a country will be in compliance with its emission commitments if its emissions are less than or equal to its assigned amount adjusted for emission trading, JI and CDM transactions.[75]

Joint Implementation (Article 6)

Joint implementation projects, stipulated in Article 6 of the Protocol, provide Annex 1 countries with the opportunity to lower their emission reduction targets by financing projects which cut greenhouse gas emissions in other Annex 1 countries. Ideally, a joint implementation project would work something like this: Country A faces high costs for reducing domestic emissions, so it invests in low-emissions technologies for a new power plant in Country B, very likely an economy in transition. Country A gets credits for reducing emissions, at a lower cost than it could domestically, country B receives foreign investment and advanced technologies, and global greenhouse gas emissions are reduced.[76]

There are two broad categories of JI, bilateral and multilateral. A bilateral project permits a developed country to negotiate the framework agreement setting the rules for crediting. In a multilateral project, investing countries make contributions to an independent fund. Other states can then offer JI projects in order to compete for the fund's resources. Projects are selected according to their emissions reduction efficiency potential, with other positive externalities considered in the case of equally efficient projects. For the duration of the project, each investor country receives a credit proportional to its share of the project portfolio. Project risks are also pooled, with the investor countries being

[75] Grubb n 60 at 23.
[76] Understanding Climate Change n 25 at 31.

the project portfolio. Project risks are also pooled, with the investor countries being required to pay a corresponding insurance surcharge. The necessary verification could then be carried out either multilaterally or by private auditors.[77]

The benefit of hosting JI projects is reduced local pollution and increased access to climate friendly technologies. The benefit for the investing county is the potential to gain emissions credits abroad at a lower cost than could be achieved domestically.

Although JI was proposed as early as COP1 in 1995, agreement on a mechanism was not possible then because many industrialised countries were insisting on the participation of developing countries in this mechanism. Developing countries, on the other hand, were insisting that the industrialised countries first reduce their own emissions. Instead, a pilot phase of 'activities implemented jointly', without any crediting of achieved emissions reductions was established. JI was only agreed at COP3 after industrialised countries had taken on substantial reduction obligations and dropped their demand for developing country participation.[78]

Two points are worth mentioning with regard to JI. First, Article 6.1 refers to Annex I of the Convention and not to Annex B of the Protocol. As a result JI not only reduces the incentive for Annex I countries to ratify the Protocol but also allows Parties to take part without taking on legally binding obligations. The absence of an emissions cap therefore requires the rules and guidelines for JI to be as strict as if developing countries were to be allowed to participate.[79]

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[77] CO2e.com n 10.
[78] Ott n 54.
[79] Ott n 54.

Second, any Party can authorise 'legal entities' to participate, under its responsibility, in JI activities (Article 6.3). This allows private sector participation and again highlights the need for clear and verifiable guidelines. Article 6.2 requires the parties develop these guidelines at subsequent COPs.[80]

Clean Development Mechanism (Article 12)

In terms of Article 12 of the Protocol, Annex 1 countries can meet part of their reduction targets through the transfer of technology or investment in sustainable development projects in developing countries.[81] These Clean Development projects must have, 'real, measurable, and long-term benefits related to the mitigation of climate change'.[82]

The CDM is expected to generate investment in developing countries, especially from the private sector, and is the only flexibility mechanism under the Protocol that incorporates both developing and industrialised countries. It is hoped that it will enhance the transfer of environmentally friendly technologies to developing countries and promote sustainable development.[83]

Ideally, a CDM project will enable an Annex 1 country to transfer funding, technology and personnel to a developing country in order to establish a greenhouse gas mitigation

[80] Ott n 54.
[81] Hughes et al Environmental Law Fourth Edition at 556.
[82] Coghlan n 4 at 3.
[83] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 21.

project. In return the Annex 1 country receives credits which can then be used to reduce its emissions targets at a lower cost than domestic reductions.[84]

Credit for CDM projects will be earned in the form of certified emission reductions (CERs) and if the Protocol enters into force, it is anticipated that an international market in CERs will be developed. Notably, the seventh COP in Marrakech endorsed unilateral CDM projects whereby a developing country undertakes a CDM project without the investment of an Annex I Party and trades any resulting CERs on the international market.[85]

The CDM includes emissions from developing countries, which do not have targets, thereby increasing the overall emissions cap. Verification is therefore particularly important for this mechanism.[86] Another important component of the CDM is the requirement of additionality. This means that CERs generated under the CDM will only be recognised when the emissions reductions are additional to any that would have occurred without the CDM activity.[87]

The CDM also allows the private sector to participate in order to attract the capital, technological innovation and operative efficiency necessary for it to succeed.[88]

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[84] Coghlan n 4 at 4.
[85] Coghlan n 4 at 4.
[86] Understanding Climate Change n 25 at 39.
[87] CO2e.com n 10.
[88] Coghlan n 4 at 4.

International Emissions Trading (Art 17)

Of the three flexibility mechanisms, international emissions trading is the most important and is the key to the Protocol. It is critical because many Annex B nations would not be able to comply with their emissions reduction targets without being able to acquire credits through trading.[89]

The rules for emissions trading have not yet been finalised and there are several issues unresolved. However, in theory, a trading scheme would allow countries whose emissions are less than their assigned amounts to sell the reduction to countries whose emissions exceed their assigned amount. The net result should then be the same as if both countries achieved their commitments, since emissions are deducted from the assigned amount of the selling country and added to the assigned amount of the buying country. After all trading is finished the total sum of emissions should equal the total sum before any trading began. Trading therefore re-distributes the allowed emissions from one Party to another but keeps the total emissions within the originally agreed limit.[90]

In order to create such a market it is necessary to ensure that the overall amount of units circulating in the system is stable. Therefore a cap on tradable emissions is required.

In order to provide this cap Article 17 of the Protocol stipulates that only Parties listed in Annex B are allowed to participate in the proposed trading scheme. Article 3 of the Protocol refers to 'assigned amount units' (AAUs), which are the commodity to be traded.

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[89] CO2e.com n 10.
[90] Guide to the Kyoto Protocol n 2 at 19.

AAUs are the differentiated reduction targets allocated to the Parties and listed in Annex B of the Protocol.[91]

Because of political differences amongst the parties, discussed below, a compromise on emissions trading was introduced late in the Kyoto COP negotiations. Only the basic principle of emissions trading was incorporated into the protocol in Articles 17, 3(10) and 3(11).

Article 17:

"The Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading. The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling the commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that article."

Article 3(10):

"Any emission reduction units, or any part of an assigned amount, which a Party acquires from another Party in accordance with the provisions of Article 6 or of Article 17 shall be added to the assigned amount for the acquiring Party."

[91] Ott n 54.

Article 3(11):

"Any emission reduction units, or any part of an assigned amount, which a Party transfers to another Party in accordance with the provisions of Article 6 or of Article 17 shall be subtracted from the assigned amount for the transferring Party."

This is not much text considering the immensely complex task of creating a trading scheme, but nevertheless there are several rules that appear to be settled.

Firstly, as stipulated in Art 17, only Parties to the Protocol listed in Annex B are allowed to participate in the proposed trading scheme. Apart from the necessity of creating a 'cap' on tradable emissions, this exclusion provides an incentive for industrialised countries that have not ratified the Protocol, or are not included in Annex B, to ratify in order to participate in trading.

Art 3(10) and (11) provide the basic mechanism for a trading regime. Any emission reduction units, or any part of an assigned amount, which a Party acquires from another Party shall be added to the assigned amount for the acquiring Party and will be subtracted from the assigned amount of the transferring Party.[92] In other words a Party that has reduced greenhouse gas emissions below its assigned commitments can sell any additional emission reduction units (ERUs) to another Annex B Party, which may in turn apply these ERUs to their own national commitments instead of actual domestic reductions.[93]

[92] Ott n 54.
[93] Coghlan n 4 at 6.

Articles 3(10) and (11), refer to 'any part of an assigned amount'. These assigned amount units (AAUs) are the commodity that can be traded, and refers to the differentiated reduction targets allocated to the Parties and listed in Annex B of the Protocol. The Protocol therefore does not follow the principle of per-capita distribution. Instead, Article 3.7 stipulates that the assigned amount for the commitment period 2008-2012 for each Party is equal to the percentage inscribed for it in Annex B of its base-year emissions of the 'basket' of gases listed in Annex A, multiplied by five.[94]

Finally, according to Articles 3(10) and (11), ERUs can also be traded. This refers to Article 6, where ERUs result from JI projects and therefore clarifies that the credits generated may not only be used by the acquiring Party to meet its own obligations, but that these credits are transferable to other Parties.[95]

However, neither the first nor the latter term is sufficiently precise to create a tradable commodity. Therefore a common unit, such as a 'tonne of CO_2 equivalent', could be defined for Joint Implementation as well as for Emissions Trading.

Importantly, negotiators at COP7 agreed on a principle of 'fungibility' whereby credits from both CDM projects and emissions trading (that is, CERs and ERUs) should be treated equally. By merging the two markets in this way, the fungibility principle, if implemented, is aimed at enhancing the viability and cost-effectiveness of the Protocol's flexibility mechanisms.[96]

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[94] Ott n 54.
[95] Ott n 54.
[96] Coghlan n 4 at 2.

Conclusion

The mechanisms operate on the basis of accounting units, which will be tracked and recorded through national registries established and maintained by Annex 1 Parties. JI projects result in ERUs and CDM projects generate CERs. Under emissions trading, Parties may exchange AAUs, CERs and ERUs, as well as removal units (RMUs), which are generated through sink activities. Each of these units equates to one tonne of carbon dioxide equivalent and each unit will have a unique, traceable serial number.[97]

The flexibility mechanisms have the dual purpose of assisting developed countries in meeting their individual emission targets by the most economically efficient means possible, and of encouraging developing countries to participate in greenhouse gas mitigation by involving themselves in cooperative ventures with developed countries, through the CDM.[98]

Emissions trading and JI, only incorporate Annex 1 countries, they therefore only shift around the pieces of the industrialised countries overall target. The problem however is the involvement in trading of developing countries through CDM projects. Developing countries do not have targets and therefore effectively increase the overall emissions cap. This goes to the principle of emissions conservation, and the question of whether a trading scheme will result in collective emissions being higher than in the absence of that trade.

[97] A guide to the Climate Change Convention and the Kyoto Protocol n 1 at 24.
[98] Coghlan n 4 at 2.

It is important to keep this principle of emissions conservation in sight because although in theory emissions trading looks promising, there are ways in which it could be discredited if appropriate rules and guidelines are not established.[99] The Second Part of this paper looks into the key areas of debate and disagreement amongst the Parties to the Protocol with regard to the flexibility mechanisms.

[99] Grubb n 60 at 141.

Part 2

Introduction

As mentioned above, there are essentially two different points of view with regard to the main objective of the Protocol. While all Parties agree that dangerous anthropogenic emissions need to be reduced, some countries emphasise the 'leadership principle' whilst others emphasise the 'cost-effectiveness principle'.

The first major area of disagreement, discussed in chapter 1 of this Part, is the question of supplementarity. The Protocol states that the flexibility mechanisms must be supplemental to domestic emission reduction activities, however, it does not stipulate what portion of the target can be supplemental. The United States led Umbrella Group insisted on no restrictions on the use of the flexibility mechanisms. The European Union and many developing countries supported a limit on the percentage of emissions reductions that can be achieved through the flexibility mechanisms. They believe that domestic reductions are essential in combating the problem of climate change.

Chapter 2 looks at the inclusion in the flexibility mechanisms of carbon sinks. This is an area of fundamental disagreement amongst the Parties, with many believing that these activities are a major loophole that will allow countries to get away with not having to make any reductions in greenhouse gas emissions at all.

Chapter 3 looks at the compliance mechanism, which is a vital component if the Protocol is to be effective. The main area of dispute amongst the Parties with regard to this is whether the compliance mechanism should be legally binding or not.

Chapter 4 discusses the position of developing countries in the Protocol and chapter 5 looks into the likelihood of the Protocol entering into force.

Before looking into the debates regarding the flexibility mechanisms, in order to follow the Protocol's development, it is helpful to briefly outline the main outcomes of each of the COPs to the Convention.

COP/MOP

The Conference of the Parties (COP) is the highest decision-making authority of the Convention. It is an association of all countries that have ratified or acceded to the Convention and is responsible for keeping international efforts to address climate change on track.[100] Article 13 of the Protocol states that the 'Conference of the Parties will serve as the meeting of the Parties' to the Protocol (COP/MOP). The MOP is a distinct body with a different membership from the COP, comprising only those countries that will have ratified the Protocol.

The First Conference of the Parties (**COP1**) took place in Berlin in 1995. During this session, delegates agreed that the Convention's greenhouse gas commitments for Annex I countries were inadequate, but they failed to agree on new emissions targets. Instead,

[100] Website of Climate Change: http://www.teriin.org/climate/nego.htm (accessed on 4 April 2004).

delegates created the 'Berlin Mandate', which was an agreement to set up a new negotiating process to include greenhouse gas limitation and reduction targets in an international protocol. The parties aimed to adopt the new protocol at COP3.

COP2 was held in Geneva in 1996. Little progress was made on reaching reduction targets for a new treaty, but the United States agreed to legally binding emission commitments and announced that it wanted to include flexibility mechanisms in the new agreement. The conference issued the 'Geneva Declaration', stating that the IPCC's Second Assessment Report provided the basis for urgent action and that legally binding overall reductions in emissions should be negotiated by COP3.

COP3 was held in Kyoto, Japan in 1997 and the Kyoto Protocol was adopted. Under the Protocol most industrialised nations and some central European countries agreed to legally binding reductions in greenhouse gas emissions between the years 2008 and 2012.

COP4 was held in Buenos Aires, Argentina in 1998. At this meeting, delegates negotiated on the 'Buenos Aires Plan of Action' for implementing the Kyoto Protocol. The plan focused on rules and guidelines for the flexibility mechanisms that will allow countries to meet their obligations. The rules and procedures that will govern compliance, development and transfer of cleaner technologies to developing countries were also discussed, as well as the adverse impacts on developing countries climate change. COP6 in 2000 was set as the deadline for introducing these rules.

COP5 met in Bonn, Germany, in 1999. The major themes of the negotiations included devising rules for emissions trading and developing criteria for project eligibility under

the CDM and JI. The meeting also discussed legally binding consequences for non-compliance by countries and a system to inventory greenhouse gas emissions. Most industrialised countries, excluding the United States called for ratification of the treaty in time for its entry into force by 2002, the 10th anniversary of the Rio Earth Summit.

COP6 was held in The Hague, Netherlands, in 2000. The talks collapsed after the United States and Europe failed to reach agreement on the amount of credits that could be claimed from emissions trading and carbon sinks. The European Union wanted most of the targets to be met through actual reductions, while the United States pushed for more credits from carbon sinks and emissions trading. Ministers agreed to resume COP6 in mid-July of 2001, in Bonn, to finish the details of the Protocol.

In March 2001, President Bush declared that 'Kyoto is dead' and announced that the United States would not move to ratify the Protocol. However despite this setback delegates resumed negotiations in July 2001 in Bonn, Germany. The ministers present at the resumed session successfully adopted the 'Bonn Agreement to the Kyoto Protocol'. The Bonn Agreement was a set of political compromises for the most contentious issues left open by the Protocol. It was not drafted as a legal text and was not sufficient to fulfil the mandate for the Buenos Aires Plan of Action. As a political document concluded at ministerial level it did however represent a breakthrough in many of the critical questions and showed that climate change mitigation continued to be taken seriously.

COP7 was held in Marrakech, Morocco, in November 2001. Here the parties adopted the 'Marrakech Accords', which finalised the operational details for implementing the

Protocol. It marked the end of the legislative phase and the beginning of a phase of implementation.

The Marrakech Accords marked the successful conclusion of the Buenos Aires Plan of Action, in that it contained the Protocol's operational rulebook. It sets out how the compliance procedures, the financial mechanisms and the verification system will work once the Protocol enters into force. This level of detail is considered to be sufficient for parties to proceed with ratification.

While the shape and character of the Protocol was finally agreed upon, there were still areas that had to be finalised.

COP8 was held in New Delhi in 2002, and it aimed to finalise the monitoring, reporting and review mechanisms of the Protocol. The Parties agreed on guidance to the Least Developed Countries Fund and the rules and procedures for the CDM. Ministers also agreed the 'Delhi Declaration' which called on Parties to ratify the Kyoto Protocol. It advocated the increased use of renewable energy and environmentally sound energy services and greater technology transfer.[101]

COP9 was held in Milan in 2003 and was able to translate into concrete rules and procedures the political decisions of previous COP's. An agreement was reached on the mechanisms to help the Parties meet their targets with projects on, re-forestation and afforestation with clear and deliverable mechanisms of risk evaluation and crediting. At COP9 important decisions were also taken on the modalities for carbon sinks under the

[101] Website of business counsel for sustainable energy – COP8 Report: http://www.bcse.org/newdelhisummary.html (accessed on 4 April 2004).

CDM. Furthermore the Parties drew up guidance plans for reporting land-use, land-use change and forestry in national greenhouse gas inventories.

After the Protocol's entry into force, at the fist session, the COP/MOP will be presented with the Marrakech Accords for adoption and only the Parties to the Protocol will be in a position to issue authoritative interpretation of the treaty. The decisions taken in Marrakech are framed as draft decisions for the COP/MOP, their legal character is that of a recommendation by the COP of the Convention. These decisions are therefore not legally binding on the COP/MOP of the Protocol.[102]

[102] Ott *Climate Policy After the Marrakesh Accords: From Legislation to Implementation*: http://www.wupperinst.org/download/Ott-after-marrakesh.pdf (accessed on 20 February 2004) at 3.

Chapter 1

The Supplementarity Debate

Introduction

Article 17 of the Protocol states that emissions reduction units (ERUs) purchased from other countries must be 'supplemental' to the purchasing country's domestic compliance measures.[103] This means that a country cannot achieve its reduction target solely through buying emissions and do nothing to reduce its domestic emissions.[104] However Article 17 does not define supplemental, so countries do not know exactly how much of there target can be achieved through the flexibility mechanisms.[105]

The negotiators of the Protocol deliberately left the legal provisions concerning supplementarity ambiguous because of the political difficulty in getting the Protocol signed. It was thought that it would be better to find agreement on the issue in subsequent COP's.

Supplementarity became one of the central issues between the European Union and the Umbrella Group at COP6 in The Hague. The failure to reach agreement on this issue was one of the main reasons that led to the collapse of COP6, which resulted in the United States walking out of the Kyoto regime. The European Union initially advocated a 95% domestic reduction requirement, but by the conclusion of COP6 had expressed

[103] Coghlan n 4 at 8.
[104] Guide to the Kyoto Protocol n 2 at 20.
[105] Guide to the Kyoto Protocol n 2 at 20.

willingness to accept a 50% reduction requirement.[106] The Umbrella Group and in particular the United States and Australia advocated unlimited use of the flexibility mechanisms.[107]

Article 17 clearly states that ERUs purchased from other countries must be supplemental to the purchasing country's domestic compliance measures, therefore in terms of the Protocol, unrestricted trading is prohibited. The same problem arises in relation to the CDM. Article 12 states that Annex 1 Parties may use CERs accruing from CDM activities to contribute to compliance with 'part' of their individual targets. Again a literal reading suggests that the Protocol clearly stipulates a cap on the use of the CDM. However, again, the Protocol failed to quantify the 'part' to which article 12 refers.[108]

There are basically two core issues of dispute between the European Union and the Umbrella Group with regard to supplementarity.

First there is disagreement between perceived fairness and cost effectiveness. The European Union believes that supplementarity rules are needed to ensure that every country undertakes some minimum level of domestic effort towards emissions reduction. The Umbrella Group on the other hand is concerned about the economic damage emissions reductions will cause and therefore emphasises the principle of cost-effectiveness.[109]

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[106] Rajamani *Re-Negotiating Kyoto: A Review of the Sixth Conference of Parties to the Framework Convention on Climate Change* at 218.
[107] Coghlan n 4 at 9.
[108] Coghlan n 4 at 9.
[109] Coghlan n 4 at 8.

The second area of dispute focuses on the problem of what has become know as 'hot air'. As a result of concessions, granted during the negotiations setting the differentiated reduction targets, Russia and Ukraine will gain a 'windfall' of excess emissions or hot air, which they can trade. The European Union believes that supplementarity is necessary in order to ensure that trading will focus on bona fide emission controls rather than simply on hot air emission permits.[110] The issue of hot air is dealt with below, but first the debate between economics and fairness will be discussed.

Economics and fairness

As mentioned above, the European Union and some environmental groups argued that supplementarity rules are needed to ensure that in basic fairness every nation undertakes some minimum level of effort. They also felt that a high level of supplimentarity would speed up the transition from fossil fuels to clean and renewable energy technology. They argued that by forcing countries to impose emissions controls within their own economies they would be forced to create low-carbon or even zero carbon fuels. This in turn would then force the world's economy to more rapidly decarbonise its energy system.[111]

However the Umbrella group argued that if the supplementarity level is set too high, adoption of the Protocol would be economically prohibitive. The difficulty for the United States was that at the time of COP6, their emissions were on track to being 25% to 30% higher than 1990 levels by 2008-2012. Models used to assess the implications of the Protocol for the United States showed that in order for them to realistically meet their

[110] CO2e.com n 10.
[111] Victor *Commentary on the negotiations at The Hague and the Pronk Synthesis text*: http://www.cfr.org/kyoto/Victor_Commentary-on-Pronk.html (accessed on 27 January 2004)

targets, 85% of their compliance effort would have to take the form of buying emission permits and CDM credits. Capping that at 50% would cause a large increase in the estimated cost of compliance.[112]

The Umbrella Group also argued that because developed countries are largely more energy efficient the relative expense of realising reductions is higher than for developing countries. This position arises from the necessity in developed countries to use technology intensive and expensive innovations to further reduce emissions.[113]

With regard to fairness, they felt that it is unreasonable to expect some minimum level of effort that can be imposed on all participants. They held that under the Protocol nations already have different levels of willingness to pay. For instance Russia would have a negative effort whereas Japan and Sweden will have to make a much more vigorous effort. David Victor[114] argues that although some countries want to impose their vision of fairness on others, this cannot be done with international conventions in which countries that have different visions of fairness can simply opt out.[115]

The European Union's argument that the threat to impose strict controls on emissions will induce technological innovation was not shared by the United States, which was of the opinion that these kinds of restrictions on the market would not necessarily lead to higher innovation. Instead they argued that countries would demand larger emissions allocations in future commitment periods to offset the impact of supplementarity rules, which would

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[112] Victor n 111.
[113] Coghlan n 4 at 9.
[114] Victor, D *Collapse of the Kyoto Protocol.*
[115] Victor n 111.

lead to higher emissions.[116] Victor describes the European Union approach as similar to a homeowner blowing up his house to demonstrate that he is serious about eventually undertaking a remodelling program.[117]

At the Hague negotiations, the Umbrella Group and especially the United States felt that they needed means other than domestic emissions reductions to meet their targets. Without these 'other means' they felt they would be severely deterred from ratifying the Protocol. It is submitted that the threat of countries opting out of the Protocol because of economic concerns is real, as demonstrated by the United States in 1991, and it is more likely that the Protocol will be ratified if the flexibility mechanisms are not restricted.

Hot Air

The second problem with regard to supplementarity is the issue over hot air. As mentioned above the problem arises out of the concessions granted to Russia and Ukraine whereby they were only required to stabilise emissions at 1990 levels for the first commitment period.[118] Both countries experienced economic collapses in their transition to market economies, which resulted in the closure of inefficient industries. The result of this, according to a number of international agencies, is that their 2010 emissions have been projected to be 15% below their collective 1990 baselines.[119] Therefore instead of having to make domestic emissions reductions, Russia and Ukraine will gain a 'windfall' of excess emissions, which they can trade.[120]

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[116] Victor n 111.
[117] Victor n 111.
[118] Guide to the Kyoto Protocol n 2 at 12.
[119] Rajamani n 106 at 219.
[120] Coghlan n 4 at 7.

This hot air will then provide a 'reservoir' from which Annex B countries can buy cheap emissions credits, instead of reducing their domestic emissions. This is seen by some analysts as being a major loophole in attempts to reduce worldwide anthropogenic emissions.[121]

Despite these concessions, which were clearly granted in order to encourage their participation, Russia has not yet ratified the Protocol. Russia's uncertainty with regard to ratifying the Protocol is discussed in chapter 5.

In order to counter the problem of hot air, the European Union advocated that trading be supplemental to domestic emissions reductions, with a 50% cap on emissions trading.[122] Their reasoning was that by limiting the use of the flexibility mechanisms, the trading that does occur would focus on bona fide emission controls rather than on hot air emission permits.[123]

The Umbrella Group again took the opposite view. They argued that because hot air permits would be a pure windfall, they would cost nothing to generate and would be the first to trade. Initially every country would fill its trading quota with these before it paid a premium for bona fide permits. However, a large overhang of hot air permits, along with supplementarity rules, would depress the prices for bona fide permits and undermine the incentive for bona fide trading.[124]

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[121] Ott n 54.
[122] Ott n 54.
[123] CO2e.com n 10.
[124] Victor n 111.

The problem with this argument is that it does not take into account the expansion of the Protocol. If countries presently within Annex 1 are allowed to benefit from obtaining assigned amounts in excess of business as usual emissions, there will be no politically plausible way of preventing other counties from joining on a similar basis in the future. It would be difficult to prevent new countries joining with inflated or just overly cautious targets. This would expand the volume of hot air in the system, which could result in the collapse of any incentive to meaningful action.[125]

Environmental groups such as Greenpeace, claim that if hot air is not traded, emissions from Annex B countries in 2010 will be about 8.4% below 1990 levels. But, if industrialised counties bought all of the Russian and Ukrainian hot air and added it to their assigned amounts, the 8.4% reduction would shrink to about 2.2%.[126]

Conclusion

It is submitted that although having unrestricted use of the flexibility mechanisms is not ideal, eliminating the hot air problem completely is probably not politically feasible and the more pressing issue is to get the Protocol ratified. This means concessions will have to be made, but once the Protocol has entered into force and the hot air has been traded out, future commitment periods can tighten the levels of allowable emissions reductions. It is further submitted that countries ratifying late will not necessarily be able to negotiate high levels of hot air for themselves because the political need to have the Protocol ratified would have expired and therefore a significant bargaining tool would be lost.

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[125] Grubb n 60 at 142.
[126] Guide to the Kyoto Protocol n 2 at 12.

Ultimately the attempt of the European Union, developing countries and environmental groups to place a 50% supplementarity cap on the flexibility mechanisms was unsuccessful. At COP7 it was agreed that, 'the use of the mechanisms shall be supplemental to domestic action and domestic action shall thus constitute a significant element of implementing Article 3.1 of the Protocol'. Therefore the position has not changed, as there is no supplementarity cap. However the COP7 decision still allows for some political pressures to be placed on any country that relies solely on the flexibility mechanism to fulfil its obligations.[127]

[127] Ott n 102 at 4.

Chapter 2

Carbon Sinks

Introduction

The use of 'carbon sinks' as a means of complying with emissions reduction targets is another issue which has been the subject of heated debate and controversy amongst the Parties to the Protocol. Sinks are seen by some analysts as being a further loophole in the Protocol and also as one of the main reasons for the collapse of COP6.

The Protocol refers to carbon sinks as emissions absorbed or emitted by certain land use, land use change and forestry (LULUCF) activities. Specifically, afforestation, reforestation and deforestation activities caused by human activities since 1990.[128]

The concept behind a carbon sink is that it is possible to sequester carbon from the atmosphere and store it in 'reservoirs'.[129] For example, while trees are growing, they take carbon dioxide from the atmosphere and fix the carbon in their wood. They therefore act as sinks and help to counter climate change by removing carbon dioxide from the atmosphere.[130] Sinks can be either oceanic or terrestrial in nature.[131]

However the European Union and most environmental groups view the use of sinks as a licence to pollute and a means for countries to avoid their emissions reduction

[128] Guide to the Kyoto Protocol n 2 at 16.
[129] Website of Highbeam Research *Getting to the Root of the Matter*: http://www.highbeam.com http://www.highbeam.com (accessed on 19 February 2004) at 6.
[130] Guide to the Kyoto Protocol n 2 at 16.
[131] Gillespie *Sinks and the Climate Change Regime: The State of Play*: http://www.highbeam.com (accessed on 19 February 2004).

commitments. They also argue that the use of sinks will block or undercut the development of clean and renewable sources of energy.

This chapter examines the inclusion of sinks in the Protocol and the potential benefit or harm of their inclusion.

Sinks in the Protocol

Political differences at the Kyoto negotiations made consensus on the use of carbon sinks difficult. They were included in the Protocol but only in a very limited way. It was hoped that the details would be negotiated at subsequent COPs. The relevant Articles with regard to sinks in the Protocol are 3.3 and 3.4.

In terms of Article 3.3, post 1990 activities such as, afforestation and reforestation are credited while deforestation is penalised. Developed countries can achieve their commitment targets by deducting emissions absorbed by human-induced LULUCF from their gross emissions in the first commitment period. In other words, assigned amounts are measured in terms of 'net emissions'.[132]

Article 3.4 provides for an expansion of the LULUCF activities beyond afforestation, reforestation and deforestation. However the decision on which new activities can be included in the Protocol was deferred until the first COP after the Protocol enters into force (COP1 of the Protocol).[133]

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[132] Guide to the Kyoto Protocol n 2 at 33.
[133] Guide to the Kyoto Protocol n 2 at 16.

The use of sinks is clearly permitted in terms of the Protocol, however the disagreement amongst the Parties was caused by the extent to which sinks will play a role in the Protocol.[134] As mentioned above the Umbrella Group wanted a very liberal regime that would broadly include sinks in carbon accounting, while the European Union and environmental groups wanted a very conservative regime that would strictly curtail the use of sinks.[135]

Once again the essential point of departure between the two main protagonists was between economics and fairness. The European Union argued that the use of sinks will allow developed countries to escape or even increase their domestic fossil fuel emissions. They also argued that the credits that could be available from including sinks are large but unevenly distributed. Some countries with large and growing forests, such as Canada, New Zealand, the United States and Russia, could claim large credits for sequestering carbon. If so, these countries would have to undertake a less vigorous program to control emissions from their energy sector. Environmentalists dubbed the effort by the United States to get a large credit for growing forests as a 'get out of jail free card'.[136]

The United States argument in favour of the use of sinks was simply that without them the Protocol is economically unviable. However there are practical difficulties with including sinks in the Protocol. In 2000 the IPCC released a special report on LULUCF which basically stated that, 'the degree to which terrestrial ecosystems continue to be net sinks

[134] Pearce F, New Scientist 2001 July 28 at 13.
[135] Reiner, D *Climate Impasse: How the Hague Negotiations Failed The Environmentalist* 2001 March at 36.
[136] Victor n 111.

for carbon is uncertain due to complex interactions between a variety of factors'.[137] In other words they have no idea whether or not the use of sinks will reduce levels of anthropogenic carbon dioxide in the atmosphere.

The political controversy surrounding the use of sinks is focused on this lack of scientific certainty and the difficulty of accounting for sinks. The issues have not been easy to resolve and are still not settled, however comprehensive rules were agreed on at COP7. These rules will be examined below but first it is useful to discuss the difficulties caused by scientific uncertainty.

Scientific Uncertainty

The Protocol states that the utilisation of sinks requires provable changes in carbon stocks for each commitment period, and that associated activities must be verifiable. However inconsistencies arise due to the difficulty in distinguishing between human-induced and natural changes in carbon flux.[138] As the IPCC noted, there is 'considerable quantitative uncertainty' in the area of 'carbon sinks'.[139]

The difficulty with regard to the use of sinks is the limited ability of countries, even developed countries, to measure all their carbon stocks. During the 1990's there were no agreed criteria for accurate measurements and distinguishing natural from

[137] Watson *Report on the Key Findings from the IPCC Special Report on Land-Use, Land-Use Change and Forestry* 2000 12th Session of SBSTA Bonn, Germany: http://www.ipcc.ch/present/sp-lulucf.htm (accessed on 12 January 2004)
[138] Gillespie n 131 at 8.
[139] Intergovernmental Panel on Climate Change n 3.

anthropogenically caused changes in LULUCF can be very difficult.[140] The IPCC stated that, 'it may be impossible to distinguish with present scientific tools that proportion of the observed stock change that is directly human induced from that proportion that is caused by indirect and natural factors'.[141]

Another source of uncertainty is the potential for forests to actually produce carbon emissions. The use and promotion of forest sequestration could indirectly produce negative effects on climate change. In addition to these indirect effects, there may also be direct limitations on the long-term ability of forests to effectively sequester carbon.[142]

The concern is that carbon sequestered by forests is not permanent and cannot be reliably maintained into the future. There is also the problem of leakage in that sinks might be ineffective because they simply divert sequestration that would have happened in forestry activity elsewhere.[143]

Plantation forestry

Originally it was uncertain how the UNFCCC would deal with forestry issues with regard to climate change. Initial possibilities included placing all forestry considerations within a separate convention[144] or within a specific protocol in the climate treaty.[145] It was also originally believed that carbon sinks would only be a short-term measure to slow the

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[140] Gillespie n 131 at 7.
[141] Intergovernmental Panel on Climate Change n 3.
[142] Gillespie n 131 at 9.
[143] Website of The Carbon Cycle: http://www.greenhouse.crc.org.au/crc/research/carboncycle/sinksandkyoto.htm (accessed on 13 March 2004).
[144] Bates *Sinks in the Kyoto Protocol* 1990 International Environmental Law 103.
[145] Giles *Britain Seeks Global Action to Halt Global Warming* at 22.

carbon build up while more comprehensive responses were worked out.[146] In the end, none of these ideas eventuated and sinks became entrenched within the Convention and the Protocol.

The Protocol does not define the terms afforestation, reforestation and deforestation used in Article 3.3. One problem with this is that it could in theory provide an incentive for countries to cut down their old forests and replant them immediately with fast growing species capable of absorbing more carbon. This would not be defined as deforestation but as reforestation, since the area would be reforested immediately.[147] This high yield monoculture 'plantation' forestry would replace the existing biological diversity, it could pollute or deplete the water table and push indigenous people from their land.[148]

Countries in favour of sinks argue that the concerns about monoculture plantations and other impacts on biological diversity are not concerns of the Protocol but should be addressed through land-use regulations and other polices that affect how land is used directly.[149] They argue that high yield forests could be good for the environment because they concentrate wood production on small areas, leaving a larger fraction of the world's forests free. This could increase yields in production forests and potentially take the pressure off natural forests. They could protect biological diversity and allow for the restoration of already degraded forests.[150]

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[146] Houghton and Woodwell *Global Climate Change* at 36.
[147] Guide to the Kyoto Protocol n 2 at 36.
[148] Victor n 111.
[149] Victor n 111.
[150] Website of The Great Restoration: http://greatrestoration.rockefeller.edu/ (accessed on 19 February 2004)

However the problem with the above position is that deforestation through forest fires and drought releases stored carbon back into the atmosphere. It is impossible to guarantee the long-term survival of forests planted to store carbon and sinks could become sources of carbon.[151] Therefore unpredictable releases of carbon into the atmosphere would not be accounted for and with the predicted increase in droughts and forest fires as a result of climate change, this is of special concern.[152]

Article 3.3 of the Protocol deals with forests that have been created since 1990, so-called 'new forests', however Article 3.4 deals with management practices for forests established before 1990. Article 3.4 therefore increases the potential for credits from sinks considerably.[153]

Additional Activities

In order to achieve compliance in the first commitment period, many countries became aware that they would have to depend significantly on sinks to help them. They also realised that the use of sinks in terms of Article 3.3 would be very limited, because it essentially only allows carbon stored by forests established on land that was not forested in 1990 to be accounted.[154]

Article 3.4 provides the opportunity for credits to be accounted from, 'additional human-induced activities related to changes in greenhouse gas emissions by sources and removals

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[151] Guide to the Kyoto Protocol n 2 at 35.
[152] Guide to the Kyoto Protocol n 2 at 35.
[153] Website of the New Zealand Ministry of Agriculture and Forestry: http://www.maf.govt.nz/mafnet/rural-nz/sustainable-resource-use/climate/sinks-working-paper/sinks-working-paper-02.htm (accessed on 3 March 2004)
[154] The Carbon Cycle n 143.

by sinks in the agricultural soils'. However debate over how far to extend these categories was problematic for two reasons.[155] First, 'activity' is difficult to define and it is again difficult to separate human-induced changes from naturally occurring changes.[156] Second, it is unclear whether the additional activities should be limited to agricultural practices.

At COP6 it became apparent that without the inclusion Article 3.4 sinks the Protocol would not be ratified and a compromise was reached. It was decided that in addition to counting afforestation and reforestation that are already regulated under Article 3.3, the Parties will be allowed to take, re-vegetation, forest management, cropland management and grazing land management into account. A cap on forest management was also established for each country and listed in a separate appendix (Appendix Z).[157]

Apart from the overall cap on the accounting of Article 3.4 sinks, a number of safeguards were also introduced to prevent an abuse of carbon absorbing activities. The Parties agreed that consistent methodologies must be used and the mere presence of carbon stocks is excluded from accounting. The implementation of activities must also contribute to the conservation of biodiversity and the sustainable use of natural resources.[158]

Because of the difficulty in measuring the effectiveness of carbon absorption by sinks, a strict and complicated accounting system has been devised in an attempt to keep emissions trading 'honest'.

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[155] Bates n 144 at 170.
[156] Intergovernmental Panel on Climate Change n 3.
[157] Ott *The Bonn Agreement to the Kyoto Protocol – Paving the Way for Ratification*: http://www.wupperinst.org/download/Bonn-Agreement.pdf (accessed on 20 February 2004) at 8.
[158] Ott n 157 at 8.

Carbon Accounting

In order for carbon sinks to be used in an emissions trading regime, it is essential that correct and defensible accounting, of the amount of carbon that is sequestered, is undertaken. It is also necessary that correct accounting treatment is applied to situations in which carbon sinks become carbon sources, such as through fire, disease or destruction of forests. Confidence in the carbon accounting system is fundamental to building confidence in the use of carbon sequestration in a carbon trading market.[159]

There has been a long and complex debate about the precise rules for accounting for carbon sinks and in assessing their compliance with the Protocol. At the Kyoto negotiations, a gross-net model was agreed to. This means that only emissions from fossil fuels and industrial processes are counted in setting the 1990 baseline targets. However, in calculating emissions during the first compliance period, a partial net accounting will also be used in that a limited set of sinks as defined in Articles 3.3 and 3.4 can be incorporated. The inclusion of sinks in the accounting regime was restricted to afforestation, reforestation and deforestation. However an expansion of these categories, as is envisaged in Article 3.4 would allow emissions to increase. This is the reason sinks have caused so much controversy.[160]

To help ensure consistency and comparability among Parties, common definitions were established for the term 'forest' and for other classes of activity. There appears to be agreement on Article 3.3, and the definition of a forest is close to that of the Food and

[159] Website of State Forests for New South Wales: http://www.forest.nsw.gov.au/env_services/carbon/accounting/Default.asp (accessed on 3 March 2004).
[160] The Carbon Cycle n 143.

Agriculture Organisation[161] definition, which is the most commonly accepted definition. It is very inclusive and counts lands on which the cover of tree canopies is only 20%, which basically means open woodlands.

The accounting regime for Article 3.4 sinks was more difficult to resolve. At COP6 the United States interpreted the definition of additional activities very broadly by proposing the inclusion of forest management, the management of agricultural lands, and the management of grazing lands. This includes the vast majority of the Annex 1 countries land and changes enormously the contribution by sinks to compliance. The United States proposal was met with strong opposition from many countries and non-governmental Organisations. They were concerned that, by accounting for changes in carbon stocks over such extensive areas a significant amount of carbon that is accumulating in terrestrial ecosystems would be included in the accounting system.

In order to alleviate these concerns a cap on the use of sinks was suggested to limit the benefits claimed under Article 3.4. The disadvantage of a cap is that it would reduce the incentive to incorporate sequestration schemes, such as the regeneration of degraded land, which have the potential to provide substantial sequestration. It has been argued that a cap on Article 3.4 sinks is necessary because the accounting system is not able to adequately monitor these activities. Supporters of Article 3.4 sinks argue that a more robust accounting system should be devised instead of capping these activities. These arguments together with the continuing scientific uncertainty illustrate how the carbon accounting regime is still a political device.[162]

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[161] Website of the Food and Agriculture Organisation of the United Nations: http://www.fao.org/ (accessed on 23 March 2004).
[162] Victor n 111.

It is submitted that the use of sinks in the emissions trading system is not a good situation. However again it seems to be of political necessity that sinks must be included in order to get the Protocol ratified. It is further submitted that the first priority is to get the Protocol ratified but to limit the damage sink activities should be restricted to those defined in Article 3.3. If it is necessary to include Article 3.4 activities these should only apply to the first commitment period and should be capped.

Some countries have also argued for the inclusion, in the Protocol, of the use of sinks in the CDM. This is another major supply of extra credits for emissions reduction.

Sinks in the CDM

As discussed in chapter 4 of Part 1 the CDM includes emissions from developing countries, which do not have targets, and thereby increase the overall emissions cap. The use of sinks in the CDM will increase the amount of saleable emissions in the system significantly.

Some Parties believe that projects that increase sequestration through reforestation or other forms of revegetation would have benefits for both the host nation and the Annex 1 partner. However in CDM projects the problems of non-permanence and leakage are increased because such projects would have to be maintained and this brings up questions of sovereignty because large areas of developing countries would come under a perpetual lien to a developed country.[163]

[163] The Carbon Cycle n 143.

At COP6, it was agreed that CDM sinks would be included in the Protocol but because of strong opposition, particularly the European Union, the extent of there inclusion will be limited to afforestation and reforestation. It was also agreed that, CERs resulting from these activities are limited to 1% of the Party's base year emissions for each year in a commitment period.[164]

The exact definitions and modalities for the inclusion of afforestation and reforestation projects were not agreed on at COP6, but deferred to COP9. After two years of negotiations, the modalities were finally agreed in Milan in December 2003.[165]

At COP9 the rules of accounting for sinks were agreed for projects in the CDM for the first commitment period. Unfortunately large-scale plantations with non-native monocultures, possibly using genetically modified organisms, will be allowed under these rules.[166]

'Positive' leakage is excluded, which means that project developers cannot claim credits for emission reductions outside the project boundary. Claiming carbon credits for something that is happening on somebody else's land would be a dangerous concept. However there is no '100% default assumption' of negative leakage. Project developers can claim that the estimation of leakage is difficult and assume that leakage is zero. The European Union proposed that significant leakage should either be estimated or prevented, if the project is to claim any credits, but this proposal was not incorporated.[167]

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[164] Website of the Canadian Department of Foreign Affairs and International Trade: http://www.dfait-maeci.gc.ca (accessed on 14 March 2004)
[165] Website of Greenpeace *Sinks in the CDM: After the Climate, biodiversity goes down the drain*: http://www.greenpeace.org (accessed on 14 February 2004) at 4.
[166] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 2.
[167] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 10.

The principle of 'additionality' was included in that no projects can be registered that would have happened anyway, so business as usual emissions reductions are ruled out.[168]

Although COP9 focused on the modalities of how to include sinks in the CDM, the primary concern of the Protocol should not be forgotten. Many Parties together with environmentalists were opposed to the inclusion of sinks because they allow for higher fossil fuel emissions. In order to reach safe climate levels, emissions from fossil fuels have to be reduced dramatically over the coming years and decades. Any diversion of political and financial resources away from this task can render the goal of preventing dangerous interference with the climate system unachievable.[169]

Conclusion

It is obvious that drastically cutting greenhouse gas emissions in the atmosphere is the only way of minimising the impacts of climate change. Greenhouse gases are emitted from the burning of fossil fuels and absorbed by forests and other sinks. It therefore seems to make sense, when calculating total greenhouse gas emissions, to subtract the amount absorbed by sinks from the amount emitted from fossil fuel burning and other sources.[170]

However, as discussed above, the ability to monitor sequestration by sinks is scientifically uncertain and an inherent problem with sinks is the risk of re-emissions of sequestrated carbon in the future. Fires and the increased need for agricultural land are likely to turn sinks into future sources. The current rules could also lead to destructive large-scale

[168] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 10.
[169] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 4.
[170] Guide to the Kyoto Protocol n 2 at 33.

monoculture plantations. Plantation forestry is not the solution to the real problem, which is the continued use of coal, oil and natural gas.[171]

The inclusion of sinks projects into the CDM is of special concern because they increase the amount of carbon in the active carbon pool and allow the continued and permanent release of carbon from fossil fuels in exchange for temporary carbon storage in trees. Carbon sink credits only shift the pressing need to reduce greenhouse gas emissions to future generations and ignores the crucial difference between carbon stored in fossil fuels and carbon stored in trees.[172]

The argument that sinks 'buy us time' until new energy saving technologies are devised is simply a delaying tactic and it is submitted that 'learning-by-doing' is the only viable way to spur the development and dissemination of sustainable technologies.[173] The increased emissions credits from sinks will slow down the introduction of new technology and the climate will suffer if money is invested in sinks projects instead of into developing energy saving or alternative energy technologies.[174]

Finally, although countries are required to report on the social and environmental impacts sinks might have, there is no international minimum standard to judge whether the impacts are acceptable or not and projects which have bad effects on biodiversity and local livelihoods might be incorporated. An environmental impact assessment only has to be done, if there are 'any negative impacts' considered being 'significant' by the project participants or the host party. Furthermore, the impact assessment is not subject to any

[171] Getting to the Root of the Matter n 129 at 8.
[172] The Carbon Cycle n 143.
[173] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 4.
[174] Guide to the Kyoto Protocol n 2 at 35.

kind of guidelines, but completely up to the host party, because of the sovereignty concern.[175]

The political dimension to the issue of sinks is particularly sensitive because together with supplementarity it offers enormous scope for affecting the firmness of the commitments already set by the Protocol. Sinks and supplementarity are the next best thing to renegotiating the Kyoto commitments.[176] The accounting formulae for sinks, finally agreed on in COP 7, will lead to reductions in emissions of about 2.2% for all industrialised countries, compared to the 5.17% originally agreed in Kyoto.[177]

For this reason it is submitted that the inclusion of sinks in the Protocol is a serious flaw. Sinks are detrimental to the achievement of real reductions in greenhouse gas emissions and provide incentives for developed countries to do less to reduce their use of fossil fuels.[178]

[175] Sinks in the CDM: After the Climate, biodiversity goes down the drain n 165 at 5.
[176] Victor n 111.
[177] Ott n 102 at 8.
[178] Guide to the Kyoto Protocol n 2 at 33.

Chapter 3

The Protocol's Compliance Mechanism

Introduction

Having rules to reduce greenhouse gas emissions is well and good, but what happens if countries do not comply with the rules? A strong and effective compliance regime must ensure real and measurable emissions reductions in order to maintain international credibility and confidence. This is especially so given the development of an emissions trading system.[179] There is little reason to negotiate an international treaty if nations have no incentive to follow its mandates. Therefore in order for the Protocol to succeed it must guarantee compliance by all member countries.

The Protocol contains numerous compliance related elements, such as stringent reporting requirements and an expert review process to assess implementation and identify potential cases of non-compliance as well as the consequences for non-compliance. However again because of the difficulty of finding political agreement in Kyoto the final compliance mechanism was left for subsequent COP's to negotiate. The Parties managed to agree on a compliance system at COP7, which makes ratification and implementation of the Protocol possible.

This chapter looks at the COP7 agreement together with the mechanisms in the Protocol designed to induce compliance and the sanctions provided for non-compliance.

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[179] Guide to the Kyoto Protocol n 2 at 35.

The Compliance Mechanism under the Protocol

Article 18 and Article 8 of the Protocol are the relevant provisions with regard to compliance. Article 18 includes a commitment to develop a compliance mechanism, however it does not provide a system with which to deal with non-compliance. Instead it requires that the COP/MOP, approve 'appropriate and effective procedures and mechanisms to determine and to address non-compliance'. Article 8 states that pursuant to consideration of such information, the COPs shall take decisions on any matter required for the implementation of the Protocol.

After Kyoto the Parties worked on developing an effective compliance regime with a view to adopting a decision on this issue at COP6. At COP6 the major issues negotiated by the Parties were whether a direct penalty for non-compliance would be implemented and whether this penalty would be legally binding. However as mentioned above COP6 collapsed and the United States withdrew from the Protocol.

A compliance regime was finally agreed on at COP7 in Marrakech in 2001. It took a considerable amount of negotiation at several COPs, however the Parties managed to resolved their differences and the approach eventually taken included both soft enforcement measures, such as persuasion and capacity building, and more coercive measures, such as exclusion from the flexibility mechanisms and penalties.[180]

[180] Craik *Compliance Procedures and Mechanism under the Kyoto Protocol*: http://www.hwcn.org/link/mkg/issue_no._19.html (accessed on 3 March 2004).

Penalties for Non-Compliance

First, what is an appropriate penalty? Some analysts advocate the use of a fine on excess emissions as a way to finance an international fund, which in turn could be used to purchase emissions reductions in developing countries. Others envisioned that governments, or some international authority, should issue additional permits for exceeding emissions.[181]

Another approach is know as 'restoration', if a country exceeds its target it must make up the difference with a more vigorous effort to 'restore' the debit in the future. The European Union argued for a high penalty, with the restoration rate starting at 2.0[182] and rising to 4.0. Other countries such as Australia proposed a restoration rate of 1.0, arguing that permit prices will be higher in future budget periods, which would be penalty enough for exceeding emission limits in earlier budget periods. Canada proposed a variable rate, for example, 1.3 for Canada, 1.1 for Japan, 1.0 for Australia, which was an attempt to balance the need for a penalty against the danger that a high penalty would create incentives to exit the Protocol.[183]

Unfortunately these manoeuvrings revealed that there was no theory or set of principles that guided the setting of 'restoration rates', and was another politically motivated episode of horse-trading.[184] However the advantage of a 'restoration' approach over a system based on price caps is that it does not require the politically difficult task of creating an

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[181] Victor n 111.
[182] In other words, every ton of excess during the first commitment period must be made up plus, lets say 50%, in the second period, that means a restoration rate of 1.5. The penalty would then rise 25% in subsequent periods, in the second budget period, the restoration rate would be 1.75.
[183] Victor n 111.
[184] Victor n 111.

international fund, and it avoids a carbon tax, which helps to keep tax phobic countries included.

The restoration approach also makes economic sense because it would allow borrowing of emission credits from the future. Tom Wigley et al[185] argued that borrowing emissions from the future has at least two important benefits. First, it would allow companies to stretch out emission controls whilst implementing the more slow-paced energy technology. Second, It would give companies more time to remove emissions from the climate system. They argued that if cost-effective, long-term stabilisation of the climate is the goal then efforts to shift emissions earlier in time should be rewarded, not penalised.[186] The problem is of course, how much time do we have?

In order for the restoration approach to work, future budget periods have to be established. The difficulty is that if nations agree to resolve the second budget period commitments before the first budget period commenced, there is the incentive for countries to inflate their requests for the second budget period to offset their expected shortfall at the end of the first budget period.[187]

The second problem with the restoration approach would occur once the trading system is actually underway. If a country is non-compliant the penalties only occur in the future, but the benefits of over-selling occur in the present. A devious country would probably be

[185] Wigley, T Richels, R and Edmonds, J *Economic and Environmental Choices in the stabilization of Atmospheric CO_2 Concentrations* at 240.
[186] Victor n 111.
[187] Victor n 111.

able to sustain about two or three periods of chronic over-selling before its accumulated penalties would force bankruptcy.[188]

It may be possible to offset a country's temptation to exceed its target and then withdraw from the Protocol by adopting rules that add the restoration penalty to a commitment period reserve. That could at least ensure that second period allocations earmarked to restore violations in the first period are not sold for other purposes. However the best solution to the problem is, pure buyer liability. This would eliminate the need for inter-period restoration and, instead, contain and price the consequences of non-compliance within the same budget period where overselling is a risk.[189]

The Marrakech Accord incorporates both these safeguard against overselling. Each Party is required to keep a portion of its total assigned amount holdings in reserve, which cannot be sold. The mandatory level is set at the lower of 90% of a Party's initial assigned amount or 100% of 5 times its most recently reviewed inventory.[190] It is anticipated that the former will apply principally to OECD net buyer countries and the latter to net seller economies in transition. It was also agreed that the reserve can be comprised of all units – AAUs, RMUs, ERUs, and CERs.[191]

Given the mandatory nature of the reserve, it was also agreed that if a seller infringes upon its commitment period reserve, in other words, sells units from its reserve, then the

[188] Victor n 111.
[189] Victor n 111.
[190] United Nations Framework Convention on Climate Change n 24.
[191] Canadian Department of Foreign Affairs and International Trade n 164 at 13.

oversold units are 'buyer liability' units and cannot be used by the buyer for compliance with its Kyoto target until the seller replenishes its reserve to the required level.[192]

Legally Binding Compliance Mechanism

The European Union favoured a compliance procedure that will be legally binding and be adopted as an amendment to the Protocol. Economists supported this because a credible enforcement procedure is vital for the establishment of a functioning market for emissions trading. The United States also supported this position but after they pulled out of the Protocol, opponents to a binding procedure such as Australia, Japan and Russia tried to soften the legal nature of the procedure.[193]

A compliance procedure embedded in an amendment to the Protocol would of course provide for enhanced legal certainty. On the other had, a significant advantage of an adoption by way of a decision is the fact that it assumes validity for all parties to the Protocol upon adoption. There are however different degrees of 'bindingness' in international law. A procedure adopted by a decision and supported by a strong political will could in fact lead to a similar degree of 'bindingness' for a non-compliant party as a procedure contained in a formal treaty.[194]

At Bonn a compromise wording was found which postponed a formal decision on the exact legal nature of compliance until further consideration by the first COP to the

[192] Canadian Department of Foreign Affairs and International Trade n 164 at 13.
[193] Ott n 157 at 8.
[194] Ott n 102 at 7.

Protocol (COP1of the Protocol). But it stated that countries must accept the agreed compliance rules if they want to take part in emissions trading.[195]

One of the key decisions reached at COP7 was that entities can participate in international emissions trading. There are two provisions related to entity participation. First, Parties must give authorisation to their entities in order for them to buy and sell on the emissions trading market and a list of those authorised entities must be made publicly available. Second, the trading rules that apply to Parties also apply to its entities. In other words, where a Party authorises entities to trade emissions, that Party shall remain responsible for its Kyoto commitments and shall ensure that the entities adhere to all rules. Also, an entity may not engage in any trades of carbon emissions if its authorising Party fails to meet its eligibility requirements or if it has been suspended.[196]

Compliance Procedure

The postponement of the legally binding nature of the compliance procedure, until after the Protocol enters into force was seen by some as a setback. However despite this the main operational elements of the procedure are in place.

The Marrakech Accords establish a Compliance Committee with two branches: First, a 'facilitative branch' will support a Party's efforts to comply with its obligations. Second, an 'enforcement branch' has been set up to monitor compliance with the most important obligations and there are various measures available to the enforcement branch for bringing about compliance.

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[195] Ott n 102 at 7.
[196] Canadian Department of Foreign Affairs and International Trade n 164 at 15.

If the enforcement branch makes a finding of non-compliance, it can order specific consequences, including reducing the non-complying Party's emissions allocation for the next commitment period, preparation by the Party of a detailed plan explaining how it will meet that reduced allocation and prohibiting the Party from selling parts of its emissions allocation through the emissions trading mechanisms.[197]

An appeals procedure provides for a review of decisions by the COP serving as the MOP to the Protocol. During the appeals procedure the decisions by the Compliance Committee remain in force, this is an important detail that strengthens the position of the committee. Overturning a decision of the Compliance Committee by the COP/MOP requires a three-fourths majority.[198]

[197] Website of Centre for International Environmental Law http://www.ciel.org/Climate/Compliance_Tasks_25Oct01.html (accessed on 6 April 2004).
[198] Ott n 102 at 6.

Conclusion

The Marrakech Accords contain the main operational elements of a compliance procedure that is unprecedented in international environmental law, both as regards stringency and detail.[199] The only outstanding issue is the precise means by which Parties will translate the mandatory nature of the non-compliance consequences into a final legal instrument, this has been left until the first COP of the Protocol. However the compliance agreement at COP7 is a significant step forward in the global effort to combat climate change and paved the way for ratification of the Protocol by the European Union, Eastern Europe and Japan.[200]

[199] Ott n 102 at 8.
[200] Ott n 102 at 4.

Chapter 4

Developing Country Participation in the Kyoto Protocol

Most of the conflict over commitments to the Protocol has occurred among the advanced industrialised nations, but over the long-term what matters most are the relationships with the developing countries. To begin with it is appropriate that regulatory commitments to control emissions are focused on the developed countries, but eventually the developing countries must be included, especially if steep cuts in global emissions are to be realised.

It will however be difficult to extend commitments to include developing countries because although they disagree on many issues, they are unified in their opposition to emissions reduction commitments.[201] The reason for this is their understandable insistence on the right to prioritise living standards, which can only be advanced through energy intensive development, over environmental concerns, just as the developed world did throughout the industrial age.[202]

Efforts to make developing countries part of the UNFCCC and the Protocol, include their participation in reporting requirements, so as to build experience and shared data sets, and to compensate them through the Convention's financial mechanism for the 'agreed incremental costs' of participation. The Protocol also includes the CDM, through which the transfer of technology, to reduce emissions, will be exchanged for emission reduction credits.[203]

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[201] Victor n 111.
[202] Coghlan n 4 at 11.
[203] Victor n 111.

Developing countries can participate in the CDM immediately, but they must adopt binding targets to participate in emissions trading. Developing countries can accept binding targets through a three-fourths majority vote of the Parties. The Protocol also requires developing countries to implement national programs to mitigate and adapt to climate change.[204]

The Bonn agreement established three new funds for developing countries, two under the UNFCCC and one under the Protocol. Under the Convention, a Special Climate Change Fund will provide finances for adaptation, technology transfer and the mitigation of greenhouse gases. A further provision relates to countries that are heavily dependent on the export of fossil fuels and encourages activities to assist these countries in diversifying their economies. A second fund under the Convention is reserved for least developed countries and both funds rely on voluntary contributions.[205]

The Adaptation Fund established under the Protocol is also to be financed by voluntary contributions as well as a share of 2% of the proceeds from certified emission reductions generated by the CDM under Article 12 of the Protocol. A levy on business transactions that finance environment and development activities is previously unheard of and is a major breakthrough in international environmental law.[206]

In 1997 the United States Senate adopted a non-binding resolution that made it clear that it would not ratify the Protocol unless it included 'commitments to limit or reduce greenhouse gas emissions for developing country Parties within the same compliance

[204] Ott n 102 at 4.
[205] Ott n 157 at 5.
[206] Ott n 157 at 5.

period'. In an attempt to satisfy the requirement imposed by the Senate Resolution, the Clinton Administration attempted to persuade several key developing countries to take on voluntary commitments to reduce their emissions.[207] At COP4 Argentina became the first non-Annex I party to announce a voluntary commitment and there has been some discussion concerning the possibility of other leading non-Annex 1 parties, for example, Mexico and South Korea, also announcing voluntary commitments.[208] However since the withdrawal of the United States from the Protocol there has been no further progress on this issue.

[207] CO2e.com n 10.

[208] CO2e.com n 10.

Chapter 5

The Likelihood of the Kyoto Protocol Entering into Force

Although to date 121 countries have ratified the Protocol, it cannot take effect until developed countries accounting for 55% of greenhouse gas emissions in 1990 ratify it. Apart from the United States, which has decided not to ratify, Russia is the only country that has not ratified yet and whose 1990 emissions would help reach the 55% threshold.[209]

The United States decision not to ratify, severely jeopardises the effectiveness of the Protocol because they emits about 36% of global anthropogenic greenhouse gases.[210] The United States has cited as its principal objection to the Protocol, its potential damage to the economy and the lack of 'meaningful participation' from the developing world.[211] However they have pledged to pursue greenhouse gas reductions through their own voluntary emission reduction efforts.[212]

Despite the United States opposition to the Protocol, in March 2004, the European Union made all the requirements under the Protocol legally binding in all 15-member states. By implementing the Protocol before it has entered into force at international level, the European Union has reaffirmed its global leadership in fighting climate change. On 1 May 2004, the European Union expands to take in 10 new member states to the east of the current bloc, and all provisions of the Protocol will also apply to them.[213]

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[209] Website of Forests.org *All Kyoto Protocol Rules Now Legally Binding in Europe*: http://forests.org/articles/reader.asp?linkid=30105 (accessed on 30 March 2004).
[210] Glantz *To Sign or not to sign: Kyoto Protocol, Russia and Bush's 2004 re-election bid*: http://www.fragilecologies.com/nov17_03.html (accessed on 26 March 2004).
[211] Murphy *Contemporary Practice of the United States Relating to International Law* at 493.
[212] Glantz n 210.
[213] Forests.org n 209.

With regard to the Russian Federation, to date there has been no clear indication whether or not they will ratify the Protocol. They now carry a heavy responsibility because if they ratify the protocol, it will go into force but if they decide not to ratify, the Protocol goes into the dustbin of history.[214]

As discussed in this paper, Russia can sell its 'windfall' carbon credits to those countries that are emitting beyond their allotted targets. Further Russia's amount of energy consumption per person is considerably higher than in much of the world and especially in Europe. Therefore there is potential to generate increasing amounts of income as it becomes more energy efficient. So it seems, there is no downside to signing the protocol, while at the same time they can become a global environmental saviour.

There is however doubt that the sale of unused emission rights will produce the large revenues originally envisioned, now that the United States will not be bidding for emission rights, buyer demand will be greatly reduced driving likely prices down considerably. Therefore what appears to be beneficial with respect to the short-term gains from signing the Protocol could turn into mid to long-term losses to the country.[215]

Russia is one of the world's largest exporters of oil, outside of the Persian Gulf region. If it signs the protocol and governments and industries everywhere devise ways to reduce their dependence on fossil fuels, they will lose foreign exchange. That would greatly hinder its economic development plans and prospects. There is also a belief held by many Russians that a warmer Russia would mean higher levels of agricultural production, an

[214] Glantz n 210.
[215] Glantz n 210.

increase in the land that could be used for farming and grazing and reduced domestic energy costs.[216]

On the other hand there could be several benefits by ratifying because the Protocol would induce foreign investments. For industry it could mean renovations of capital assets and the reduction of costs for fuel-energy resources. For agriculture it could mean conversion to new methods of land management and increasing crop capacity of fields and for forestry it could mean both enhancing of forestlands and opportunities for timber industry development.[217] Even better, is the fact that the International Energy Agency identifies Russia as the world's potential leader for renewable energy development.[218]

In some ways the United States and Russian positions are similar. Both countries do not want to give up their prospects for continued economic development and growth. They also do not want to make their economies poorer or more vulnerable to outside influences. However until the mid-1990s one might have argued that the United States was a world power with regard to climate policy. That is no longer the case and Russia now has the opportunity to become a leader in the climate-related process and provide itself with the status of 'world rescuer'.[219]

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[216] Glantz n 210.
[217] Starikov *Regional Approach to State Regulation and Management of Carbon Investments* at 40.
[218] Ferriter *Russian Ratification of Kyoto Lost in the Fog*: http://www.climate.org/topics/intaction/russfog.shtml (Accessed on 26 March 2004).
[219] Glantz n 210.

Conclusion

Why has so little been achieved with regard to the reduction of dangerous anthropogenic greenhouse gas emissions, despite warnings, increased public environmental commitment and exhortations for business to 'go green'? The answer lies in the complexity of the issue of global climate change, there is no quick fix. Every aspect of modern life seems to require the consumption of fossil fuels, and the most serious impediment to change is the perception that for increased economic growth there must be continuously rising energy consumption, and consequently increasing greenhouse gas emissions. In solving the threats that climate change is posing we have to keep all possible options open.[220]

The countries of the world took the first important step in response to the problem of climate change in 1992, when they signed the UNFCCC and in 1997 the 'aims' of the Convention were strengthened with the adoption of legally binding commitments, for developed countries, under the Kyoto Protocol. However the conventional wisdom is that these modest commitments will not get the job done, deep cuts in emissions will be needed to slow global warming, and they could be costly.[221] Further, an agreement that is restricted to developed countries will not be sufficient because significant levels of emissions come from the developing nations. Without the developing world a declining fraction of greenhouse gas emissions will be under control and the 'global' regulatory regime will be increasingly meaningless and ineffective.[222]

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[220] Paulsson n 7 at 59.
[221] Wigley et al n 185 at 240.
[222] Johnson, R *Enforcing International Law: Implications for an effective Global Warming Regime*: http://www.highbeam.com at 9.

In order to include developing countries and to alleviate the adverse economic effects of comprehensive limits on greenhouse gas emissions, flexibility mechanisms were included in the Protocol. As discussed in this paper the purpose of these mechanisms is to ensure that measures designed to curb emissions will be cost-effective by channelling investments in energy efficiency and energy conservation to countries where cost per unit of emissions reduction is lowest. This concept will entail a large-scale resource transfer from relatively energy-efficient, high cost countries to energy-inefficient, low cost countries.[223]

Some authors[224] claim that emissions trading will provide a strong incentive for research and development, investment in plant and equipment and the adoption of new energy technologies. They argue that innovators will gain the benefit of their own reduced abatement costs by profiting from buying fewer allowances or selling more.[225] However others favour an imposed carbon tax combined with the polluter pays principal.

Advocates of a carbon tax argue that it would, by raising the price of burning fossil fuels, provide an incentive for producers to seek ways to become more fuel efficient, thereby emitting fewer pollutants. In addition, under normal conditions of supply and demand, it is argued that the tax would be passed on by the producer through the price system, making the product more expensive (to reflect its environmental cost), encouraging people to switch to products that are less harmful to the environment.[226]

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[223] Johnson n 222 at 9.
[224] Kerr *Global Emissions Trading. Key Issues fro Industrialized Countries* at 84.
[225] Paulsson n 7 at 29.
[226] Website of Economic Implications of the Kyoto Protocol: http://www.student.carleton.edu/w/wongs/econimplic.html (accessed on 12 March 2004).

Another major problem with an emissions trading system is that it legitimises polluting activities. Unlike a fine that is imposed for doing something wrong, a pollution allowance indicates that the activity is official and done with approval. The permission granted to go on doing that activity on a continuing basis also reinforces the perception that the activity cannot be wrong.[227]

This approach has been criticised by environmentalists who argue that industry does not have the right and should never be given the right, to make money off air. Emissions trading is seen as a scheme to privatise air using marketable permits which would remove climate change issues from public scrutiny into the hands of economists and regulators.[228]

By turning parts of the global commons into saleable allowances of property the decision-making power, over the environment, is given to those who are already currently making production decisions.[229] There is a fundamental unease amongst some countries that environmental commitments can be met with money rather than through direct action. Trading is connected to power, and it enables those most able to pay, to emit as much as they want. From a commons point of view, it is clear that it is humanity that holds the biosphere in trust, and all citizens equally share the trusteeship of an inherited patrimony.[230] Consequently, one can strongly question whether countries should be able to own allowances to emit greenhouse gases. By legitimising polluting activities the Protocol may be legitimising something that may endanger not just the natural world, but also human health, and in the long run even our survival.[231]

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[227] Paulsson n 7 at 27.
[228] Guide to the Kyoto Protocol n 2 at 27.
[229] Belliveu *Smoke Mirrors. Will Global Pollution Trading Save the Climate or Promote Injustice and Fraud?* at 64.
[230] Paulsson n 7 at 31.
[231] Paulsson n 7 at 30.

The concern that trading would become a means for countries to escape domestic reductions manifests itself in Article 17 of the Protocol, which states that the use of allowances from other countries must be supplemental to domestic action by Annex B countries in meeting their reduction commitments. The idea of placing some kind of restriction on the flexibility mechanisms is a futile attempt to address these ethical problems. But what is the proper ethical relationship between humans and their surrounding?

The Ethical Debate

According to Fredrik Paulsson, environmental ethics assumes that moral norms can and do govern people's behaviour toward the natural world. A theory of environmental ethics must explain what these norms are, how they are justified and to whom they apply. He goes on to say that a common distinction is the one between anthropogenic ethics, which states that only human beings have moral value, and nonanthropogenic ethics, which grants moral standing to such natural objects as animals and plants. This distinction shows a fundamental shift in ethical thinking as most ethicists reject the possibility that anything other than human beings have moral standing.[232]

The traditional anthropocentric ethical thinking is that pollution would be wrong if it harmed other now living people or their property. This view does not adequately address the harms caused by greenhouse gas emissions because some of the harmful effects might not occur in many years. The notion of sustainable development, emphasised in the

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[232] Paulsson n 7 at 32.

Convention, extends the ethical concepts such as duties and rights to include future generations. However, according to the Convention, the duty not to pollute is a duty regarding the environment and not a duty to the environment. It is therefore important to emphasis that in terms of sustainable development under the Convention only human beings possess moral standing, but the idea that future generations also have moral standing is new.[233]

So, from an anthropocentric angle, one could argue that since the natural world is crucial for peoples' well-being and survival, we have an indirect duty to protect the environment. The sustainability approach adds that the duties derive both from the immediate benefit which living persons receive from the environment, and the benefit that future generations will receive.[234] A biocentric approach is an extension that qualifies living things as morally significant individuals and therefore people's responsibility not to pollute, also hinges on the environmental interests of other living things. Ecocentrism is the most radical theory of responsibility to the natural world, in that the environment deserves direct moral consideration. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community.[235]

An inherent assumption behind emissions trading is that the environment can take a certain amount of pollution and that trading can ensure efficient allocation of that capacity to countries that need to utilise it. Safeguarding the climate in order to protect people is the most widely accepted rationale underlying reduction commitments and the establishment of an international emissions trading system. As climate change may

[233] Stenmark *Environmental Ethics and Environmental Control* at 49.
[234] Paulsson n 7 at 42.
[235] Paulsson n 7 at 42.

endanger possessions, health, and human survival, action is needed. Therefore, perceived vulnerability is the reason for the ethical commitment.[236]

Economic rationalism suggests that markets and money can do almost everything better than governments. Supporters of this economic theory believe that the central role of policy-making should be the establishment of a framework in which the efficiency of market forces is maximised and where resources can be allocated as efficiently as possible.[237] From a conventional economic view, the environment is a storehouse of resources to be turned into value. Emissions trading arose in the United States as a result of government and business concerns that economic growth would be constrained by laws. Their rationale behind emissions trading is that environmental degradation arises from incomplete ownership of rights to use valuable resources. They believe that there is a strong tendency for people to overexploit and degrade common property resources.[238] They argue that in situations were the natural world cannot be privately owned, access rights should be granted, this would transfer costs to the polluter that would otherwise be external in the form of environmental pollution.[239]

The ideas behind emissions trading also finds support from utilitarian theory. Utilitarianism regards an action or a decision to have the moral quality of rightness to the extent that it leads to the maximisation of good consequences, conceived in terms of social welfare or utility, over the long run. Regulation is viewed as important and necessary, because the accumulation of emissions may eventually undermine the

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[236] Paulsson n 7 at 43.
[237] Barry *Rethinking Green Politics* at 144.
[238] Alder and Wilkinson *Environmental Law and Ethics* at 224.
[239] Solomon *Emissions Trade System and Environmental Justice* at 6.

prospects of further economic development, human health, and the environment. Therefore the utilitarian perspective allows a moral trade-off.[240]

Accepting Trade-Offs

Climate change is a global problem that needs a concerted global response. The international community has created a framework for action through the UNFCCC and the Kyoto Protocol. Broadly speaking, one could say that the Protocol has been the outcome of two partly contradictory negotiation objectives. On the one hand, the reduction commitments are legally binding, and on the other hand, 'flexibility' is included to realising these commitments. The flexibility mechanisms were introduced to reduce the costs of meeting reduction targets, which suggests that economic considerations are the most powerful factor in shaping strategies toward international environmental issues.[241] The opposite view is that it would be better to address the various environmental problems by genuine environmental action, such as prohibiting dangerous greenhouse gas emissions.

Can the Protocol to the Convention achieve its ultimate objective - to prevent dangerous human interference with the climate system? To some, emissions trading is one of the major financial opportunities of the next decade but to others it is the ultimate environmental sell out. The Protocol is only a first small step, but it is submitted that it is an extremely important step because a delay in taking decisive action risks the whole climate change agreement falling apart and with it the international basis for action. Ethically the issue of emissions trading in the Protocol throws up conflicting standpoints,

[240] Paulsson n 7 at 49.
[241] Paulsson n 7 at 52.

Ethically the issue of emissions trading in the Protocol throws up conflicting standpoints, however climate change has no respect for national borders and its solutions must be found in the international arena. It is therefore important that solutions are found that secure further collaborations among as many countries as possible.[242] The fate of the Protocol depends on the establishment of an international trading system, so although it is not ideal to give countries the right to pollute, it is a fact that the Protocol would never enter into force without the incorporation of a trading scheme.

Significant reductions in emissions may ultimately require some adjustment in lifestyles, however, with sufficient emphasis on new technology it is conceivable that clean energy production could emerge over the next century that keeps pace with present consumption. Consumers could use large quantities of energy services using new technologies which deliver services in clean ways. For example, a zero-emission motor vehicle could potentially be as harmless to the environment as a human-powered bicycle. It is important to convince industrial society to find technological means that will allow lifestyles to evolve unscathed.[243]

[242] Paulsson n 7 at 53.
[243] Victor n 111.

Initially the Protocol will only have a small impact on the environment, but it has a role in establishing co-ordination among different countries. If this is achieved it will begin to establish trust in the cooperative process necessary to achieve long-term goals. By setting clear targets it will also force countries to focus their attention on designing, domestic and international, institutions and regulations necessary to change human behaviour. In this context the Kyoto Protocol should be seen as the beginning of a process intended to reverse the 200 year trend of rising, dangerous anthropogenic, emissions in the industrialised world.