International and EU Climate Change Policies after COP 12 / MOP 2: Challenges and Opportunities for the New Member States and Candidate Countries

Workshop in Prague,

12 April 2007

Background Information

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1. Introduction

In recent years, close to an international consensus has grown that global climate change is a serious problem that urgently requires co-ordinated action beyond the measures already agreed upon. At the Eleventh Conference of the Parties to the **UN Framework Convention on Climate Change** (UNFCCC), held in Montreal in 2005, Parties agreed on a multi-track process to shape future action after the end of the first commitment period of the Kyoto Protocol in 2012. Discussions were continued at the 12th meeting of the Parties in Nairobi (November 2006, COP 12, COP/MOP 2) and are expected to enter a decisive stage at the next meeting in Nusa Dua, Bali (December 2007, COP 13, COP/MOP 3).

In the context of these negotiations, it is clear that not all countries have the same **capacity to participate effectively in the discussions and negotiations**, given the extreme complexity of international climate change policies, and the diversity of national circumstances. Many countries may lack the human resources and the technical and administrative capacity to follow and address every detail of this process, even though the ultimate nature of the post-2012 regime may have far reaching economic consequences for them. Despite great differences among the new Member States of the EU (NMS) and Candidate Countries (CC), there is wide agreement that these countries must strengthen their capacities to make their voices heard in the international negotiations.

Against this backdrop, Ecologic – Institute for International and European Environmental Policy – is organising **the workshop** "Future Climate Change Policy in the Czech Republic, Poland and Slovakia", which is the sixth of a **series of events.** The workshop has been commissioned by the European Commission and is organised in co-operation with

- the Institute for Sustainable Development (ISD), Warsaw,
- the Institute for Environmental Studies (IVM) at the Free University of Amsterdam,
- the Foundation for International Environmental Law and Development (FIELD), London,
- the German Institute for Economic Research (DIW), Berlin, as well as a network of experts.

After an initial conference in Warsaw in January 2006 and workshops in Riga, Sofia and Ljubljana, this workshop in Prague is the fifth of a **series of events** aimed at fostering public debate on future climate change policy in the new Member States and Candidate Countries. This series consists of country-specific workshops and strategy workshops. While the country-specific workshops focus on the needs of specific countries, the strategy workshops discuss ongoing international negotiations for a second commitment period from the perspective of the new Member States and Candidate Countries. The workshop of 12 April 2007 is the second strategy workshop, which meets back to back with the fourth country specific workshop.

2. Starting points for discussion

Participants are invited to consider the following elements as starting points for discussions. There are many aspects to the negotiation of the post-2012 climate regime, and the political context is likely to evolve over the next few years. Hence this **list is non-exhaustive**, and intended merely to assist in framing discussions:

- Recent research gathered by the Intergovernmental Panel on Climate Change (IPCC) indicates that the Earth's **average surface temperature will warm by 1.8–4.0°C in the 21st century**[1], with potentially very severe consequences for the environment, economies and societies alike. All simulations suggest that temperature rise in the late 20th century can only be explained by man-made increases in greenhouse gas concentration. To avoid or mitigate these consequences, average temperature should not increase by more than 2°C above pre-industrial temperature, a target more likely to be achieved if GHG concentrations **do not exceed 440 ppm CO_2-equivalent**.

- To stabilise greenhouse gas (GHG) concentrations at 440 ppm CO_2-equivalent, scientists agree that **further cuts in GHG emissions are required**. Consequently, the European Council has agreed that developed countries should reduce greenhouse gas emissions by the order of 30% by 2020 (compared to 1990 emission levels). Independent of the outcome of international negotiations, the European Council has agreed that the EU will cut emissions unilaterally by 20 % by 2020. For the long term, the European Council has called for a reduction target of 60-80% by 2050.

- The aggregate emissions of the new EU Member States were 23 % below 1990 levels in 2004. **All NMS but one** are currently on track to meet their reduction targets under the Kyoto-Protocol. By 2010, however, greenhouse gas emissions are projected to increase by 11 % to 12 % below 1990 levels, even if all additional domestic measures are implemented. Projections indicate that also the NMS will face a challenging task to meet the reduction targets adopted by the European Council in March 2007.[2]

- In light of recent sharp increases and fluctuations in energy prices, improved energy efficiency and increasing the share of renewable energies in the domestic energy mix can provide a **boost to the competitiveness**. It is now well-established that measures that reduce GHG emissions do not necessarily entail an impediment to economic growth. Instead, these measures can lead to less fossil-fuel dependent economies, with greater energy security, decreased exposure to volatile energy prices, and multiple sustainable development and health co-benefits. The NMS have great capacity to reduce CO_2

1 IPCC 4th Assessment Report: Climate Change 2007: The Physical Science Basis, Summary for Policymakers, http://www.ipcc.ch/SPM2feb07.pdf

2 EEA Report No.9/2006:
http://reports.eea.europa.eu/eea_report_2006_9/en/eea_report_9_2006.pdf

emissions in a cost-effective manner. **Energy efficiency** in these countries - despite recent progress - is still considerably lower than in the EU-15. Economic restructuring, then, provides a variety of investment cycle opportunities. In this context, the involvement of business actors will be essential. Governments have an important role to play, specially in creating incentives stimulating a broader involvement of the business sector. The design of structural funds requires also consideration in this context.

- **Negotiations on post-2012 commitments** will be difficult and complex. Emerging issues within these negotiations, such the inclusion of additional countries and sectors (international transport, deforestation), may present numerous challenges for the NMS, given the financial, technical, and human resources needed to participate fully and effectively in these discussions.
- For the preparation of a **future burden sharing arrangement**, the European Commission will conduct – in close co-operation with Member States – a technical analysis of relevant criteria, such as socio-economic and other relevant parameters. The workshop provides an opportunity to develop relevant criteria and feed into these preparations.
- The complexity of the post-2012 negotiations will require dedicated human, financial and technical resources from NMS and CC. The **involvement of a range of stakeholders** from government, key industrial sectors, and civil society will be essential over the next few years, in order to achieve the most effective and equitable outcomes at both international and national levels.

3. Climate Change Policies in the Enlarged EU

3.1. Status of commitments in the EU, the Accession and Candidate Countries

Under the Kyoto Protocol, the EU committed itself to reducing greenhouse gas (GHG) emissions by an overall target of 8% below 1990 levels by 2008-2012, the first commitment period. This target only covers the 15 Member States that comprised the EU at the time the Protocol was agreed. The EU made use of Article 4 of the Kyoto Protocol, which allows groups of countries to accept a common emission target and to redistribute that target internally ('bubbling'). The NMS agreed to reduction targets of 6 % or 8 % below 1990 levels (except Cyprus and Malta). Table 1 below summarises the different GHG emissions reduction targets of the old EU Member States and their implementation status.[3] Table 2 provides similar information for the NMS as well as CC.

[3] Data source: Annual European Community greenhouse gas inventory 1990-2003 and inventory report 2005, available at: http://reports.eea.eu.int/technical_report_2005_4/en/EC_GHG_Inventory_report_2005.pdf. The base

Table: Emission Reduction Commitments of EU-15 under the Kyoto Protocol

Table 1: Emission Reduction Commitments of EU-15 under the Kyoto Protocol

	EU-15	*Austria*	*Belgium*	*Denmark*	*Finland*	*France*	*Germany*	*Greece*
Target	–8%	–13%	–7,5%	–21%	0%	0%	–21%	+25%
2004	–0.9%	+15.7%	+0.7%	–1.8%	+14.5%	–0.8%	–17.5%	+23.9 %

	Ireland	*Italy*	*Luxem-bourg*	*Nether-lands*	*Portugal*	*Spain*	*Sweden*	*UK*
Target	+13%	–6.5%	–28%	–6%	+27%	+15%	+4%	–12.5%
2004	+22.7%	+12.3%	+0.3%	+1.6%	+41.0%	+47.9%	–3.6%	–14.1%

Table 2: Emission Reduction Commitments of NMS and CC under the Kyoto Protocol[4]

Country	**Base year Emissions***	**KP target (%)**	**2004** emissions***	**change base year – 2004** (%)**
Bulgaria	132.3	– 8%	67.5	– 49.0%
Croatia	31.1	– 5%	29.4	– 5.4%
Cyprus	6.0	None	8.9	+ 48.2%
Czech Republic	196.3	– 8%	147.1	– 25.1%
Estonia	42.6	– 8%	21.3	– 50.0%
Hungary	122.2	– 6%	137.6	– 6.0%
Latvia	25.9	– 8%	10.7	– 58.5%
Lithuania	50.9	– 8%	20.3	– 60.1%
Macedonia	15.4	None	15.1	– 2.4%
Malta	2.2	None	3.2	+ 45.9%
Poland	565.3	– 6%	386.4	– 31.6%
Romania	262.3	– 8%	139.0	– 41.0%
Slovakia	73.2	– 8%	51.0	– 30.3%
Slovenia	20.2	– 8%	20.1	– 0.8%
Turkey	170.1	None	296.6	+ 74.4%

* Million tons of carbon equivalent, excluding net emissions from Land Use, Land Use Change and Forestry (LULUCF).
** For Cyprus and Malta: estimation based on gap filling; for Macedonia: 1998 figure (latest figure available).

year for the 'old' Member States is 1990, except for the base year 1995 chosen by some States for fluorinated gases.

[4] Sources: Bulgaria, Croatia and Romania: National Inventory Reports submitted in 2006; Macedonia: First National Communication under the UNFCCC (2003); Turkey: First National Communication under the UNFCCC (2007); Other countries: Annual European Community greenhouse gas inventory 1990-2004 and inventory report 2006.

3.2. EU climate policy: history, instruments and the way forward

3.2.1. Historical and current policies and measures

The European Commission first took initiatives to tackle climate change in 1991, when it issued a strategy to limit CO_2 emissions in different sectors. Since then, a wide set of policies and measures has been adopted, aimed at reducing greenhouse gas emissions. These include, for example:

- the **Greenhouse Gas Emission Allowance Trading Scheme** (EU ETS), which limits the total carbon dioxide emissions from almost 12.000 installations across the 25 EU,[5]
- the **Linking Directive**[6]**,** which connects the EU ETS with the Kyoto Protocol's project-based Joint Implementation (JI) and Clean Development Mechanism (CDM),
- the **"Renewables Directive"**[7]**,** which sets the indicative target to reach a 22% share of electricity from renewable sources by 2010 (with specific indicative targets for each Member State),
- the **Directive on the promotion of cogeneration**[8], which requires Member States to use their potential for high efficiency cogeneration,
- the **Directive on energy end-use efficiency**[9]**,** which determines mandatory targets for annual energy savings for the period of 2006-2012,
- the **Framework Directive on the eco-design of energy-using products**,[10] which sets conditions and criteria for requirements related to environmentally relevant product characteristics, such as energy consumption.

3.2.2. EU climate change policies following the European Council of March 2007

On the basis of the climate and energy package of the European Commission[11] and the conclusions of the Council of Ministers (Environment) of 20 February 2007, the European Council adopted on 8/9 March 2007 far-reaching conclusions on future EU climate and energy polices[12]. The conclusions on climate and energy policies received unprecedented public attention and will shape European climate and energy policies for the years to come.

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5 Directive on Establishing a Scheme for Greenhouse Gas Emissions Allowance Trading within the Community and Amending Council Directive 96/61/EC; OJ L275.

6 Directive amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms 2004/101/EC; OJ L338/18.

7 Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market; OJ L 283/33.

8 Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC; JO L 052, 21/02/2004.

9 Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC.

10 Directive 2005/32/EC on the eco-design of Energy-using Products

11 http://ec.europa.eu/energy/energy_policy/documents_en.htm

12 http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf

The European Council adopted a several climate and energy targets, the latter as part of a comprehensive Energy Action Plan for the period 2007-2009.

In more detail and subject to implementing European and national legislation, the European Council adopted the following **climate and energy targets**:

- A **conditional EU target** of a 30% reduction in greenhouse gas emissions by 2020 compared to 1990. This target depends on the condition „that other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities".
- A **unilateral EU target** to cut greenhouse gases by at least 20 % by 2020 compared with 1990 levels. This target is binding and independent of the outcomes of international negotiations. The target will be achieved through Community policies and on an agreed burden-sharing arrangement, which will take into account „national circumstances and the relevant base years for the first commitment period of the Kyoto Protocol". For further in-depth discussions on this burden sharing arrangement, the European Council invited the European Commission to start immediately – in close co-operation with Member States – a technical analysis of relevant criteria, such as socio-economic and other relevant parameters.
- Beyond 2020, developed countries should be aiming at collective cuts in emissions **of 60-80 % by 2050** compared to 1990 levels.
- A **binding target of a 20 % share of renewable energies** in overall EU energy consumption by 2020. From the overall renewables target, differentiated national overall targets will be derived with Member States' full involvement and "due regard to a fair and adequate allocation taking account of different national starting points and potentials, including the existing level of renewable energies and energy mix". The European Commission will set out these national targets in proposals for a comprehensive Directive. These proposals are expected for late 2007 and will allow Member States to decide national target for each sector of renewable energies (electricity, heating and cooling, biofuels).
- By 2020, all member states must achieve a **10 % minimum binding target for the share of biofuels** in overall EU transport fuel consumption. The binding character of this target is subject to production being sustainable, second-generation biofuels being available, and successful amendments to the fuel quality Directive.
- A **non-binding commitment to reduce the EU's energy consumption by 20 %** compared to projections for 2020, through improvements in energy efficiency. To this end, the European Council invites the European Commission to submit – among others – proposals on increased energy efficiency on office and street lighting (to be adopted by 2008) and on incandescent lamps and other forms of lighting in private households (by 2009).

Concerning **international negotiations on further action under the UNFCCC**, the European Councils stressed that these negotiations should "build upon and broaden the

Kyoto Protocol architecture and should provide a fair and flexible framework for widest possible participation". These negotiations should start at the end of 2007 and be completed by 2009. The European Council concluded that essential parts of an effective and appropriate framework beyond 2012 should include, inter alia,

- the development of a shared vision to reach the ultimate objective of the UN Framework Convention on Climate Change,
- the strengthening and extension of global carbon markets,
- the development, deployment and transfer of the necessary technology to reduce emissions,
- appropriate adaptation measures to deal with the effects of climate change,
- action on deforestation and
- addressing emissions from international aviation and maritime transportation.

4. International Negotiations on post-2012 commitments

4.1. Status of the negotiations before COP 13

Since the Kyoto Protocol entered into force, the Parties to the UN Framework Convention on Climate Change have met twice, at COP 11 in ***Montreal*** in 2005 and at COP 12 in ***Nairobi*** in 2006. These sessions have also served as the first and second Meetings of the Kyoto Protocol Parties (COP/MOP 1 and COP/MOP 2). COP 13 and COP/MOP 3 will take place in Bali in December 2007.

Two parallel processes were established in Montreal in 2005 to facilitate negotiations on future commitments under both the Convention and the Protocol:

- an ***Ad Hoc Working Group*** to discuss commitments of Kyoto Protocol Parties beyond 2012 [13]; and
- a ***Dialogue on Long term cooperative action*** *to address climate change by enhancing implementation of the Convention*.

Three other key outcomes of the Montreal and Nairobi sessions will also impact post-2012 negotiations:

- The **first Review** of the Kyoto Protocol, mandated by Article 9 of the Protocol, which took place at COP/MOP 2.[14]
- Adoption of a series of decisions at COP/MOP 1 that bring the Kyoto Protocol's ***'flexible mechanisms'*** into full operation.
- Endorsement of ***procedures and mechanisms relating to compliance*** with the Kyoto Protocol at COP/MOP 1.[15]

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13 Decision 1/CMP.1 (FCCC/KP/CMP/2005/8/Add.1)

14 Decision 7/CMP.2 (FCCC/KP/CMP/2006/10/Add.1)

At the last Conference and Meeting of the Parties in Nairobi, discussions advanced on future commitments through meetings of the ***Ad Hoc Working Group*** and the ***Dialogue***, and through the ***first review of the Kyoto Protocol*.**

4.1.1. Ad Hoc Working Group (AWG) on Article 3.9 of the Kyoto Protocol

The Kyoto Protocol defines a five-year period from 2008-2012 as its "first commitment period". Annex I Parties' individual emission limitation or reduction commitments for the first commitment period are set out in Protocol Annex B. Under Article 3.9 of the Protocol, Parties are required to "initiate the consideration" of commitments for subsequent periods at least seven years before the end of the first commitment period (i.e. in 2005). These commitments will be established in amendments to Annex B. In Montreal, Parties to the Kyoto Protocol established an *Ad Hoc Working Group (AWG)* to consider future commitments of Annex I Kyoto Parties for the period beyond 2012. The AWG will aim to complete its work in time to ensure that there is no gap between the first and second commitment periods, and will report back to each annual COP/MOP on its progress.

The AWG is open to all Kyoto Parties. It met for the first time in conjunction with the 24th session of the Subsidiary Bodies to the UNFCCC in May 2006, to discuss the planning of its work. [16] Drawing on a range of views expressed by Parties, the AWG Chair proposed a non-exhaustive and indicative list of topics that may be relevant to the further work of the AWG, including the scientific basis for determining the level of ambition of further commitments by Annex I Parties, emission trends, mitigation potential and the architecture of further commitments for Annex I Parties. The second meeting of the AWG took place in Nairobi in November 2006. The AWG held an in-session workshop, which included presentations on the scientific basis for determining further commitments, scenarios for stabilising concentrations of GHGs and the implications of these scenarios, to assist the AWG in determining amendments to Annex B to the Kyoto Protocol.

The AWG agreed that its work on further commitments by Annex I Parties should be guided by a shared vision of the challenge set by the ultimate objective of the Convention, based on the principles and other relevant provisions of the Convention and Protocol. The AWG noted that the information received at its workshop provided useful parameters for the overall level of ambition of further emission reductions by Annex I Parties - in particular information from the IPCC's Third Assessment Report that global emissions of carbon dioxide have to be reduced to very low levels, well below half of levels in 2000, in order to stabilize their concentrations in the atmosphere.[17]

The AWG's work programme for the completion of its mandate will include:

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15 Decision 27/CMP.1 (FCCC/KP/CMP/2005/8/Add.1)

16 At SB 24, the Chair of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol presented a report on the planning of the future work of group (FCCC/KP/AWG/2006/L.2/Rev.1).

17 FCCC/KP/AWG/2006/4

- analysis of mitigation potentials and ranges of emission reduction objectives of Annex I Parties;
- analysis of possible means to achieve mitigation objectives;
- consideration of further commitments by Annex I Parties.

The third and next session of the AWG will take place in May 2007, and focus on these topics. It will draw upon analysis and information from the IPCC's Fourth Assessment Report and from IGOs, NGOs, and national research institutional and programmes. The fourth session of the AWG will be held in September or October 2007 in conjunction with the Dialogue, and then resumed and concluded during the sessional period in December 2007.

4.1.2. Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention.[18]

In Montreal, by decision 1/CP.11, Parties to the Convention agreed to begin a "*dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention*". This process is intended to engage non-Kyoto Parties in discussions on future actions. The Dialogue will be held in four workshops, intended to allow Parties to exchange experiences and analyse strategic approaches for long-term cooperative action in four thematic areas:

- advancing development goals in a sustainable way;
- addressing action on adaptation;
- realising the full potential of technology; and
- realising the full potential of market-based opportunities.

The Dialogue is open to all Parties. It is to be informed by the best available scientific information and assessment on climate change from the IPCC, as well as other relevant scientific, social, and economic information. It is intended to serve as a forum to identify:

- actions to promote research, development and deployment of cleaner technologies;
- ways to support voluntary actions by developing countries; and
- ways to promote access by developing countries to climate-friendly technologies and to technologies for adaptation.

The Dialogue met for the first time 15-16 May 2006 in Bonn. Parties and observer organisations had an initial discussion on all four thematic areas. The ***second workshop*** in the sequence was held 15-16 November 2006 in Nairobi. It focused on concrete actions under the first and fourth thematic areas (sustainable development and market-based opportunities), using as inputs presentations from Parties, the results of the Stern Review on

[18] FCCC/CP/2005/L.4/Rev.1

the Economics of Climate Change, and business perspectives. The co-facilitators of the Dialogue reported back to the Parties at COP 12 on the progress made to date.[19]

The ***third workshop*** will be held in May 2007. It will focus on concrete actions on the remaining two dialogue themes: (1) addressing action on adaptation; and (2) realising the full potential of technology. There will also be a formal briefing on the IPCC working groups' contributions to the IPCC's Fourth Assessment Report. The ***fourth and final workshop*** will likely be held from 3-7 September 2007 in Vienna, Austria. Before that event, the Secretariat has been asked to provide an analysis of existing and planned investment flows and finance schemes relevant to the development of effective and appropriate international responses to climate change. The Dialogue will report back to COP 13 in December 2007.

4.1.3. Article 9 Review of the Kyoto Protocol

Article 9 of the Kyoto Protocol provides that the COP/MOP shall periodically review the Protocol "in light of the best available scientific information and assessments on climate change and its impacts, as well as relevant technical, social and economic information." Article 9 review under the Protocol is to be coordinated with reviews under the Convention, including those on the adequacy of commitments for all developed country Parties under Articles 4.2(a) and (b). The Protocol provides for a first review at COP/MOP 2.

The ***first Article 9 Review*** was completed in Nairobi, in November 2006. In undertaking the review, the Parties noted that the Protocol has fostered cooperative action, including through the CDM, but also acknowledged that a number of elements of the Protocol, including adaptation, could be further elaborated upon and that the implementation of the Protocol could be further enhanced.[20] The Parties decided that the ***second Article 9 review*** of the Kyoto Protocol will take place at COP/MOP 4 in 2008. The scope and content of the second review will be considered at COP/MOP 3. Parties have been invited to submit their views on these issues, and on the preparations required for conducting the review, by 17 August 2007.

Article 9 review is linked politically and substantively to discussions under Kyoto Protocol Article 3.9 on future commitments and discussions within the Convention's Dialogue on long-term cooperative action.

4.1.4. Kyoto Protocol Flexible Mechanisms

The flexible mechanisms allow Kyoto Parties with Annex B targets to lower the cost of meeting their Kyoto Protocol targets, by undertaking more cost-effective emission-reduction projects in other Annex I Parties (Joint Implementation) or in developing countries (Clean Development Mechanism), and applying the resulting credits from these projects toward their own targets.

COP/MOP 1 recognised the importance of the flexible mechanisms for the second commitment period. As a result, it is now clear that the Clean Development Mechanism

[19] Oral Report at COP 12 by the co-facilitators (Ms. Sandea de Wet and Mr. Howard Bamsey).

[20] FCCC/KP/CMP/2006/10/Add.1, decision 7/CMP.2

(CDM) and Joint Implementation (JI) will continue into any Kyoto Protocol second commitment period. This offers opportunities for both developed and developing countries in the second commitment period, depending on how rules for the CDM and JI are negotiated for the post-2012 period.

Decisions taken both at COP/MOP 1 and COP/MOP 2 have encouraged broader participation in the CDM and in JI, and addressed administrative challenges to the CDM Executive Board and Joint Implementation Supervisory Committee in managing their work.

4.1.5. Procedures and Mechanisms on Compliance

In 2001, at COP 7, the Parties to the UNFCCC agreed on a set of procedures and mechanisms on compliance under the Kyoto Protocol that were later endorsed by Parties to the Kyoto Protocol by decision 27/CMP.1 at COP/MOP 1. At COP/MOP 2, the Parties then adopted Rules of Procedure for the Compliance Committee by decision 8/CMP.2.

Under the compliance procedures, if at the end of the first commitment period the enforcement branch of the Compliance Committee determines that the emissions of an Annex I Party have exceeded that Party's assigned amount, certain consequences will be applied. These consequences include a deduction of tonnes from the Party's assigned amount for the second commitment period, equal to 1.3 times the number of tonnes of excess emissions in the first commitment period. The multiplier is intended to deter delayed compliance. These anticipated consequences may become significant for negotiations on commitments for the second commitment, as some Annex I Parties are likely to miss their Kyoto targets for the first commitment period by a substantial margin, in the absence of the use of the flexible mechanisms.

4.2 Most significant challenges faced by the UNFCCC and Kyoto Protocol

A number of key issues will need to be addressed in future international negotiations under the UNFCCC and the Kyoto Protocol:

- **How to stabilize atmospheric GHGs at an appropriate level?** Targets and actions under the climate regime must be designed to allow for early and significant emission reductions, to increase the likelihood of stabilizing GHG concentrations at a level that will avoid dangerous climate change.[21] Different 'reduction pathways', representing different scenarios for aggregated emission reduction effort, will offer different timeframes for GHG stabilisation, and consequently will have different impacts on the climate system.
- **How to secure *deeper* emission reductions by *more* countries?** In order to stabilise GHG levels as soon as possible, deeper emission reductions by more countries are needed. This requires the creation of greater incentives for all countries to participate in

[21] See above, den Elzen, M.G.J., and Meinshausen, M., Meeting the EU 2°climate target: global and regional emission implications (2005).

emission reduction efforts. What incentives can be put in place to encourage greater emission reductions by Kyoto Parties that have existing emission reduction or limitation commitments, for the next commitment period? What measures can encourage meaningful emission reduction efforts by countries that have not yet ratified the Kyoto Protocol? What incentives can lead to increased efforts by developing countries?

- **How to address adaptation?** GHG emissions that have already occurred will affect the climate system far into the future. Most countries will have to adapt to some impacts of climate change, even if emissions are reduced rapidly in the future. Developing and developed countries alike, including those of old and new EU Member States, will have to develop a systematic approach to meet domestic adaptation challenges. At the same time, at the international level, the UNFCCC requires certain developed countries (including the EU) to assist particularly vulnerable developing countries in meeting the costs of adaptation. Further arrangements for adaptation will need to be elaborated to address the needs of vulnerable countries, and consideration will have to be given to how the burden of adaptation can be shared equitably – taking into account the differentiation in responsibilities and capabilities among countries.

5. How to broaden and deepen participation in the Post-2012 period?

The reach of the post-2012 regime can be broadened and deepened in a number of ways: through the inclusion of additional Parties in a range of possible mitigation efforts[22]; the inclusion of additional sectors (such as international transport) in the coverage of the post-2012 regime;[23] the development of flanking agreements on technology development and transfer; and measures to facilitate adaptation in developing countries.

5.1 Participation in Mitigation Efforts

Many UNFCCC Parties with significant present or projected future emissions are either not Parties to the Kyoto Protocol (e.g., United States, Australia) or are Parties to the Kyoto Protocol but are not bound by targets (e.g., China, India, Brazil). Countries in these categories do not have formal numerical commitments to limit or reduce their emissions.

A variety of mitigation approaches have been suggested by researchers outside the formal negotiating process to meet the challenge of securing deeper emission reductions by more countries in the Post-2012 period. Many have been proposed to build upon or complement existing Kyoto commitments and are designed to offer ways to engage developing countries in mitigation efforts. Examples include:[24]

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22 Annex B to the Protocol contains a list of Parties and their quantified emissions limitation or reduction commitments (QELRCs), which are set out as a percentage relative to base year emissions.

23 Annex A to the Protocol lists the six greenhouse gases covered, and relevant sectors and source categories (energy, industrial processes, solvent and other product use, agriculture and waste).

24 See generally, Pallemaerts, M., Parker, C.N., Shukla, P.R., and van Schaik, L.G., The Greenland Dialogue on Climate Change: A Policy Discussion Paper (July 2005); Commission Staff Working Paper,

- **absolute targets** – Kyoto-like numerical targets that reflect emission limitations or emission reductions compared to emissions in a country's base-year (for example, a limitation of X% over 1990 levels, or a reduction of X% below 1990 levels). Absolute targets build directly on the Kyoto framework and lead to measurable overall reductions. Emissions caps also support emissions trading.

- **carbon intensity targets** – an agreed limitation or reduction of emissions per unit of output, relative to GDP or another indicator, with these targets applied to sectors or to economies as a whole.

- **sectoral targets** – measures to be undertaken in specific sectors in an economy (e.g., energy, cement, steel, transport), with the type of target differing with the characteristics of the sector.

- **renewable energy targets** – a targeted level of generation or use of renewable energy, or a targeted increase in the generation or use of renewable energy (for example, the EC Renewables Directive aims to achieve a 22% share of electricity from renewable energies by 2010; China has a target of 10% of total power capacity from renewables, excluding large hydro, by 2010)[25].

- **energy efficiency targets** – a target for energy-saving, requiring improved energy efficiency (for example, in industry, housing construction, or the design of energy-using products).

- **sustainable development policies and measures (SD-PAMs) -** measures that make the development path of a country more sustainable, with the co-benefit of lowering GHG emissions.

A number of approaches to agreeing upon Post-2012 commitments could be employed:

- **a top-down approach** – an overarching target could be agreed (e.g., an overall percentage reduction for the global community to achieve) and then responsibility could be distributed among countries through multilateral negotiations;

- **a menu approach** – countries in differentiated groups (e.g., at different stages of development or with different capabilities) could be permitted to choose from among a prescribed menu of possible commitments (e.g., targets or voluntary measures);

Winning the Battle Against Climate Change, Background Paper (February 2, 2005) at 44-45; Baumert, K., Pershing, J., Climate Data: Insights and Observations, World Resources Institute (December 2004); Bodansky, D., International Climate Efforts Beyond 2012: A Survey of Approaches, Pew Center on Climate Change (December 2004).

25 See Expert Group on Renewable Energy Convened by the United Nations Department of Economic and Social Affairs, Increasing Global Renewable Energy Market Share: Recent Trends and Perspectives (December 12, 2005) at 36 (noting that by mid-2005, at least 43 countries had set a national target for renewable energy supply, including all 25 EU countries). The 2007 EU Spring Council recently endorsed a binding target of a 20% share of renewable energies in overall EU energy consumption by 2020. See Presidency Conclusions of the Brussels European Council (8/9 March 2007) at 21.

- **a bottom-up approach** – countries could decide what types of commitments they are prepared to take (e.g., sector targets, a specified level of investment in technology, a specified level of installed capacity, implementation of specific policies and measures) and then pledge to achieve those commitments.

The Post-2012 climate regime could also allow for a **'multi-staged' approach** to mitigation commitments. This could allow for differentiation among groups of developing countries, based on a set of ***objective criteria*** (e.g., historic GHG emissions, capacity to reduce emissions, GDP per capita, emissions per capita, emissions per unit of GDP, human development index, emission growth rates, or some combination of these indicators). Each group of countries could undertake different levels or kinds of participation in GHG reduction efforts at different points in time, with countries ***graduating between stages of mitigation effort*** and taking on greater commitments when they reach or cross one or more thresholds. ***Criteria for graduation*** could be developed to allow countries to move automatically or voluntarily through levels of participation. ***Incentives*** for participation could be offered at different levels, to encourage countries to move through stages and increase their reduction efforts.

5.2. Additional sectors: International Aviation and Shipping

The reach of the Protocol can also broadened through the inclusion of additional sectors in Annex A. The international aviation and maritime transport sectors were left outside the targets agreed in the Kyoto Protocol, due to disagreements during elaboration of the Protocol as to how to address GHG emissions from ***international*** transport.[26] As a result, at present only GHG emissions from ***domestic*** aviation and maritime transport activities are included in Parties' national GHG inventories. Emissions associated with international transport are reported, but not included in national emissions totals or regulated by the Protocol – despite the fact that overall emissions from international transport become increasingly significant.

In the face of disagreement over how to handle international bunker fuels, the Parties agreed in Article 2.2 of the Kyoto Protocol that "*Annex I Parties are to pursue limitation or reduction of emissions of greenhouse gases from aviation and marine bunker fuels, working through the **International Civil Aviation Organization** [ICAO] and the **International Maritime Organization** [IMO] respectively.*" However, to date, only limited action has been achieved through the ICAO and IMO in addressing GHG emissions.[27] Most of the work done through these bodies has involved the consideration of methodologies for determining and allocating emissions, and the consideration of technical, operational and market-based approaches to reduce emissions and increase GHG efficiency.

As a result, the EU has continued to press for action on aviation and bunker fuels within the UNFCCC process, while EU Member States continue to seek stronger action on GHG

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[26] Oberthür, S., 'The Climate Change Regime: Interactions with ICAO, IMO, and the EU Burden-Sharing Agreement', in Institutional Interaction in Global Environmental Governance, Oberthür and Gehring, eds. (MIT Press 2006) (hereinafter 'Oberthür) at 61.

[27] Oberthür at 60, 73.

emissions within the ICAO and IMO. Disagreement over whether GHG limitation measures should have global coverage or should only apply to industrialised countries has delayed progress.[28]

5.2.1 International Aviation Emissions

International aviation emissions from developed countries have **increased by 52%** over the fifteen years from 1990 to 2004.[29] The EU's own emissions from international flights grew at an even higher rate, increasing by 87% from 1990 to 2004, and increasing 7.5% from 2003 to 2004 alone.[30] If present growth continues, emissions from international flights from EU airports could offset more than a quarter of the environmental benefits of the reductions required by the EU's target under the Kyoto Protocol.[31]

There is **no quick technological fix** to address GHG emissions from aviation. Nevertheless, there are a number of technical and operational options for reducing emissions. These include: new aircraft, changes to operating conditions, improved passenger management (e.g., increases in load factors, aircraft capacity or size)[32], improved air traffic management (minimising queuing before take-off, more optimal flight paths, reducing time spent in holding patterns before landing); fuel taxation; and emissions trading.[33]

Action taken so far through ICAO has mainly contributed to improving the understanding of the global climate impacts of aviation. ICAO member countries have not been able to agree on regulatory standards or emissions charges applicable to CO2 emissions, and an attempt to identify and agree on an efficiency indicator for aircraft has also failed.[34] Hence, the EU Environment Council declared in 2001 that the EU should take action if no concrete measures were agreed on within ICAO by 2002.[35] In 2004, the ICAO's Committee on Aviation Environmental Protection decided not to pursue an aviation-specific emissions trading system based on a new legal instrument under ICAO. However, the ICAO Assembly endorsed open emissions trading and requested the development of non-binding guidance

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28 Ibid at 66.

29 FCCC/SBI/2006/26, National greenhouse gas inventory data for the period 1990-2004 and status of reporting, at 10.

30 Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council amending directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community, Brussels 20.12.2006, COM (2006) 818 final, 2006/0304 (COD) at 2.

31 Ibid at 2. Figures on international aviation differ substantially across the EU. For example, in 2003, 96% of arrivals into Cyprus were by air; 72.4% for Malta; 71.4% for the UK; and 70% for Greece. See PricewaterhouseCoopers, PwC Economics, 'Aviation Emissions and Policy Considerations', Final Report, 23 September 2005 at 113 (tourism and arrivals by air). For other countries, international aviation is far less a factor. In Slovenia, for example, only 0.4% of arrivals were by air. In Hungary, 4% of arrivals were by air. Id.

32 FCCC/SBSTA/2005/INF.2 at 14.

33 EU Press Release 29.07.2005; COM(2005) 459 Final, 27.9.2005.

34 COM(2005) 459 Final, 27.9.2005 at 4.

35 Oberthür at 63, citing Council of the European Union, 2001, Climate Change: Preparation of COP 7 in Marrakesh from 29 October to 9 November 2001. Council Conclusions.

for use by States, to incorporate emissions from international aviation into their emissions trading schemes.[36] The Assembly instructed the ICAO Council to develop a concrete proposal and provide advice as soon as possible to the UNFCCC COP. This guidance has now been produced.[37]

On 27 September 2005, the **Commission adopted a *Communication*** outlining plans to reduce the impact of aviation on climate change.[38] The Commission analysed a range of economic instruments and found that inclusion of the air transport sector in the EU ETS would be the most effective option, as part of a comprehensive approach including research into cleaner air transport, better air traffic management and the removal of legal barriers to taxing aircraft fuel. The Communication proposed that international aviation should be included in any post-2012 climate regime, to give countries stronger incentives to take action on their own and in cooperation with others.

In December 2005, both the ***Council of Environmental Ministers*** and the ***European Council*** welcomed the Communication, recognized that inclusion of aviation in the EU ETS could be a beneficial way forward, and expressed their views on appropriate parameters for the inclusion of the aviation sector in the EU ETS. In April 2006, the ***European Economic and Social Committee*** adopted an Opinion on the Communication, concluding that an intra-EU scheme could serve as a blueprint for global application through ICAO.[39] Also in April, an Aviation Working Group established by the Commission delivered its final report.[40] On 4 July 2006, the ***European Parliament*** adopted a Resolution recognizing the role of emissions trading in a package of measures to address the climate impact of aviation, and suggesting design elements for inclusion in the EU ETS.[41]

Against this backdrop, in December 2006, the European Commission made a ***legislative proposal*** to amend the EU ETS to include aviation activities.[42] Key aspects of this proposal are as follows:

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36 ICAO Assembly Resolution A35-5: *Consolidated statement of continuing ICAO policies and practices related to environmental protection*, adopted by the 35th session of the ICAO Assembly in October 2004.

37 On 16 February, 2007, ICAO's Committee on Aviation Environment Protection (CAEP) agreed on proposed guidelines to ICAO members for incorporating international aviation emissions into their emission trading schemes consistent with the UNFCCC process. See Guidance on Emissions Trading for Aviation, CAEP/7-WP/37 (20 December 2006); and Guidance on Emissions Trading for Aviation (Information Paper), CAEP7-IP/20 (20 December 2006).

38 COM(2005) 459 Final, 27.9.2005.

39 Opinion of the European Economic and Social Committee on the Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – Reducing the Climate Change Impact of Aviation COM(2005) 459 final, NAT/299 Climate Change Impact of Aviation, 21.04.2006.

40 European Climate Change Programme II, Aviation Working Group, Final report, April 2006. The Working Group was established by the Commission to consider how an aviation emissions trading scheme might be designed. The group brought together experts from Member States and industry, and consumer and environmental organizations.

41 European Parliament resolution on reducing the climate change impact of aviation (2005/2249(INI)), 04.06.06 (Provisional edition).

42 Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council amending directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community, Brussels 20.12.2006, COM (2006) 818 final, 2006/0304 (COD).

- Monitoring and reporting will be required from 2010; from 2011, emissions from the aviation sector will be subject to a cap and trade system.
- Flights between EU airports will be covered from 1 January 2011. As of 1 January 2012, all flights arriving at or departing from an airport in the EU will be covered.
- As of 1 January 2012, all flights arriving at or departing from an airport in the EU will be covered. Arriving flights will not be covered where a third country has equivalent measures in place, such as an emissions trading system.
- Aircraft operators will be responsible for compliance and will be required to surrender allowances. Both EU and foreign operators are covered. Each aircraft operator, including operators from third countries, will be administered by only one EU Member State.
- CO_2 emissions will be covered.
- The method of allocation will be harmonised at the EU level, with some allowances issued free of charge and some auctioned. The total quantity of allowances to be allocated to the sector will be equivalent to average annual emissions in 2004-2006.

In February 2007, the **European Environment Council** held a preliminary policy debate on the proposal for a Directive.[43] Among the issues discussed were: the role of aviation as an appropriate step toward reducing emissions from aviation without entailing competitive disadvantages; the strategy for engaging with third countries; non-discriminatory measures adequate to address regional aspects and the special situations of Member States; and the need to address the climate impacts on non-CO_2 emissions from aviation. In March 8-9, the European Council endorsed the elements identified by the Environment Council (Environment) of 20 February as essential for an effective and appropriate framework post-2012, including action addressing emissions from international aviation.[44]

In addition to CO_2, a number of **other gases and particulates** are emitted from aviation that have a significant impact on global warming, but are not covered by the Kyoto Protocol. These include nitrogen oxides, water vapour[45], and sulphate and soot particles.[46] In 1999 the IPCC estimated that the total impact of aviation currently is about 2 to 4 times higher than the effect stemming from its past CO_2 emissions alone. Recent EU research results indicate that this ratio may be somewhat smaller (around 2 times).[47] For these reasons, regulating CO_2 alone through emissions trading will not fully address the impact of aviation on the atmosphere. The Commission plans to forward a proposal to include nitrogen oxides from aviation in the EU-ETS by 2008.[48]

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43 Council of the European Union, Press Release 6272/07 (Presse 25), 2785th Council Meeting, Environment, Brussels, 20 February 2007, at 18-19.

44 http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf at 11.

45 Water vapor emitted at high altitude often triggers the formation of condensation trails, which tend to warm the earth's surface. These "contrails" may develop into cirrus clouds that may also have a significant warming effect.

46 COM(2005) 459 Final, 27.9.2005 at 3.

47 Ibid.

48 Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council amending directive 2003/87/EC so as to include aviation activities in the scheme for

A number of other mechanisms have been proposed to address **non-CO_2 emissions**, which might serve as 'flanking mechanisms' for emissions trading. These include:

- **energy taxation on aviation fuel** – a tax on kerosene (fixed percentage) or VAT on tickets. Fuel taxes will require the renegotiation of bilateral air service agreements between countries, which typically exempt fuel from taxation.[49]
- **a levy per passenger** – at a flat rate or progressive rate (per kilometre flown).
- **a levy per aircraft** – at a flat rate or progressive rate, which could address non-CO_2 effects (e.g., a NOx emissions charge), and which could also be imposed on carriers from outside the EU to avoid competitiveness concerns, provided revenues are used to protect the environment.
- **a levy on tickets** – that can be used to benefit poor regions or address adaptation.

Each of these approaches provides different incentives, and accordingly will have different impacts on demand for air travel, GHG emissions, and the competitiveness of aviation with other forms of transport.

5.2.2 International marine transport

International maritime transport emissions from developed countries as a whole **increased by 3.4 %** between 1990 and 2004.[50] From 1990 to 2002, emissions from the EU-15 increased by about 35%.[51] These emissions are expected to increase still further as international trade expands, driving the demand for more, larger, and faster ships that consume more fuel.

In 1997, the **IMO adopted a set of regulations** aimed at preventing air pollution from ships (MARPOL Annex VI).[52] Although Annex VI does not cover GHG emissions, a resolution adopted by the 1997 MARPOL Conference invited the IMO to undertake a study of CO_2 emissions from ships and the IMO's Marine Environment Protection Committee (MEPC) to "consider what CO2 reduction strategies may be feasible in light of the relationship between CO2 and other atmospheric and marine pollutants[53] The IMO Study on Greenhouse Gas Emissions from Ships was published in March 2000. It estimated that shipping accounted for 1.8% of the world total CO_2 emissions in 1996, and noted that emission reductions were feasible through technical and operational measures.

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greenhouse gas emission allowance trading within the Community, Brussels 20.12.2006, COM (2006) 818 final, 2006/0304 (COD) at 6, 12-13.

49 http://europa.eu/scadplus/leg/en/lvb/l28160.htm

50 FCCC/SBI/2006/26, at 10.

51 FCCC/SBSTA/2005/INF.2, Information on greenhouse gas emissions from international aviation and marine transport, at 7.

52 Annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), entered into force on 19 May 2005. It sets limits on sulphur oxide (SOx) and nitrogen oxide (NOx) emissions from ship exhausts, and prohibits deliberate emissions of ozone depleting substances.

53 http://www.noordzee.nl/scheepvaart/imogreenhouse.html

In December 2003, the IMO Assembly adopted ***Assembly resolution A.963(23)*** - ***IMO Policies and Practices related to the Reduction of Greenhouse Gas Emissions from Ships (GHG).*** This resolution urged the MEPC to identify and develop the mechanism or mechanisms needed to achieve the limitation or reduction of GHG emissions from international shipping, giving priority to: the establishment of a GHG emission baseline; the development of a methodology to describe the GHG efficiency of a ship; the development of Guidelines for application of the GHG emission indexing scheme; and the evaluation of technical, operational and market-based solutions.[54]

The MEPC's work on GHGs in recent years has focused on the development of a GHG indexing scheme for ships. In July 2005, at its 53rd session, the MEPC approved ***"Interim Guidelines for Voluntary Ship CO2 Emission Indexing for use in Trials".*** The indexing scheme is to intended to identify a set of criteria that enable an indexing the energy efficiency of a particular ship's operation, expressed as CO_2 emitted per unit of transport work. IMO members have been encouraged to use these guidelines and report the results, which will be analysed at future MEPC sessions. The MEPC has recognized that IMO guidelines on GHG emissions will ultimately have to address all six gases regulated under the Kyoto Protocol.

In March 2006, at its 54th session, a ***working group*** was established to consider follow-up action to the Assembly Resolution A.963(23) on *IMO Policies and practices related to the reduction of greenhouse gas emissions from ships.*[55]

5.3 Participation in Adaptation Efforts

EU Member States have a series of obligations to developing countries on adaptation under the UNFCCC. It is increasingly recognised that adaptation will have to form a core element of any balanced package for a post-2012 climate regime.[56] At the same time, there is general recognition that adaptation must be mainstreamed into general development policy. For example, an issues paper for the Gleneagles Dialogue Adaptation Working Group notes that "adaptation, energy and development strategies need to work together so countries can build capacity to improve their resilience and integrate adaptation goals into sustainable development goals".[57]

Options that have been proposed **to address capacity and financial constraints** associated with adaptation, as part of the post-2012 regime, include:

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54 Resolution A.963(23), adopted on December 5, 2003: IMO Policies and Practices Related to Environmental Protection. Resolutions adopted at the 35th session of the Assembly. Resolution A.963(23) also requested the MEPC to consider the methodological aspects related to the reporting of GHG emissions from ships engaged in international transport; develop a work plan with a timetable; keep the matter under review and prepare consolidated statements on the continuing IMO policies and practices related to the limitation or reduction of GHG emissions from international shipping.

55 http://www.imo.org/Environment/mainframe.asp?topic_id=233

56 See e.g., N. Hohne, D. Phylipsen, S. Ullrich and K. Blok, Options for the Second Commitment period of the Kyoto Protocol (2005) at 14, 87-97; Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Winning the Battle Against Global Climate Change, COM(2005) 35 final, 9.2.2005 at 9; Ministerial Indaba on Climate Action, South Africa, 17-21 June 2006, Chair's Summary, 3.

57 Issues Paper for the Gleneagles Dialogue Adaptation Working Group, June 2006, 2.

- **A levy on GHG emissions based on the "polluter-pays" principle** - a levy per tonne of CO2-equivalent assessed on all current global GHG emissions[58] or alternatively, based on historical responsibility for GHG emissions.[59]
- **Augmentation of the Adaptation Fund -** through a levy across all three flexible mechanisms; an increase in the share of the proceeds of CERs from CDM projects funneled to the Adaptation Fund (now 2%); a levy on aviation[60]; and/or a levy on the insurance sector.
- **Support for the preparation of comprehensive adaptation strategies -** modelled on NAPAs, to map national programmes for LDCs and other vulnerable countries and provide clear channels for international funding.[61]
- **Subsidised insurance mechanisms to address climate risks –** international funding to support insurance-type approaches to help vulnerable populations contend with climate impacts (e.g., pledging contingent backup capital to reduce the reinsurance costs paid by public insurance providers, disaster management funds or insurance pools for countries or sectors vulnerable to extreme events; weather derivatives; support for insurance markets or insurance instruments).[62]
- **Use of systematic climate risk assessments** – so that donors and international finance institutions ensure that investment projects reduce vulnerability and increase resilience.[63]

Certain of these options might be mutually supportive. A levy on GHG emissions or on aviation, for example, could provide funding for comprehensive adaptation strategies identified by vulnerable governments. It could also provide backup capital to support lower-cost insurance pools, or capital to create other insurance mechanisms that enable coverage of vulnerable businesses, sectors, groups or individuals at lower cost.

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58 K. Blok, N. Hohne, A. Torvanger & R. Janzic, "Towards a Post-2012 Climate Change Regime: Final Report", June 2005 at 6.

59 In 1991, AOSIS proposed the creation of an 'Insurance Fund' to compensate low-lying developing countries and small island developing states for the impacts of sea level rise from climate change. The Fund was to be sourced by contributions from industrialised countries, through a formula based on their level of CO2 emissions and their GNP (50/50 weighting). See A/AC.237/Misc.1/Add.3. See J. Linnerooth-Bayer, M.J. Mace & R. Verheyen, Insurance Related Actions and Risk Assessment in the Context of the UNFCCC, background paper prepared for UNFCCC workshops (May 2003), 3-5 (noting similar international law models in the nuclear and oil spill regimes) ('hereinafter' Linnerooth-Bayer, 2003'); N. Hohne, D. Phylipsen, S. Ullrich and K. Blok, Options for the Second Commitment period of the Kyoto Protocol (February 2005) at 95.

60 The European Commission has proposed that revenues from the auctioning of allowances to the aviation sector under the EU Emissions Trading System might be used for measures to facilitate adaptation in developing countries. See Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council amending directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading with the Community, Brussels 20.12.2006, COM (2006) 818 final, 2006/0304 (COD) at 13.

61 Republic of South Africa Department of Environmental Affairs and Tourism, Policy Discussion Paper for the Ministerial Indaba on Climate Action (June 2006) (hereinafter 'RSA'), 9.

62 Id. at 10; Linnrooth-Bayer, 2003.

63 RSA at 10.

6. Initial positions of Parties and stakeholders in the Post-2012 debate

Many factors will influence the positions that countries take in Post-2012 negotiations. These include national responsibility for past GHG emissions, present emission levels, projected emission trends, national opportunities for GHG reductions and the cost of these reductions, existing challenges in meeting Kyoto targets, and possible incentives offered inside and outside the process for active participation in a post-2012 regime. Also not to be underestimated are the non-climate economic and political considerations which affect climate policy. Initial positions of major actors are highlighted below:[64]

- **United States** – rejects Kyoto's fixed target approach, and is interested in a long-term technological 'solution' to GHG emissions, and further research and development, rather than binding emissions targets.[65] Has opposed calls for global approaches to address future commitments; recently stressed the need for economic development to enable all countries to be able to tackle climate change. Different positions at State level emerged recently.

- **Russia** – has expressed the view that new commitments may only be agreed after the first commitment period ends, and an assessment can be made of the results; wishes to see a mechanism to allow non-Annex I Parties to take voluntary commitments.

- **China** – emphasises that developed countries must take the lead in addressing climate change, but has a strong incentive to improve its own energy efficiency due to its energy endowment constraints; interested in enhancement of CDM and new paradigm for financial resources and technology transfer. Takes the official position of no new commitments for developing countries, but has given signals that it may be willing to engage in future action with support from developed countries.

- **India** – developed countries must take the lead in addressing climate change; future Annex I targets should be ambitious, driving increased use of the CDM, which will in turn facilitate technology transfer and address developing country emissions. Emphasizes that development and poverty alleviation are its main aims.

- **Brazil** – calls for more ambitious targets from Annex I counties in the second commitment period; all efforts from developing countries should be voluntary and cannot

64 See generally Joint Declaration of the Heads of State and/or Government of Brazil, China, India, Mexico and South Africa participating in the G8 Gleneagles Summit; Commission Staff Working Paper, Winning the Battle Against Climate Change, Background Paper (February 2, 2005). See also Views regarding Article 3, paragraph 9, of the Kyoto Protocol, Submissions from Parties (FCCC/KP/SWG/Misc.1) and Dialogue Working Papers (2006), submitted in connection with the Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention (available at www.unfccc.int). For the position of the EU refer to chapter 3.

65 See Wall Street Journal, July 21, 2006, 'Burning Debate As Emission Restrictions Loom, Texas Utility Bets Big on Coal Planned TXU Plants Raise Global-Warming Concerns; Rivals Try New Technology, Mr. Wilder Cites Demand' (noting that the U.S. produces nearly one-quarter of the world's man-made carbon dioxide; power plants produce 39% of U.S. carbon-dioxide emissions, and four-fifths of that amount comes from coal-fired power plants).

be linked to goals, targets or timeframes; objects to the inclusion of avoided deforestation in the CDM, but supports other positive incentives to address emissions from deforestation.

- **Least Developed Countries** – interested in adaptation measures to increase their resilience to the impacts of climate change (including droughts, floods and other extreme weather events), and in access to affordable clean energy supplies for sustainable development.
- **OPEC/Saudi Arabia** – interested in compensation for any reduction in fossil fuel consumption or prices resulting from global efforts to reduce GHG emissions.
- **Environmental NGOs** – seek immediate GHG reductions based on the Kyoto approach, with the increased involvement of non-Kyoto Parties and developing countries. Climate Action Network (CAN) expressed the view at the Ad Hoc Working Group on Article 3.9 in May 2006 that developed countries need to reduce their emissions by 15-20% below 1990 levels by 2015, and 30-35% by 2020.[66]
- **Financial sector and business community** – concerned about the direct impact of climate change on assets, investments and global economic performance; also aware of business opportunities created by the climate change regime, including emissions trading, investment in renewable energies and climate-friendly technologies, and new insurance and financial products that may help manage environmental risks. Interested in long term frameworks with global participation to mitigate competitiveness concerns. Future contributions by the EU to the global effort fighting climate change.

7. The history of EU contribution to the Kyoto Protocol reduction targets

7.1 Joint fulfilment under the Kyoto Protocol

The Kyoto Protocol allows for the joint fulfilment of reduction targets. Article 4 of the Protocol permits groups of Annex I countries to enter an agreement designed to re-distribute their quantitative emission limitation and reduction commitments internally, provided that the combined overall emission limitation is respected. In more detail, Article 4 stipulates the following **principles for the joint fulfilment of targets**:

- the agreement must set out the individual quantified emission commitment of each participating party;
- the Parties to any such agreement notify the Secretariat of the Convention the terms of the agreement when ratifying the Protocol;

[66] Climate Action Network is a world-wide network of over 340 non-governmental organizations working to promote governmental and individual action to limit human-induced climate change to ecologically-sustainable levels. See www.climatenetwork.org, First Intervention on Ad Hoc Working Group on Article 3.9 of Kyoto Protocol, 17 May, 2006.

- the agreement relating to a commitment period cannot be changed thereafter;
- a change in the composition of a regional economic integration organization (e.g., the enlargement of the EU) cannot affect the existing commitments under the "bubble" agreement;
- in the event that the emissions allowed under the "bubble" are exceeded, each individual participant will be responsible for its commitment as specified in the agreement.

7.2 Determination of the commitment levels and the 2002 EU burden sharing agreement

Even before the adoption of the Kyoto Protocol, the EU agreed on a burden sharing agreement, i.e. an internal differentiation of commitments or a so-called "bubble". A first burden-sharing agreement among EU Member States (EU15) was reached in early 1997 under the Dutch Presidency (focused on CO2). This agreement was amended in 1998 (under the UK presidency) to take into account the outcome of the negotiations of the Kyoto Protocol, in particular the commitment period of 5 years, basket of gases and sinks. The 1998 political agreement was made legally binding in the Council Decision which ratifies the Kyoto Protocol in 2002. In more detail, the following reduction targets were foreseen:

Burden sharing by the Member States in relation to the fulfilment of Article 4 of the Kyoto Protocol. Reduction targets refer to the 1990 emissions (in %)[67]

Country	Reduction target under the "Triptych" model (four scenarios)	Dutch proposal 1997	1997 Agreement	1998 Agreement
Austria	1-25	25	25	13
Belgium	12-15	15	10	7.5
Denmark	12-25	25	25	21
Finland	4-7	10	0	0
France	4-12	5	0	0
Germany	17-30	30	25	21
Greece	2 to +2	+5	+30	+ 25
Ireland	2-5	+15	+15	+ 13
Italy	5-9	10	7	6.5
Luxembourg	17-20	40	30	28
Netherlands	6-9	10	10	6
Portugal	+16 to +21	+25	+40	+ 27
Spain	+6 to +11	+14	+17	+ 15
Sweden	+5 to +26	+5	+5	+ 4
UK	17-20	20	10	12.5
EU	**9-17**	**15**	**9.2**	**8**

[67] Michaelowa A., Betz R.; Implications of EU enlargement on the greenhouse gas "bubble" and internal burden sharing, 2000

The 2002 agreement was based – in principle – on the **Triptych approach**. This approach takes account of levels of economic development, structures of the energy sectors in the Member States, and a unified prediction of certain economic trends in three basic sectors of all the countries (hence, the name of "Triptych"). The Triptych approach adopts assumptions for the internal sector (households, agriculture, the light industry), the heavy industry and the electricity sector. The "Triptych" predicted that the energy efficiency of the heavy industry would grow at a rate of 1.2-1.5% annually, while the industrial production would increase at a pace of 1.2% on average annually for the EU as a whole. It also assumes that electricity consumption would grow by 1.9% in the cohesion countries and by 1% annually in the other countries. The model also took into account the different individual features of particular countries, such as the extent of the use of renewable energy, the operation of nuclear power plants, the share of coal in the energy balance, the energy efficiency of the economy etc.

7.3 The role and potential of the New Member States in future climate change policies

While the introduction of emission trading increased awareness in the NMS of the economic consequences of the commitments to reduce GHG emissions, NMS have taken a more cautious or – according to some observers – a passive approach to climate change policies. The situation changed arguably in early 2007, when Poland and Hungary indicated to block an ambitious EU climate policy, and Czech Republic, Poland and Slovakia protested against the decision of the European Commission to limit the amount of allowances for 2008 to 2012. Concerning further commitments, it seems that some NMS are rather reluctant to accept far-reaching reduction commitments. However, emission reduction potential in most NMS is relatively high due to – for example – low energy efficiency per GDP and outdated technology in some sectors.[68] The challenge is that the implementation of such measures requires time and resources which many enterprises and citizens are currently not ready to invest. Reflecting the different energy mixes, notably the different role of coal, the following chart displays the reduction potential of some NMS:

[68] The example of Poland: in the energy sector: (1) the efficiency of electricity production by power stations is 36.5% compared with 46.5% for EU15; (2) the energy intensity of the economy is 462 toe/million € GDP compared with 170 toe/million € GDP for EU15; (3) the share of renewable in energy production is less than 5% but the potential technical capacity is 47%; (4) thermo-insulation of flats - 150÷350 kWh/m2/year compared with 40÷90 kWh/m2/year for EU15; in the climate area: (5) GHG emission level per capita is 8.4 t CO_2 (four-five times more than needed to stabilize global climate); the carbon intensity of the economy is 75 tCO_2/1000 € GDP, in 2005, but the potential is 22 tCO_2/1000 € GDP; in the energy cost: (6) households – 10.4 % of expenditures compared with 3.0 % of expenditure for EU15.

Assessment of the potentials to achieve the EU target[69] of GHG emission[70] reductions in 2020 for NMS from CEE

Assessment indicators		Very difficult to achieve (emissions of GHG in CO_2 eq. in 2003)			Slightly difficult to achieve (emissions of GHG in CO_2 eq. in 2003)		Not difficult to achieve (emissions of GHG in CO_2 eq. in 2003)				
		Slovenia (19.8 mln)	Slovakia (51.6 mln)	Poland (382.8 mln)	Hungary (83.2 mln)	Bulgaria (69. 2 mln)	Lithuania (17.2 mln)	Romania (148.6 mln)	Czech Republic (147,2 mln)	Latvia (10.5 mln)	Estonia (21.4 mln)
Base year		1986	1990	1988	1985-87	1988	1990	1989	1990	1990	1990
Kyoto target (% of reduction to base year)		- 8	- 8	- 6	- 6	- 8	- 8	- 8	- 8	- 8	- 8
GHG emissions in 2003 (base year = 100%)		- 2	-28	- 33	- 32	- 50	- 66	- 43	- 23	- 59	-51
GHG emissions in 2020 (base year = 100%)	With[71] measures	+ 1	- 3	- 16	- 20	-24	- 30	-30	- 37	- 35	- 56
	With additional measures	- 6	- 8	n. a.	- 25	-32	n. a.	- 33	- 38	- 45	- 63
GHG emissions in 2020 (2003 = 100%)	With measures	+3	+ 35	+ 25	+ 17	+52	+ 106	+ 13	- 17	+ 57	- 11
	With additional measures	- 5	+ 28	n. a.	+ 11	+ 35	n. a.	+ 18	- 19	+ 33	- 24
GHG emission in 2020 to compare to 20% reduction -EU's target (0,8 base year = 100%)	With measures	+ 26	+ 21	+ 5	0	- 5	- 13	- 13	- 21	- 19	- 45
	With additional measures	+ 18	+15	n. a.	- 6	- 15	n. a.	- 17	- 23	- 31	- 53
GHG emission in 2020 to compare to 30% reduction -EU's target (0,7 base year = 100%)	With measures	+ 44	+38	+ 20	+ 14	+ 8	- 1	0	- 10	- 7	- 38
	With additional measures	+ 34	+31	n. a.	+ 8	- 3	n. a.	- 5	- 12	- 21	- 47

Source: (ISD calculation based on the analysis of the 10 National Communications of NMS).

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69 20% or 30% reduction to compare base year.

70 Total GHG emissions excluding sector 5 (Land use, land-use change and forestry).

71 I.e. existing measures

Against this background, it is interesting to consider Poland's case. In 2003, the government of this country adopted a climate change policy adopting a commitment to reduce GHG emissions in 2020 by 40% with respect to 1988. In practice, this target was not translated into legislation. The launch of the ETS changed – according to some observers - the readiness of the Polish government to adopt active climate policy instruments and pre-determined reduction target. Neither energy policy assumptions nor draft national environmental policy set emission reduction targets for post- 2012 period.

In sum, the positions of the new EU Member States are fairly uniform. They are ready to accept further emission reductions targets (although they differ as to their levels of ambition) to an extent which would not be perceived as an impediment to economic development. Like many old member states, they regard the existing principles and procedures of the flexible mechanisms as too complicated. Negotiations on a future burden sharing agreement will cause controversies in the and among all EU member states. In the NMS, however, there are sentiments that NMS have not gained equal member's rights (e.g. lower payments in agriculture, barriers to the flow of services, the incompletely open labour markets in most of the "old" Member States). These sentiments may add to an unwillingness to share reduction surpluses within a burden sharing agreement.

8. Conclusions: Main Issues for the post-2012 negotiations

A number of issues will also have to be resolved in negotiating the Post-2012 climate regime:

- **At what concentration level should GHGs be stabilised in the atmosphere?** Different stabilisation concentrations (e.g., 400 ppm, 450 ppm, 550 ppm) will have different impacts on the climate system and on vulnerable populations and ecosystems. The opportunity to stabilise concentrations at certain levels will be lost if sufficient emission reductions cannot be secured in the second commitment period.

- **What degree of effort is needed over what time frame to achieve stabilisation?** The Kyoto Protocol aimed for developed countries to reduce their emissions as a group to 5.2% below 1990 levels by 2008-2012. Much larger reductions are needed to stabilise GHG emissions. Neither the Convention nor the Protocol sets out a long-term reduction target, or a timeframe for meeting that target through a sequence of shorter-term milestones.

- **How should the principle of 'common but differentiated responsibilities and respective capabilities' be applied to developed and developing countries?** All countries will have to consider how to distribute or share the mitigation burden. Kyoto targets apply to developed countries only. Should developing countries be asked to take on commitments, in view of the rapidly increasing emissions from this group? If so, when, and what kind of commitments? Should different groups of developing countries be asked to take on different kinds of commitments? What kinds of economic incentives

and opportunities might be needed to engage developing countries and non-Kyoto Parties in a global agreement? How might such incentives and opportunities be designed and provided?

- **How long should the Kyoto Protocol's second commitment period be?** Should a second commitment period be 5 years, like the first commitment period, or longer, to provide regulatory certainty to industry and guide long-term investment decisions?
- **What types of commitments could be taken in a second commitment period?** If commitments other than fixed Kyoto-like targets are to be permitted or encouraged for some countries (e.g., carbon intensity targets, sectoral targets, energy efficiency targets, renewable energy targets, policies and measures), how can countries' different efforts from these different kinds of commitments be compared? How can overall progress measured?
- **How should technology development and transfer be achieved?** Can sufficient technology transfer occur through the flexible mechanisms or other market-based mechanisms? Or, should a supplemental technology agreement be negotiated that builds upon the Convention and the Kyoto Protocol?
- **How can equitable burden sharing for adaptation be achieved?** The Convention requires developed countries to assist particularly vulnerable countries in meeting the costs of adaptation, but provides no detail on how this is to be done. How can a secure and predictable revenue stream for adaptation be generated that draws upon the resources of all Annex I parties equitably? How can the adaptation needs of vulnerable countries be satisfactorily addressed?
- **What should be the role of the flexible mechanisms in a second commitment period?** The Kyoto Protocol does not resolve the scope of activities that can be included in the CDM in the second commitment period. Can the flexible mechanisms be used to create additional opportunities for cost-effective emission reductions and support sustainable development, without jeopardizing the environmental integrity of the Kyoto Protocol?

In answering these questions, Parties will have to consider how best to achieve the ultimate objective of the Convention, through a package that offers incentives for participation to the broadest possible group of countries.