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Axel Michaelowa\*

# Climate Policy Challenges After the Kyoto Protocol Enters into Force

*The Kyoto Protocol on the reduction of greenhouse gas emissions can finally come into force now that Russia has signed it. What has been the trend of emissions in the individual industrial countries in recent years? What options do the countries have? What EU strategy should be chosen for the coming negotiations on the climate regime after 2012?*

The sword of Damocles has been hanging over international climate protection since 2001. The Kyoto Protocol on the reduction of greenhouse gases could only come into force when it had been ratified by industrialised countries representing more than 55% of the greenhouse gases emitted by the industrialised countries in 1990. The largest producer of greenhouse gases with a 36 % share – the USA – rejected ratification of the Protocol in 2001. Russia represents 17.4 % of emissions and so effectively assumed a veto position.

During the past 15 years, the EU has steadfastly campaigned for a stringent international climate policy. Following US president Bush's refusal to ratify the Protocol, the EU began a long process of wooing for Russian ratification and tied it to Russia's accession to the World Trade Organisation. At the end of October 2004, after lengthy hesitation and somewhat unexpectedly as far as the precise timing was concerned, president Putin now whisked the ratification of the Kyoto Protocol through both houses of the Russian parliament and signed the Protocol on 5 November. As a result, the Protocol will enter into force in February 2005 and the emission targets for the commitment period 2008-2012 will become binding.

How well are the various industrialised countries performing with regard to climate protection? Emissions trends over the past 15 years are marked by considerable divergences which explain the different attitudes to climate protection and which indicate the important role the market mechanisms of the Kyoto Protocol can play (see Figure 1).

## **The EU's Stance on Climate Protection – Many Words, but Little Action**

In Kyoto, the EU succeeded in including a clause that allows it to redistribute its emission target of -8 % among its member countries. The targets for the members of the old EU-15 range from -28 % for

Luxembourg to +27 % for Portugal. At first glance, the EU has so far made considerable progress towards achieving its target (see Fig. 1). However, the relatively good performance of the EU as a whole masks sharply divergent emission trends in individual member states (see Figure 2).

It is clear that the emission reductions are essentially due to Germany and the UK. In these countries, however, the decline has slowed down considerably in recent years and a renewed increase can be expected given that inexpensive avoidance options with regard to non-CO<sub>2</sub> gases and fuel substitution have been largely exhausted.

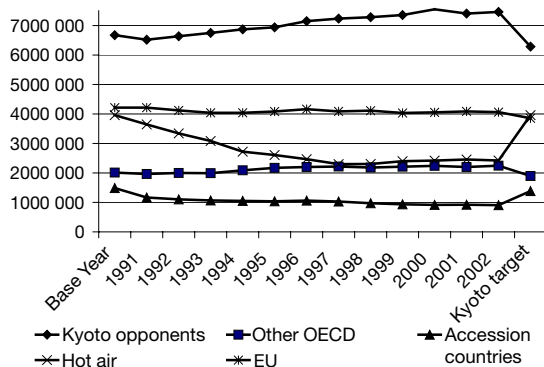
In contrast, there has been a massive increase in emissions in the cohesion countries of southern Europe. In Portugal, emissions have risen by 40 %, in Spain by 39 % and in Greece by 23 %! These countries have already used up their generous allocations under the burden sharing agreement.

Less visible, but most disquieting, is the weak performance of several countries which pioneered climate protection in the 1990s: Denmark, Austria and the Netherlands. The gap between their current emissions and their Kyoto targets has already reached 26, 25 and 27 percentage points respectively.

When EU politicians noticed these unsettling emission trends in the early 2000s, they established the European Climate Change Programme to introduce additional policy measures. The cornerstone of the programme is the introduction of an EU-wide emissions trading system for large fixed-point emission sources. It covers CO<sub>2</sub> emissions from the consumption of fossil fuels in power stations and boilers with a rated thermal input exceeding 20 MW, iron and steel production, oil refineries, pulp and paper manufacturing, and cement production. The emissions covered account for approximately half of those included in the Kyoto emission budgets. The entire legislative process was completed in just three years, from the first draft drawn up by the

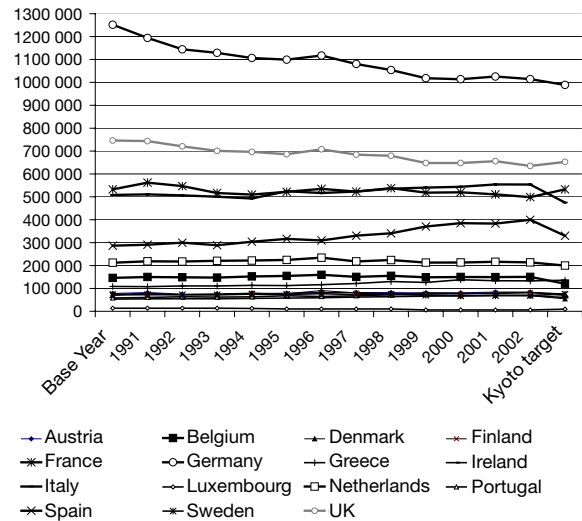
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**Figure 1**  
Greenhouse Gas Emissions in the OECD Countries  
(1000 t of CO<sub>2</sub> equivalent)



Kyoto opponents: USA and Australia; Hot air: Russia, Ukraine; Accession countries: Annex B members in Eastern Europe. Source of data: 2004 national greenhouse gas inventories, [http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/2761.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/2761.php), Download 15.10. 2004. Data for Russia since 1996 extrapolated using data from the US Energy Information Administration: CO<sub>2</sub> emissions from Fossil Fuel Combustion; <http://www.eia.doe.gov/emeu/iea/table1.html>, Download 15.10. 2004.

**Figure 2**  
Greenhouse Gas Emissions of the Old EU Members  
(1000 t of CO<sub>2</sub> equivalent)



Source of data: 2004 national greenhouse gas inventories, [http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/2761.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/2761.php), Download 15.10. 2004.

European Commission to the start of the system on 1 January 2005.

The EU also established a remarkable link between the emissions trading system and the market mechanisms of the Kyoto Protocol. In April 2004, the EU parliament passed the “linking directive”, which allows participants in the emissions trading system unlimited use of emission credits from the Clean Development Mechanism (CDM).<sup>1</sup> The linking directive is the world’s first large-scale incentive for companies to participate in CDM.

The potentially revolutionary effect of the trading system on large-scale sources of CO<sub>2</sub> emissions within the EU is restricted by the fact that industrial associations have managed to secure a relatively generous allocation of emission allowances for the period 2005-2007. The 14 allocation plans published by the old EU members permit additional emissions of more than 50 million t per year compared to the year 2000, and the plans put forward by five new members from eastern Europe allow an increase in emissions of 45 million t. Fortunately, the EU Commission – which has to approve the allocation plans – demonstrated its determination in October 2004 by demanding a reduction in allocations of more

than 30 million t. Despite this encouraging development, many companies will have a surplus of emission allowances. There is of course a chance that allocations for the period 2008-2012 will be more stringent, but the principles laid down in many allocation plans make this relatively improbable.

In spite of generous allocations, a reasonably liquid market for EU emission rights has developed. In October, trading volumes already amounted to more than 1 million t of CO<sub>2</sub> at stable prices of around 9 euros/t.<sup>2</sup> That the allocation plans are a decisive market factor was demonstrated in March 2004 when the price fell from 13 to 8 euros – albeit when trading volumes were very low. How strongly the price of EU emission allowances and that of CDM emission credits will converge remains to be seen. The latter has so far been largely determined by the Dutch credit purchasing programme and the World Bank fund for Kyoto mechanisms; for a long time emissions credits were trading at 3 US\$ or 2.5 euro/t. They have been increasing since the linking directive came into force, however, and the most recent transactions were concluded at 5 euro/t.

In their allocation plans, governments have also begun to define purchasing requirements for emission rights from the Kyoto mechanisms. In few cases, however, has a budget been allocated for this purpose, and those budgets that have been allocated will gener-

<sup>1</sup> CDM allows the creation of emission credits from emission reduction projects in developing countries. At present there are some 50 projects in the pipeline which would generate around 70 million t of emission credits by 2012. For a detailed description of CDM see Axel Michaelowa: Clean Development Mechanism und Joint Implementation, in: Michael Lucht, Gorden Spangardt (eds.): Emissionshandel, Heidelberg 2004, Springer, pp. 137-152.

<sup>2</sup> Current market prices are published at [www.pointcarbon.com](http://www.pointcarbon.com).

ally prove insufficient to close the gap (see Figure 3). Only the Netherlands has allocated adequate funds to finance its entire purchasing programme and even to allow for a number of failed CDM projects. Altogether, these budgets would permit 160 million t of emission credits to be purchased. Planned demand on the other hand runs to 340 million t, while the Kyoto gap amounts to more than 1 billion t. There is, however, a lot of "Hot Air" among the new EU members, i.e. unutilised emission rights attributable to the transformation process. These can be used as a fall-back position if necessary.

In order to mobilise supply of CDM emission credits, the EU is making significant funds available for CDM capacity building. Germany and the Netherlands, but also a number of EU programmes, are financing such activities in developing countries, particularly in large Asian countries with a high level of CDM potential. Up to 2004, total expenditures for this purpose have reached 19 million euros, the equivalent of 2 % of the EU countries' CDM purchase budget.<sup>3</sup>

#### The EU in the Debate on the Climate Regime Beyond 2012

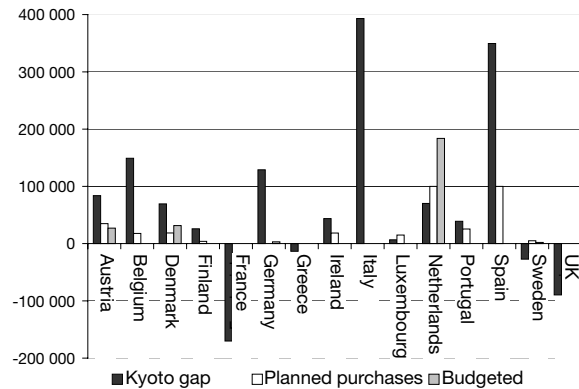
International talks on the climate regime beyond 2012 are due to begin in 2005. With these talks in mind, an "Expert Group on Further Action on International Climate Protection Efforts Following the Kyoto Protocol" (EGFA) established under the Irish EU presidency in 2003 was given the task of preparing the EU strategy for the climate regime beyond 2012. In May 2003, an EGFA workshop took place to consider the inclusion of developing countries in the climate regime. The workshop discussed approaches to burden sharing and the vulnerability of countries with regard to the effects of climate change. In September 2004, the EU Commission initiated an internet-based discussion entitled "Action on Climate Change Post 2012".<sup>4</sup> The results of this discussion are to support the Commission in preparing a report due to be presented to the Council of Environment Ministers at its spring meeting in 2005. The report is to explicitly examine the effects of various climate policy options on the international competitiveness of the EU.

Various research activities and dialogues on future climate policy have been organised by research institutes in the EU.<sup>5</sup> The most comprehensive initiative is the "South-North Dialogue – Equity in the Greenhouse"

<sup>3</sup> Axel Michaelowa: CDM Incentives in Industrialized Countries – The Long and Winding Road, in: International Review for Environmental Strategies, forthcoming. Commissioned by the GTZ, the HWWA has now been active in Indonesia for 5 years and has helped prepare GTZ activities in Ghana, India, Tunisia and Vietnam.

<sup>4</sup> [http://europa.eu.int/comm/environment/climat/future\\_action.htm](http://europa.eu.int/comm/environment/climat/future_action.htm)

**Figure 3**  
Kyoto Gaps 2008-2012, Purchase Plans and the Reach of Funds Set Aside for Purchases  
(1000 t of CO<sub>2</sub> equivalent)



Source: National allocation plans, various governments' websites. Market price assumption for emission credits 5 euros/t.

organised by the Wuppertal Institute and the Energy Research Centre in Cape Town. In this project, 14 researchers from all the regions of the world came together in a number of meetings and elaborated a proposal for negotiation.<sup>6</sup> It recommends substantial emission reductions in the North and differentiated emissions targets for four groups of developing countries, depending on their stage of development. Revolutionary is the proposal to include "rapidly industrialising countries" (i.e. China and India), which should limit the increase in their emissions, but which in return should receive considerable transfers from the industrialised countries. In a second project phase the dialogue is to be extended to include senior policy negotiators.

In 2003-2004, within an international consortium consisting of one research institute each from Norway (Fridtjof Nansen Institute), Japan (Central Research Institute of Electric Power Industry), Canada (International Institute for Sustainable Development) and China (Chinese Academy of Social Sciences), the Hamburg Institute of International Economics (HWWA) developed policy scenarios for the period beyond 2012. In the first phase of the project each institute elaborated its own

<sup>5</sup> Future International Action on Climate Change (FIACC) (2004): see [www.fiacc.org](http://www.fiacc.org)

<sup>6</sup> GTZ: South-North dialogue on equity in the greenhouse, Eschborn 2004.

<sup>7</sup> The scenarios are soon to be presented in a special edition of the journal "International Environmental Agreements". Elements of the HWWA scenario "Graduation and Deepening" may be found in: Axel Michaelowa, Sonja Butzengeiger, Martina Jung, Michael Dutschke: Beyond 2012 – Evolution of the Kyoto Protocol, Externe Expertise für das WBGU-Sondergutachten "Welt im Wandel: Über Kyoto hinausdenken. Klimaschutzstrategien für das 21. Jahrhundert", WBGU-Materialien, Berlin 2003; [http://www.wbgu.de/wbgu\\_sn2003\\_ex02.pdf](http://www.wbgu.de/wbgu_sn2003_ex02.pdf).

scenario<sup>7</sup>, and in 2004 a synthesis paper was developed on the basis of common policy elements.

The Federal Environment Agency has commissioned the Dutch consulting firm Ecofys to examine various climate policy options. The project "Helping Operationalise Article Two (HOT)" is being carried out by the National Institute of Public Health and Environment (RIVM) and the Free University of Amsterdam – Institute for Environmental Studies (IVM). Its aim is to define the implications of "dangerous anthropogenic climate change". Four regional workshops took place in 2003 in order to start this discussion.

In January 2002, the German Foundation of Science and Politics (Stiftung für Wissenschaft und Politik, SWP) initiated the "International Network To Advance Climate Talks (INTACT)" with the support of the US American German Marshall Fund. Following a first phase of high-level transatlantic dialogue, the second phase, which runs up to 2008, plans to extend the talks to include developing countries.

The four British institutes FIELD, Tyndall Centre, IIED and CSERGE are developing a programme to analyse adaptation requirements in three Least Developed Countries: Tuvalu, Bangladesh and Tanzania. It is planned to use the results in the further development of adjustment policy.

The Royal Institute of International Affairs is coordinating a project on the Kyoto-Marrakesh System and the further development of the climate regime.<sup>8</sup> Sweden was one of the first countries to place climate policy beyond 2012 on the political agenda.<sup>9</sup>

### EU Strategies Beyond 2012

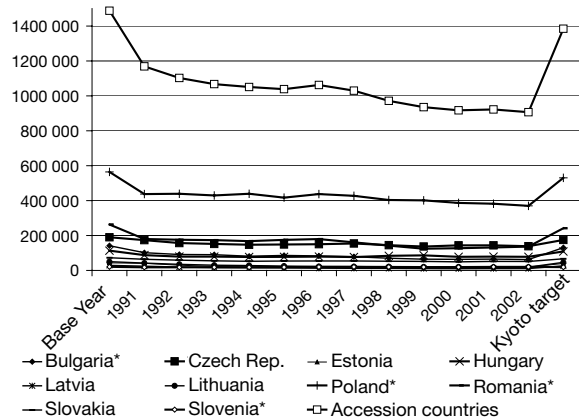
At a very early stage, in the run-up to the Kyoto talks in 1997, the EU Council of Environment Ministers declared itself in favour of a long-term stabilisation target of 550 ppm.<sup>10</sup> Some EU countries have since established voluntary targets for the period beyond 2012. In its Energy White Paper<sup>11</sup>, the British government set a target of -60 % CO<sub>2</sub> for 2050 and an interim target of -25 % by 2020. The paper contains an extensive discussion of the necessary assumptions and policy measures for achieving these targets. In its coalition agreement of 2002, the German federal government stated that Germany would strive for -40 % by 2020

<sup>8</sup> Benito Müller: Framing Future Commitments, Oxford 2003.

<sup>9</sup> Swedish Environmental Protection Agency: Kyoto and Beyond. Issues and Options in the Global Response to Climate Change, Stockholm 2002.

<sup>10</sup> The current concentration of CO<sub>2</sub> in the atmosphere amounts to 370 parts per million (ppm) and is increasing annually at a rate of 3 ppm.

**Figure 4**  
Emissions in the New Member States and Accession Countries  
(1000 t of CO<sub>2</sub> equivalent)



\* These countries have chosen a base year other than 1990.

if the EU accepted a target of -30 %. This target could quite possibly be achieved if it refers to the extended EU. However, the Federal Ministry of Economics has always opposed the target on the grounds that it would place a substantial burden on the economy; so far there has been hardly any public debate on the subject. A Swedish parliamentary committee proposed a -50 % target for 2050 that was derived from a stabilisation target of 550 ppm for all the greenhouse gases in the Kyoto basket.<sup>12</sup> The French climate plan mentions the necessity of a reduction by a factor of 4-5 by 2050.<sup>13</sup>

In July 2004, the Dutch EU presidency spoke out in favour of defining the long-term target of EU climate policy in terms of limiting the temperature increase to 2°C above pre-industrial levels. This implies a target of -30 % for 2020, which corresponds to the German proposal. However, the industrial lobby UNICE immediately opposed such a unilateral policy on the part of the EU.

The influence of such interest groups is also demonstrated by the fact that in early 2004 industrial lobbyists succeeded in having the Spanish government publicly question Spain's target under the EU burden sharing agreement. However, the defeat of the country's ruling conservatives at the last general election has meant that the Kyoto Protocol is being supported once again.

The EU can base any strategy for the period after 2012 on the extensive volume of free emission rights in the new member states (see Figure 4). Despite strong

<sup>11</sup> Department of Trade and Industry: Energy White Paper. Our energy future - creating a low carbon economy, London 2003.

<sup>12</sup> Klimakommiten: Proposed Swedish climate strategy, SOU-23, Stockholm 2000.

<sup>13</sup> Ministère de l'Environnement: Climate Plan 2004, Paris 2004.

economic growth in recent years, emissions in the accession countries continue to fall. Reserves of emission rights for the entire period from 2008-2012 amount to 2.5 billion t and could cover the EU's present Kyoto gap 2.5 times. If these reserves were to be saved up for a commitment period from 2013-2017, they could make up 7.5 percentage points of an emission target for an EU comprising 28 member states.

In the past, the EU has repeatedly proven its pioneering role in climate policy. If it is to continue to play this role convincingly in negotiations on the international climate regime beyond 2012, it must be able to demonstrate significant achievements in emission reductions. The emissions trading system can produce a breakthrough of this kind if allocations are stringent enough to cause companies to invest in mitigation measures. Only then will developing countries be prepared to enter into serious negotiations regarding their own emission reduction commitments.

### **Adaptation and Mitigation**

Complete involvement of the developing countries in the global climate regime is only possible if the question of adaptation to climate change – which is unavoidable due to the fact that concentrations of greenhouse gases will continue to rise before a stabilisation level is reached – is addressed in detail. The problem lies in the fact that a country's adaptability depends on its general state of development. Since climate policy cannot take the place of general development policy, the issue at hand is to clearly define which adaptation activities in developing countries can be financed with resources from the industrialised countries. It would be ideal if measures could be found that contribute to both emissions reduction and adaptation at the same time. For example, these could be activities aimed at storing carbon in vegetation or they could involve the decentralised utilisation of renewable energies. This topic must be addressed energetically in the next round of talks.