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The Climate is No Commodity: Taking Stock of the Emissions Trading System

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However beautiful the strategy, you should occasionally look at the results.

Winston Churchill[1]

Abstract

'Cap and trade' is the nucleus of the so-called flexible mechanisms of climate protection: the maximum use of a resource (here, a particular quantity of greenhouse gas emissions) is determined; from this, individual emission allowances are derived and allocated. Emission allowances can be traded—in other words, they can be purchased and sold. They can also be acquired by investing abroad, if this leads to a reduction of emissions. As elegant and perfect 'cap and trade' might appear, we have to ask whether this instrument meets the expectations it has raised. This can, however, be questioned. The article sketches out the 'cap and trade' system (Section 1), illustrates 'cap and trade's' lack of success (Section 2) and explains its failure arguing that economic logic has supplanted ecological logic (Section 3). This argument is followed by a reflection on whether the approach should altogether be abandoned or reformed through putting it into a framework of the regulatory tradition (Section 4). The article takes Germany as a case where it is felt important to look at implementation at the national level.

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1. The Design of 'Cap and Trade'

1.1. The 'Cap' Element: Assigned Emission Amounts

In the Kyoto Protocol of 1997, a number of industrial nations committed themselves to reducing the annual average of their greenhouse gas emissions within the so-called 'first commitment period' from 2008 to 2012 to an amount that equals at most 95% of the overall total of 1990—the year which was set as base year.[2] Ninety-five percent signifies the average of the quotas of all individual states.[3] The EU's quota is 92%. This quota multiplied with the amount of released emissions in 1990 and the five years of the first commitment period results in the so-called assigned amount of permissible emissions.

In line with the so-called bubble—permissible according to Article 4(1) Kyoto Protocol—Council Decision 2002/358/EC[4] distributed the EC's overall quota among its Member States by allocating differentiated emission commitments. For instance, Germany received less (namely only 79%) in comparison with Spain with 115%. The contributions 'are differentiated to take account of expectations for economic growth, the energy mix and the industrial structure of the respective Member State'.[5]

The Member States are meant to achieve their emission targets primarily by measures of their own within their territory. However, they can also relieve their economies[6] by purchasing additional emission allowances from other states or by acquiring them through the Clean Development Mechanism

2 These are the so-called Annex I states, ie those countries listed in Annex I of the Framework Convention on Climate Change (FCCC), thereby agreeing to oblige to particular commitments. Cf Art 4(2) FCCC and Art 1(7) Kyoto Protocol. Art 3 of the Kyoto Protocol sets the 95% ceiling, while Annex B of the Kyoto Protocol specifies the quotas for individual states. For the sake of simplification, in the following, I will speak of Annex B states rather than Annex I states, where appropriate.

3 As the USA did not ratify the Protocol, its intended share of the reduction does not apply. This increases the overall proportion to 97.2% or reduces the reduction proportion to 2.8%. Cf Greenhouse gas projections and trends in Europe, EEA Report 5/2008, p 29. (Thanks to Dr Hans-Jochen Luhmann, Wuppertal Institute for Climate, Environment and Energy, for this suggestion.)

4 Council Decision (EC) 2002/358 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the UNFCCCand the joint fulfilment of commitments thereunder [2002] OJ L130/1–3.

5 Council Decision 2002/358/EC, recital 12.

6 Cf M Ehrmann, 'Das ProMechG: Verknüpfung des Europäischen Emissionshandels mit den Flexiblen Mechanismen des Kyoto-Protokolls' in M Oldiges (ed), *Immissionsschutz durch Emissionshandel— eine Zwischenbilanz* (Nomos, Baden-Baden 2007) 110.

(CDM) or Joint Implementation (JI).[7] This increases the assigned emission amount for the acquiring state.[8]

A part of the quotas of the Member States—which concerns the emissions from commerce, private households and transport—is handled by dint of classical instruments; for those, a variety of mixtures of Community and national law applies, especially a mélange of regulatory law, subsidies and charges. The other part, concerning emissions from the energy sector and industry, is subject to the so-called flexible instruments[9], which I will focus on in the following. For these instruments, Directive 2003/87[10] provides a framework under Community law.

According to Articles 9–11 Directive 2003/87, for the two so-called allocation periods—2005–07 and 2008–12—national allocation plans have to be developed, which must follow certain criteria established in Annex III of the Directive. In Germany, this is handled in line with the key act of climate protection, the Greenhouse Gas and Emissions Trading Act (*Treibhausgas- und Emissionshandelsgesetzes*, TEHG).[11] For each allocation period, the so-called macroplans and microplans are developed and made mandatory by Allocation Acts (*Zuteilungsgesetze* 2007 and 2012, hitherto ZuG 2007 and ZuG 2012).

For the first allocation period (2005–07), ZuG 2007 and ZuG 2012 assigned the energy sector and industry 503 Mt/a CO_2[12] and 453.07 Mt/a CO_2 for the second period (2008–12).[13]

7 For more details, see Sections 2 and 3.

8 Art 3(10) and (12) Kyoto Protocol. The transfer through purchase or JI leads to the respective reduction of quotas assigned to the transfer state (Art 3(11) Kyoto Protocol). This is not the case for CDM projects, as the transfer states in this case are not among the Annex B states.

9 See Section 2.

10 Directive 2003/87 (EC) of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (Text with EEA relevance) [2003] OJ L275/32–46. The directive was amended by a directive of 2004 tying CDM and JI into the system (Directive 2004/101 (EC) of the European Parliament and of the Council 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 with EEA relevance [2004] OJ L 338/18–23. A second amendment of 2008 extended the system from the industry and energy sectors to aviation (Directive 2008/101/EC 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 [2008] OJ L8/3–21). The last amendment of 2009 prepares the system for the second commitment period that begins after 2012 (Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC, so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community [2009] OJ L140/63–87). In the following, if different versions of articles of the Directive are important, I will speak of Directive 2003/87 in its version of 2008 and 2009, respectively.

11 ss 7–12 TEHG.

12 s 4(2) ZuG 2007. The unit CO_2-eq (eq for equivalent) signifies a unit of CO_2 or an amount of another greenhouse gas that corresponds to a unit of CO_2. For the first two allocation periods only emissions from installations emitting CO_2 were subjected to the emissions trading scheme. See Directive 2003/87/EC Annex I. In the article, I will therefore simply speak of CO_2 if referring to the EC and its first two allocation periods but of CO_2-eq if other climate gases than CO_2 are included.

13 s 4(2) ZuG 2012; s 4(2) ZuG 2007 set 495 Mt/a for the second period, yet this was subject to alterations.

For these quotas, the *Zuteilungsgesetze* develop criteria for the allocation of allowances to individual operators, based on aforementioned microplans. The criteria are pre-structured under Community law but provide the Member States with some leeway.

In line with ZuG 2007, all emission allowances[14] were allocated free of charge. For existing installations, grandfathering was applied. This means that installations received emission allowances to the extent that they had produced emissions during a certain base period. In order to give an incentive for emission reduction, a so-called compliance factor of 3% was deduced from the allocated quantity. Older installations that had recently been modernised (such as the lignite-fired power plants in Eastern Germany) were rewarded by waiving the compliance factor. Installations with combined heat and power generation received a special allocation of emission allowances as a reward for their high energy efficiency. Installations built after the start of the first compliance period received emission allowances to the extent necessary for the implementation of best available technology (BAT). If an operator reduced the production in his installation after the emission allowances were allocated, he had to return the respective quantity. In Germany, banking was not allowed—in other words, there could be no transfer of unused emission allowances from the first to the second allocation period. The aim of this was to prevent the new overall emission target from being diminished for the second allocation period; the more so as there would have been an incentive for operators to purchase cheap emission allowances in the first allocation period and keep them for the second.

For the allocation period 2008–12, ZuG 2012 adheres to many of these criteria, but it also entails important changes. Of the allocated 453.07 million emission allowances, 40 million will be sold.[15] The remainder is allocated free of charge as in the past. Overall, one can notice a shift from grandfathering to the so-called 'benchmarking'. Only existing industrial installations remain subject to grandfathering, while the base period for the calculation of historical emissions is brought forward, allowing for more realistic calculations.[16] All energy plants and younger industrial installations are subject to benchmarking according to BAT, BAT being defined by more demanding criteria than before.[17]

14 An emission allowance is defined as the permission to emit one tonne of CO_2-eq within a certain period of time (s 3(4) TEHG).

15 s 19(1) ZuG 2012. At the moment, the sale takes place by successive offers at the market; from 2010 onwards, it will be via auction (s 21 ZuG 2012). According to Art 10 Directive 2003/87 in its version of 2009, from 2013 onwards, all emission permits shall be auctioned.

16 s 6 ZuG 2012.

17 ss 7–9 and Annex III ZuG 2012.

1.2. The 'Trade' Elements: Flexible Mechanisms

The flexible mechanisms consist of emissions trading, CDM and JI. They are meant to help states to achieve their permissible emission quota as cost-effectively as possible. States and operators shall have a choice between the reduction of emissions by investment and the purchase or other acquisition of emission allowances.

The FCCC mentions the flexible mechanisms only in general terms as an option for action. The Kyoto Protocol also does not stipulate them, but establishes certain structures for the case that contractual states want to use these mechanisms.[18] Part of them—the tradeability of emission allowances—was made mandatory on the EU level, while whether CDM and JI measures should be allowed was left to be decided by the Member States.[19]

1.2.1 Emissions trading

The Kyoto Protocol enables emissions trading among states, among companies as well as between states and companies. In order to prevent states from refraining from genuine climate policy but relying largely on the purchase of emission allowances, the Protocol stipulates that emissions trading shall only be 'supplemental' to other domestic climate protection activities.[20]

The relevant EC secondary law does not harmonise the emissions trading among Member States or with third countries, rather it leaves it to bilateral agreements between participating states or between states and international institutions. However, Directive 2003/87 largely harmonised the rules of emissions trading between companies and other persons.[21] Member States have to keep an emissions trading registry following certain standards. This registry lists the issue, holding, transfer and cancellation of allowances. The registry is accessible to the public.[22] A so-called Central Administrator of the EC monitors transactions.[23]

National law further specifies the emissions trading regime. In Germany, the acquisition of emission allowances by the state itself is not envisaged; therefore, no legal basis was provided for such transactions. The law puts the transfer of allowances into legal forms (contract, act of transfer, recording of transfer in the emissions trading registry). Emission allowances issued by another Annex B state are put on a par with German emission allowances,

18 Arts 6, 12 and 17 Kyoto Protocol.
19 See Arts 12 and 11(a) Directive 2003/87.
20 Art 17 Kyoto Protocol.
21 In practice, it is almost solely operators that hold emission permits. Yet, other persons can also acquire these permits, such as NGOs, who want to raise prices by reducing supply.
22 Art 19 Directive 2003/87.
23 Art 20 Directive 2003/87.

once a German operator has purchased them; the same applies to emission allowances from Non-EU-countries listed in Annex B of the Kyoto Protocol, if the EC has concluded a respective agreement with them.[24]

In law, trading is regularly regarded as a bilateral transaction between the vendor and vendee of an emission allowance. In reality, many transactions are conducted via a stock exchange, the European Energy Exchange—Section Emission Allowances—in Leipzig, which undertakes fiducially the buying and selling for its customers.

1.2.2 JI

This mechanism comprises an investor[25] from an Annex B country who (co-)finances a project and is allocated those emissions saved by the project as so-called 'emission reduction units' (ERUs).

The Kyoto Protocol stipulates 'additionality', requiring that any such project 'provides a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur'.[26] Moreover, 'supplementarity' applies to JI, as it does to emissions trading—that is to say, the investor country has to pursue an independent climate policy apart from JI measures.[27]

The Marrakesh Accords[28] flesh out these requirements, especially concerning the calculation of the baseline (in other words, the state of emissions without the project) in order to determine whether a project is 'additional'[29] and also regarding the involvement of independent entities in both the validation of the project design and the verification of the project results. The criterion of 'supplementarity' is by Decision 15/CP.7 No 1 extended to apply also to the country hosting the investment. The execution of administrative supervision is partly shifted to the international level: a Supervisory Committee is established, which at strategic points is involved in validation and verification procedures. The Committee especially accredits and monitors independent consultants, and it decides when there is doubt about whether project plans and project results are compatible with relevant regulations.[30]

24 See on the one hand, s 13(1) TEHG with Art 12(1)(a) Directive 2003/87 and, on the other hand, s 13(3) TEHG with Arts 12(1)(b) and 25(3) Directive 2003/87.

25 This can be a private investor or a state body.

26 Art 6(1)(b).

27 Art 6(1)(d).

28 These are resolutions of the Seventh Conference of Parties, which met in Marrakesh in 2001. The Eighth Conference of Parties confirmed these decisions, after the Kyoto Protocol came into force (FCCC/KP/CMP/2005/8/Add.1, 30 March 2006).

29 In Appendix B of the Annex to the Marrakesh Accords Decision 16/CP.7, it is said: 'The baseline for an Art 6 project is the scenario that reasonably represents the anthropogenic emissions by sources or anthropogenic removals by sinks of greenhouse gases that would occur in the absence of the proposed project.'

30 Annex to Marrakesh Accords Decision 16/CP.7, Nos 3, 35 and 39.

At the EC level, the stipulations of the Marrakesh Accords are incorporated by reference and further complemented, such as by the provision that ERUs acquired between 2005 and 2007 can be used in the first commitment period (2008–12), and that the overall emission target of a state has to be reduced by the quantity that has been transferred as ERU to an investor in another state.[31]

At Member State level, this system is further complemented. The Member States are also responsible for execution, though it should be noted that the Supervisory Committee is also involved, as already mentioned above. Germany adopted the Project Mechanisms Act (*Projektmechanismengesetz*, ProMechG), which regulates the approval by the German state as investor country of projects abroad and as a host country of domestic projects. The Act specifies the substantial requirements of projects, especially of 'additionality', and adds other requirements, such as the obligation to ensure that the project 'does not cause any severe adverse environmental impacts.'[32]

1.2.3. CDM

This mechanism involves an investor[33] from an Annex I state who (co-)finances a project within a non-Annex I state and who is allocated those emissions saved by the project as so-called 'certified emission reduction units' (CERs).

As in the case of JI, the Kyoto Protocol stipulates the 'additionality' of the project.[34] Here, further standards are required which are even stricter than in the JI system, namely 'real, measurable and long-term benefits related to the mitigation of climate change'.[35] Article 12 does not contain the requirement of 'supplementarity' but the Marrakesh Accords CP.7 Decision 15 No 1 introduced it to also apply to investor countries (but not host countries) of CDM projects.

The Marrakesh Accords further specify these requirements. In comparison to the JI regime, the density of regulatory and administrative intervention is somewhat higher. Regulations detail the requirement of 'additionality', especially the setting of the baseline as well as certain requirements to the administrative infrastructure of the country hosting the project. Similar to JI, an Executive Committee is established, which further details regulations, accredits operational entities and takes decisions on disputes about the validation, verification and certification of projects.[36] Independent expert bodies (called Operational Entities) are asked to validate projects and to verify their performance. Operational Entities are also responsible for the certification of

31 Arts 11(b)(3) and 4 Directive 2003/87.
32 ss 3 and 5 ProMechG.
33 Again, this can be a private actor or a state body.
34 Art 12(5)(c) Kyoto Protocol.
35 Art 12(5)(b) Kyoto Protocol.
36 Annex to the Marrakesh Accords Decision 17/CP.7, Nos 5, 41 and 65.

project results.[37] In some respect, this replaces the allocation of ERUs by the host countries in the JI regime—a responsibility that host countries of CDM project are apparently not thought to be able to exercise adequately.

At the EC level, the regulatory system of the Marrakesh Accords is incorporated by reference. Complementary regulations are added, such as the stipulation that CER acquired in projects from 2000 onwards can be used in the first commitment period (2008–12).[38]

At Member State level, the Marrakesh and EC system is incorporated and complemented further. In Germany, the ProMechG regulates the investor country's approval to CDM projects. Besides 'additionality', the Act, resounding Art 3 (14) Kyoto Protocol formulates a further requirement, namely that the project 'does not cause any serious adverse environmental impacts' and that it 'does not oppose the sustainable development of the host country in an economic, social or ecological respect, and in particular, does not contravene any existing national sustainability strategies'.[39] The Member States are also responsible for execution in individual cases, though it should be noted that the Executive Committee and the Operational Entities have relevant influence, as already mentioned.

While from a legal perspective, CDM projects are bilateral concepts, investors are also allowed to link up and create funds acting on their behalf. The Prototype Carbon Fund has in this respect been the most important entity, which was established by the World Bank as a private–public partnership between states and private actors. It has organised emission reduction projects and sink projects for its participants and obtained CERs for them. In addition, it has been active in JI projects and thereby obtained ERUs.[40]

2. Effects

In the following, it shall be investigated whether the flexible mechanisms have improved climate protection, or in more concrete terms, whether they have led to a reduction of CO_2 emissions. To prove the effects of legal regimes is methodologically a rather difficult undertaking, as cause and effect become blurred before the background of complex social reality. Effects that occur after a norm has entered into force can have other causes than the norm itself. In turn, the fact that conditions have not changed after a norm has come into effect does not prove that the norm has no or only

37 Annex to the Marrakesh Accords Decision 17/CP.7, Appendix A.
38 Arts 11(b)(3) and 4 Directive 2003/87.
39 s 8 ProMechG.
40 The fund runs 24 projects. Since 2007, new projects are not managed, but only given advice by the Carbon Finance Unit of the World Bank. <web.world-bank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE> accessed 20 October 2009.

minor impact. It is possible that the potential effect of a norm was diverted by other factors.

Before assuming an agnostic position when faced with such difficulties, one should keep in mind that when politics considers certain instruments, it often operates with widely unfounded claims of effects. In view of this situation, a methodologically reflected attempt to tease out cause and effect still represents a contribution to improve our knowledge, even if it cannot produce waterproof results.

Accordingly, I confront the legal regime of flexible instruments, which is meant to reduce the emission of CO_2, with data about actual emissions. At first, I present data that concern all CO_2 emissions of EU Member States. They encompass all emission sources, those subject to the classical instruments and those subject to flexible instruments. Then, I present data about those sectors subject to flexible instruments.

The reduction targets promised in the Kyoto Protocol have thus far not been achieved.[41] It is true that this target is actually set for the commitment period 2008–12 and it might be possible that it will be met. Still, the instruments of the Kyoto complex—classical approaches as well as the flexible mechanisms—were meant to set the actors on a path to achieve their final commitment. However, hardly any effect linked to these instruments can be discerned. As far as an emission reduction can be identified among Annex B states, it is mainly caused by the industrial transformation in the transition countries.

This point is substantiated in Figure 1. It shows that since 1990 the transition countries' CO_2 emissions fell by 41.3% and later 37% under the level of this year, while the remaining Annex B states' emissions increased on average by 10.9% with a slightly falling tendency to 9.9%. Only totalling the bad balance of Western states with the good balance (not motivated by climate reasons) of transition countries allows one to conclude that all Annex B states taken together fell in 2000 to 6.9% and increased until 2006 to 4.7% of the level of 1990.

Summing up, these data suggest that the Kyoto regime has hitherto not achieved its aim. The annual emission rates of non-transition countries have increased, although they were meant to decrease; the rates of transition countries have significantly dropped, yet not due to the Kyoto instruments but due to the economic meltdown in the transition period.

However, one has to consider that the Kyoto regime could have weakened an existing and even stronger growth trend in the annual emission rates of non-transition countries. This can be investigated by comparing states that have adopted Kyoto instruments with states that have not.

41 Although the reduction target shrunk to 2.8% after the USA dropped out, those Annex B states that ratified the Kyoto Protocol are obliged to honour the agreed quotas.

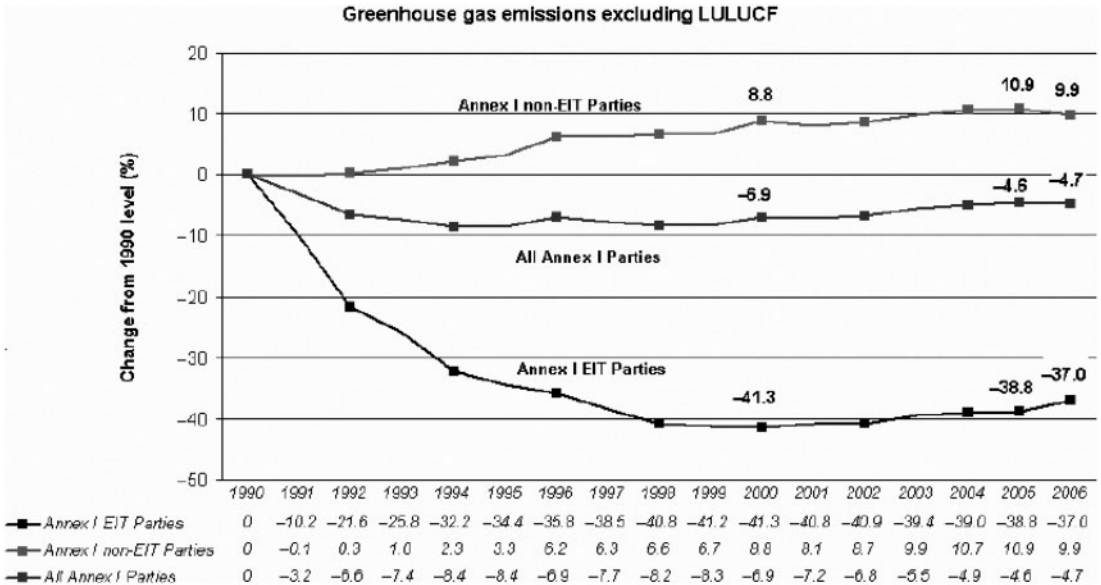

Figure 1. Green house gas emissions of Annex I states.[42]

42 FCCC Secretariat document.<http://unfccc.int/files/inc/graphics/image/gif/trends_excluding.2008.gif.> accessed 20 October 2009. EIT denotes economies in transition.

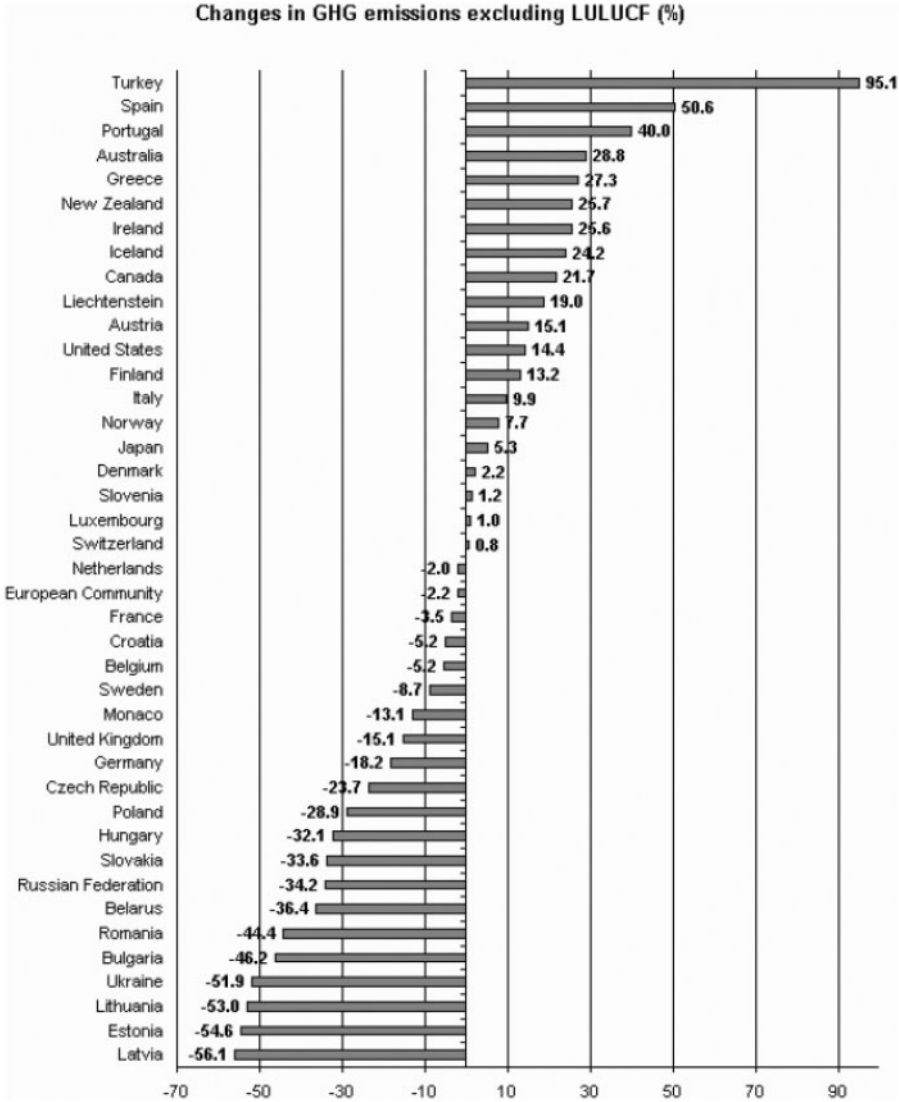

Figure 2. Changes of greenhouse gas emissions from 1990 to 2006.[43]

As illustrated by Figure 2, significant differences do indeed exist between the Annex B states, that is the states that have to employ the instruments of the Kyoto Protocol, and those states that have no such obligation, ie those

43 FCCC Secretariat document. <http://unfccc.int/files/inc/graphics/image/gif/total_excluding_2008.gif. LULUCF denotes land use, land use change and forestry.> accessed 20 October 2009.

Annex I states of the FCCC that are only subject to its more general obligations, namely the USA, Turkey and (until its ratification at the end of 2007) Australia.[44] The USA departs with 114.4% far from its initially signed but not ratified Kyoto rate of 93%. The deviation of Turkey is exorbitant with her 195.1% of the emissions of 1990. In the framework of the Kyoto Protocol, Australia agreed to an emission target of 108%, but significantly exceeds this margin with 128.8%.

As Figure 2 further shows, there are also significant differences between Annex B states. Within its 'bubble', the European Community is indeed allowed to balance out the different quotas of Member States, some receiving less and others more leeway. However, the enormous increases of some states such as Spain, Portugal, Greece, Ireland, Austria, Finland and Italy exceed by far the quotas they had accepted.[45]

Hence, we can record the fact that as compared with states not subject to the Kyoto obligations the Kyoto instruments have indeed slowed down the growth trend for the average of states they apply to. But in some of these states they had hardly any or no effect.

Figure 3 shows (for the EU-15) whether the slowdown where it is happening is sufficient or misses the Kyoto targets. On the one hand, a further increase assumed for a situation without climate protection measures (broken line) has been prevented. Emissions have more or less remained at the level of 1990. On the other hand, while a reduction is predicted from 2005 onwards (middle line), with the instruments of the first allocation period (2005–07) it will in no way realise the Kyoto target in 2010 (lower line with four target points). Therefore, the Commission acknowledged that stricter measures are required.[46]

If one now inquires into the specific effect of the flagship of climate protection law, the flexible mechanisms, it becomes apparent that they have exerted only very limited effect even on those states that have implemented the instruments most seriously, namely the EU Member States. I will discuss the EU-15 and Germany in turn. In order to exclude the effect of the industrial downturn of the 1990s especially in Eastern Germany, I suggest analysing the time period from 2003 to 2006/07[47] only. This is the time that the new

44 Kyoto Protocol, Status of Ratification of 12 October 2008. <http://unfccc.int/files/kyoto_protocol/status_of_ratification/application/pdf/kp_ratification.pdf.> accessed 20 October 2009.

45 In its 2007 report, the Commission predicted: 'By 2010, three Member States out of the EU-15, Germany, Sweden and the United Kingdom, are currently projected to be on track to achieve their targets using only existing domestic policies and measures. In addition, eight Member States are projected to reach their targets when the effect of the Kyoto mechanisms, carbon sinks and additional domestic policies and measures, that are already being discussed, are accounted for. According to this analysis, Denmark, Italy and Spain appear not to be able to achieve their Kyoto target.'

46 Cf Commission (EC), 'Progress towards achieving the Kyoto objectives' (Communication) COM (2007) 757, 27 November 2007, at 4.

47 For the EU-15, the only published data available is for the time until 2006, while data until 2007 are available for Germany.

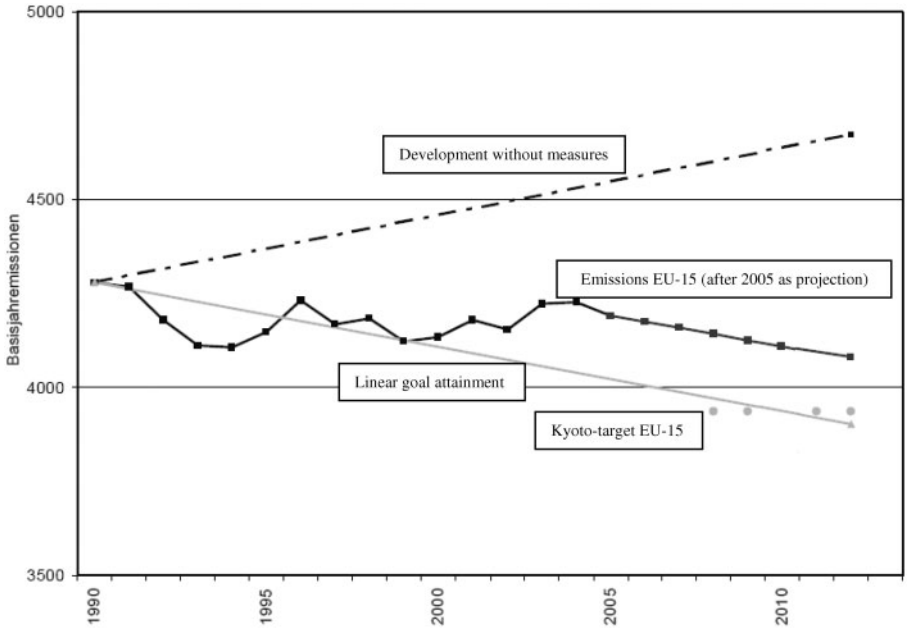

Figure 3. Actual and predicted emissions of the EU-15.[48]

instruments could have had an impact by anticipation (which has to be taken into account) or by subsequent effect. The economic sectors subject to the flexible mechanisms are energy and industry.

EU-15[49]: in the energy production sector, the overall emissions amounted in 2003 to 1,201 billion tonnes; in 2004 to 1,198 billion tonnes; in 2005 to 1,194 billion tonnes; and in 2006 to 1,194 billion tonnes; this means the effect of the flexible instruments resulted, from 2003 to 2006, in a comparably minimal reduction of 7 Mt or 0.6%. For the energy production in the manufacturing industry the following data apply: in 2003 544 Mt; in 2004 548 Mt; in 2005 543 Mt; and in 2006 537 Mt; this means a reduction of 7 Mt or 1.3% took place between 2003 and 2006. For the industrial processes sector the data are: in 2003 213 Mt; in 2004 219; in 2005 218; and in 2006 221; ie an increase of 8 Mt or 3.7 % between 2003 and 2006.

Germany: in the energy sector (comprising also energy producing industry) the CO_2-emissions amounted to 379 Mt (2005), 381 Mt (2006), 387 Mt (2007); this is an increase by 0.5 and 1.8%, respectively. For industrial processes the

48 Simplified version of a figure shown in Commission (EC), COM (2007) 757, 4.

49 All data taken from IPCC (International Panel on Climate Change), Greenhouse Gas Inventory Data. <http://unfccc.int/di/DetailedBy-Party/Event.do?event=go> accessed 20 October 2009.

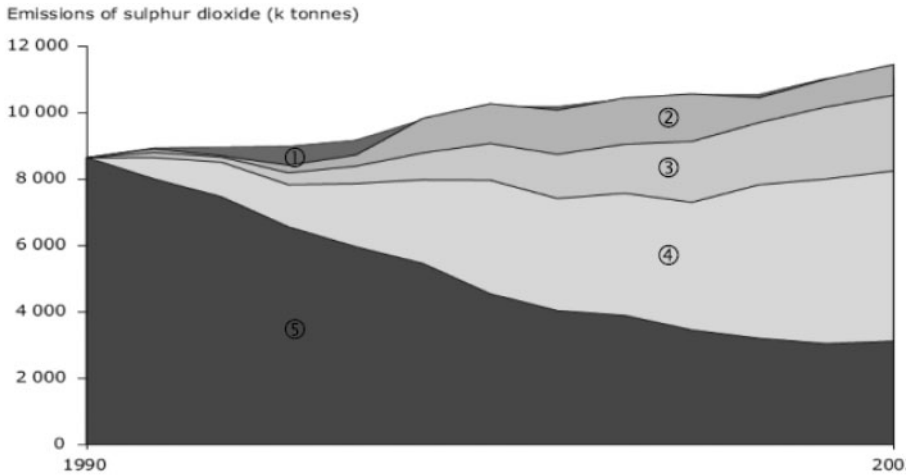

Figure 4. Reduction of SO_2 emissions of the EU-15 from 1990 to 2002.[50] (1) Change due to share of nuclear and non-combustible renewables; (2) change due to efficiency improvement; (3) change due to fossil fuel switching; (4) change due to abatement; and (5) actual CO_2 emissions.

figures are: 95 Mt (2005), 97 Mt (2006) and 100 Mt (2007); this is an increase by 1.9 and 2.9%, respectively.[51]

Overall, one can conclude that the flexible mechanisms have hardly induced any reduction of CO_2 emissions.

How disappointing this result is shows a comparison with a similar but much more successful regime, ie the regime for the reduction of sulphur dioxide and other gases, which acidify the soil and (among others) cause forest disease (*Waldsterben*). This regime has employed command and control instruments aiming at the phasing in of best available technologies. As shown in Figure 4, the regime has produced reductions of much higher proportion in a very short period of time. The emission of SO_2 was reduced by 70% in only 12 years. The figure also indicates the relative success of different technical measures of reorientation (renewable energies, efficiency

50 Adapted version of the figure shown in EEA Environment Outlook 2005, 95. <http://www.eea.europa.eu/publications/state_of_environment_report_2005_1/SOER2005_Part_A.pdf.> accessed 20 October 2009.

51 Arbeitsgruppe Emissionshandel zur Bekämpfung des Treibhauseffekts, 'Jahresbericht der Unterarbeitsgruppe 1, Querschnittsfragen' January 2009, 105. <http://www.bmu.de/files/pdfs/allgemein/application/pdf/jahresbericht_2008_uag1.pdf> accessed 5 July 2009.

improvement, switch to more environment-friendly fossil energy sources, technical emission avoidance).

In terms of legal instruments, both the international and national levels were quite productive. The key stages in the development of the regime were as follows. At the international level, the 1979 EC Convention on Long-Range Transboundary Air Pollution (LRTAP) established general obligations comparative to those of the FCCC. The 1985 Protocol of Helsinki fixed an overall reduction target of 30% of emissions in the baseline year of 1980 that was to be reached until 1993, ie within seven years (compare this with the 5% reduction goal of the Kyoto Protocol.) The target was further tightened by the 1994 Protocol of Oslo: while the quota were differentiated according to the technological and economic capacity of states, the average reduction target was set as high as 62% of 1980, to be reached until 2010. The hitherto last step was taken by the 1997 Protocol of Gothenburg that aims at a reduction of 75% until 2010, taking 1990 as a baseline, a year when much of the Helsinki target was already achieved. The targets were stepwise transformed into EC law by Directives which applied three regulatory strategies: one of technology forcing, phasing in BAT (EC Directives 84/830, 96/61, 2000/76 and 2001/80); the second setting environmental quality objectives (Directive 96/62 and daughter directives); and the third establishing overall national emission quantities for each Member State.

The comparative success of this regulatory regime appears as impressive, even if it is taken into account that the reduction of CO_2 emissions is technically more difficult and more dependent on consumer behaviour than in the case of SO_2.

3. Explanations

3.1. General Points

In the following, I focus on explaining the failure of 'cap and trade'. To explain why hitherto the classical instruments (such as command and control, subsidies and taxes) have also failed in the climate protection area would require an analysis of its own. This would make it necessary to inquire, in particular, into the ineffectiveness of emissions policy concerning transportation, households and agriculture.

My argument is that, through the 'cap and trade' concept, a genuinely ecological problem has been translated all too radically into economic categories. All those involved are caught up in the logic of prices, sale, purchase, registration, transfer and return of emission allowances and have thereby lost sight of the ecological purpose of the overall enterprise.

It is true and must first be acknowledged that 'cap and trade' appears, judging from its core idea, highly elegant and efficient:[52] the community of states turns the climate from an environmental good, whose damage is reduced, into a resource, which is made scarce and allocated in portions.[53] States agree to a target, which is set reflecting ecological necessity. This target is meant to be reliably achieved but with the lowest possible cost—in other words in a cost-effective way. For that purpose, a parallel market for emission allowances is established, which helps to search for the cheapest avoider of social costs.[54]

In reality, however, the cap (the quota available to individual states) was the result of a political negotiation process in which what is ecologically necessary is relativised by different perceptions of climate development, by different calculations of costs, and potentially also of advantages of climate change, and by different opinions about the resilience of economies.[55]

This is normal political practice, which can only be acknowledged but hardly improved. It however becomes critical insofar as the quota is claimed to provide the rationale underlying the decision to allow for 'trade'. For 'trade' does ecologically only make sense, if the ecological rationality of 'cap' is assumed. Otherwise, 'trade' fails to have full ecological effect.[56] In the following, I argue that exactly this mismatch has occurred: by introducing economic logic, emissions trading assumes that the 'cap' is ecologically rational, which is however mistaken (Section 3.2). Moreover, the concept adds incentives that alienate the system from its ecological aim to an extent that compromises goal achievement (Section 3.3). In addition, it runs the risk of causing adverse side-effects (Section 3.4). Finally, it produces enormous transaction costs (Section 3.5).

3.2. Erroneous Premise

Paradoxically, the system of emissions trading assumes the rationality of its aim, because it does not attempt to transcend the aim. If it recognised the

52 For its career, see J-P Voß, 'Innovation Processes in Governance: the Development of "Emissions Trading" as a New Policy Instrument' (2007) 34 Sci Pub Pol 329–43.

53 For such an allocation of scarce resources in environmental politics and its implications for distributive issues, see the seminal P Knoepfel, *Environmental Policy Analysis: Learning from the Past for the Future* (Springer, Berlin/Heidelberg 2007) 465 ff.

54 G Calabresi, *The Costs of Accidents: A Legal and Economic Analysis* (Yale UP, New Haven 1970); G Calabresi and P Bobbitt, *Tragic Choices: The Conflict Society Confronts in the Allocation of Tragically Scarce Resources* (WW Norton, New York 1978).

55 For the main arguments and strategies in the preparation of the Kyoto Protocol, see S Oberthür and H-E Ott, *The Kyoto Protocol: International Climate Policy for the 21st Century* (Springer, Berlin 1999).

56 For the relation of decisions at the first stage (determination of quotas) and second stage (choice of instruments) under scarce environmental resources, see in detail Knoepfel (n 53) 429ff, 455ff as well as under scarce general resources, see Calabresi and Bobbitt (n 54). The dependence of the second stage upon the rationale of the first stage is hardly touched upon in the literature.

insufficiency of the aim, it would introduce mechanisms that would encourage subsequent adjustments in the further course of events. This drawback distinguishes 'cap and trade' from quantified limit standards based on the rationale of regulatory law. Such standards provide a 'maximum' threshold. They are not meant to be exhausted but to be undercut for precautionary reasons, because it is understood that they are normally based on incomplete knowledge and might therefore erroneously be too liberal.[57] Instead, emissions trading redefines maximum ceilings as exploitable rights. The stock of emission allowances turns into an economic value, which is not meant to lie fallow: it is legitimately used to the very last piece, at the level of states and individual actors alike. An entrepreneur who does not use his allowances or does not sell them to others if he has no use for them would appear as economically irrational. A state which accumulates a reserve and preserves it for later extinction would appear as politically incompetent. According to German law, for instance, the reserve is meant to cover, besides administrative and litigation costs, the supplying of new facilities and the financing of additional purchases of emission allowances by the state.[58] Savings in order to take emission allowances out of use and thus reduce emissions are not intended.

3.3 Counter-productive Effects

Some aspects even have an impact that prevents the utterly unambitious Kyoto aim (the reduction to 92% of 1990 levels in the average of the years 2008–12 in the EU) from being reached. The main reason is the current design of CDM projects. They make it possible to import emission allowances into the emissions trading system of the investor state and to increase its overall assigned amount of emissions without this being counted as an increase. While in the EU CER from CDM projects were not recognised in the first allocation period, they can be transferred to and generated during the second and will therefore have a definitive effect on the achievement of the climate goals for the first commitment period (2008/2012). The justification for CDM projects, it is true, is inherently reasonable: a tonne of greenhouse gas emissions can be avoided more cost-effectively in a developing country with antiquated technology

57 This was aptly expressed in a landmark judgment of the German Federal Administrative Court of 17 February 1984, BVerwGE 69, 37, at 43: 'The emission standards in force entail residual risks, which are, on the one hand, caused by the used measuring methods and, on the other hand, by the still incomplete knowledge of the harmfulness of certain emissions, their long-term effects as well as potential synergetic effects. Precaution [. . .] is then necessary when sufficient reason exists to assume that emissions *potentially* harm the environment and thence the suspicion of danger is given—even if the respective causal links have not yet been established in detail.' (Emphasis in the original.)

58 s 6(2) and (3) ZuG 2012. These earmarkings were not yet included in the ZuG 2007, but corresponded to practice.

than in a technologically advanced industrial country. It is therefore reasonable to provide incentives for private investment into climate protection in developing countries by allowing the CER, acquired through CDM, to be transferred into investor countries.

However, the amount of allowable CDM projects can be at odds with the principle of joint but differentiated responsibility, which requires that the industrialized states have a duty to enact climate policies at home.[59] The quantity of emissions that will enter the European system via the CDM is indeed remarkably large. CDM (plus JI) credits were estimated to amount to one-third of the overall reduction target of the EU.[60] With the 2009 amendment of Directive 2003/87, the allowable ceiling for CDM (plus JI) credits was set at as high as 50% of the reduction quota.[61] This quantity is even envisaged to further increase in the Kyoto II phase if the overall reduction quota is set at 30%.[62] At the end, it is imaginable that hardly any genuine reduction effort must be undertaken in the EU because almost all of the needed amounts of emission credits can be earned abroad.

CDM of the envisaged dimension is a failure not only in ecological but also in legal terms. Article 3(1) of the Kyoto Protocol commits Annex I states to reduce 'their' emissions. 'Their' is here commonly interpreted as signifying the territorial origin of emissions. With the shift to an economic logic, 'their' is now about to be turned into an economic balance term, which denotes the result of attributions.[63] It appears that this distorts the wording and original goal of the provision which is to induce industrialized states to bear most of the burden.

A particular effect is caused by the fact that CDM measures can, by increasing the permissible emission quantity of a country,[64] also affect those sectors that are meant to be subject to classical instruments of climate protection. A country can decide to transfer acquired CERs, and thus emission allowances, to the transport sector and to refrain from, for instance, restricting the

59 This principle was introduced by the FCCC, Art 3(1).

60 Ten Member States among the EU-15 will use Kyoto mechanisms, in order to achieve their Kyoto quota. They will annually acquire emission allowances for 107.5 Mt of CO_2. This will amount to not less than 31% of the entire reduction target of the EU-15, which equals 342 Mt. See Commission (EC), COM (2007) 757, 15 (n 46).

61 Art 11a (8) subpara 5 Directive 2003/87, as amended by Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community [2009] OJ L140/63–87.

62 Commission (EC), 'Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the Greenhouse Gas Emission Allowance Trading System of the Community' COM (2008) 16, 23 January 2008, at 11.

63 H-J Luhmann and J Sterk, 'Klimaziele zu Hause Erreichen oder wo es am Billigsten Ist? Der Clean Development Mechanism als Klimaregime-interner Investitionsmittelgenerator' (2008) 2 Intl Pol Gesellschaft 111.

64 In a technical–legal sense, one should state more precisely that the quota assigned to a state remains unchanged; the acquired amounts are however not deducted from it.

emissions of motor vehicles or reducing individual transportation. This implies that the broad discretion on how to make use of acquired emission rights reduces the negotiation power of state agencies *vis-à-vis* powerful internal interests. In this way, the economic logic of the flexible instruments also infects regulatory law traditionally employed in other sectors than industry and energy.

Counter-productive effects appear also in the way how projects are conducted. The transfer of CER to the investor state can only be justified as 'additional' if the project is more climate-friendly than a reference project, which exists or would have been established without the transfer of the CER. In practice, reference projects with a bad climate balance are often chosen so that the superiority of the CDM project is not hard to prove.[65] In addition, it is not required that the sale of CER alone makes a project profitable; rather it is sufficient that the profit is increased.[66] Furthermore, the price for CER can be calculated arbitrarily as there exist no market prices for them. In practice, it is therefore often determined far below the market price for a tonne of CO_2.[67] Compared to emissions trading and JI, this reduces the costs for the purchase of CER in the club of Annex B countries, with the consequence that further incentives for investments in climate protection within the club are avoided.

3.4 Adverse Side-effects

Unintentional adverse side-effects can emerge at different points in the system. Such an effect can result from CDM measures in general[68] and in particular from land use, land use change and forestry (or LULUC) measures which count as CO2 sinks.[69] Applying the logic of exchanging forest creation for

65 A WWF study estimated that that by the end of 2007 additionality was unlikely or questionable for about 40% of the registered CDM projects and about 20% of all issued CERs. See L Schneider, 'Is the CDM Fulfilling its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement' <www.oekoinstitut.de/oekodoc/622/2007-162-en.pdf> accessed 20 October 2009.

66 Cf, for instance, the project description of the CGN Gansu Anxi Daliang 49.5 MW Wind Power Project in China, which compares the wind farm with coal-fired power stations and calculates an annual profit of 5.95%, which increases to 9.06% through CER sales. <http://cdm.unfccc.int/UserManagement/FileStorage/YN154LDIE7MOUTZHG0QAVBX68KWRP3> accessed 20 October 2009.

67 In the mentioned example, the price for a tonne of CO_2-eq is assumed to be eight euros.

68 Voigt, C., 'Responsibility for Environmental Integrity of the CDM: Judicial Review of EB Decisions', in: D. Freestone and Ch. Streck (eds.) *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, OUP, Oxford (forthcoming), 272–279.

69 They are envisaged by Art 3(3) Kyoto Protocol. In the EU, it has hitherto not been possible to factor in such measures (Art 11a (3)(b) Directive 2003/87 before amendment of 2009). A Commission staff working document has advised continuation of the policy of excluding LULUCF activities from the trading system (Commission (EC), 'Accompanying document to the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system' SEC (2008) 52, 23 January 2008, at 59). Astonishingly, the exclusion of LULUCF measures was deleted in the 2009 version of Art 11a Directive 2003/87. This must be interpreted to mean that the issue falls back into the competence of the Member States.

money, it could then be profitable to replace existing biodiversity-rich forests or forests of local populations with fast-growing plantations.[70]

CDM projects can also de-motivate developing countries to pursue a genuine climate protection policy. Developing countries can simply remain passive until CDM projects begin to emerge. Such inaction is unfortunately accepted by the Kyoto regime, because while in the emissions trading and JI schemes the state selling emission rights or hosting the project is also subject to the supplementarity criterion, this is not required as a precondition for host states of CDM projects.[71]

A further side-effect of the CDM practice is that it directs the otherwise modest resources of development aid away from other social and ecological projects into climate protection. This could be avoided by only approving those CDM projects that are not supported by development aid. However, this thinking has not succeeded in practice. According to economical logic, it is regarded as desirable that investment takes place at all, irrespective of other policies being eroded.

3.5. Transaction Costs

The expectation of economists proposing flexible mechanisms has been that the flexible mechanisms, due to their market similarity, cause lower transaction costs than traditional regulatory measures. This has proven to be wrong. The costs are not lower because the technical monitoring of emissions must be done at least as precisely as in such a regulatory system. They are even higher because the flexible instruments cause additional transaction costs to those in the regulatory system.

On the business level, the emission of greenhouse gases has, as before, to be operated and measured technically; in addition, emission allowances have to be managed, acquired and sold. At the administrative level, installations have to be monitored, similar to traditional regulatory law but with different objectives: while such regulatory law is concerned with preventing the violation of standards, the emissions trading regime is concerned with safeguarding transactions (since emissions are in any degree permissible as long as they are paid for). In addition to the technical monitoring, which accounts for the correct measurement of emissions, the economic transactions must be registered and supervised; these are costs that do not arise in standard regulatory law.

70 Commission (EC) SEC (2008) 52, 58 (n 68); Wissenschaftlicher Beirat Globale Umweltveränderungen, 'Über Kioto Hinaus Denken—Klimaschutzstrategien für das 21. Jahrhundert', Sondergutachten 2003, No 5.4.

71 For the obligation of the Annex I states see Marrakesh Accords Decision 15/CP7 No 1. For the CDM host states see Art 6 Kyoto Protocol.

Besides corporate bureaucracies and public administration, a level of supranational and international bureaucracy intervenes, which has to be paid for as well. Furthermore, new occupations are triggered by the system and have in fact emerged, such as the certified expert and the stockbroker. One also has to keep in mind the costs of numerous lawsuits provoked by the artificial market for emission allowances.

3.6. Summary

Overall, the failure of flexible mechanisms can be attributed to the overly radical economisation of an ecological problem. To take account of the economic consequences of ecological regulation has always been customary and helpful. But the parallel market for emission allowances, established as a means to cope with the externalities of the primary market (of the production and consumption of goods), has made absolute its own code and has tended to forget its genuine task, climate protection. 'Greenhouse gas emissions—a new commodity' announces the website of the FCCC confidently and adds: 'carbon is now tracked and traded like any other commodity'.[72] This way of thinking has been imported into the concept of Kyoto from the heartland of commodification, the USA; paradoxically, this country did not ratify the Protocol, as it perceived even the small requirements made as too expensive.[73] A hegemon can afford such behaviour. Others were more obedient, but perhaps followed bad advice.

4. Reform

If my diagnosis is accurate, namely that the economic rationale of the emissions trading system tends to forget its ecological objective and that thereby enormous costs for hardly any substantial improvements are caused, the question arises: what can be done? Should the flexible mechanisms be altogether abandoned?

This is indeed an option that should be considered more thoroughly than in the past. Pundits still focus on the attempt to understand the system inherently and to develop it further, yet they have run into losing sight of the overall picture. Doubts have to be raised as to whether the concept of 'cap and trade' is fundamentally flawed because it has an inherent dynamic towards over-differentiation thus distracting actors from goal attainment to

72 UNFCCC. <http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/ items/2731.php> accessed 20 October 2009.

73 For a defence of this position, see R Stewart and J Wiener, *Reconstructing Climate Policy: Beyond Kyoto* (The AEI Press, Washington DC 2003).

means perfection. Substantial and quick progress in climate protection is perhaps better achieved by more directly fostering new technologies and inducing behavioural change.[74] This can arguably be more effectively instrumented by a pragmatic mix of traditional regulatory law, subsidies, charges and voluntary agreements than by the fine world of flexible instruments. The European Commission has noticed this and is, as a result, propagating and enacting a broad array of measures promoting energy efficiency and renewable energy.[75] Hitherto, it has however not dared even to ponder the fundamental questioning of the flexible mechanisms.

On the other hand, a paradigm change from 'cap and trade' to a more complex tool set of technology forcing would perhaps come too early. After all, the flexible mechanisms were so new and unprobed that some time for experiments and learning was necessary. The Commission acknowledged that the system failed to reach its goals, and drawn consequences by proposing improvements of the system.[76] It is however doubtful if the reformatory measures go far enough.

All thought of reform should naturally start with demanding more ambitious targets, and this is indeed the subject of current negotiations of 'Kyoto II'. The Commission proposal goes for a reduction rate of 20% until 2020 (or 30% in case of agreement on a 20% average in the Kyoto II-round). Although a bold step forward, this is by far not enough in ecological terms given the 40–50% needed in order to set the system on a path towards the widely agreed final goal of 60–80% by 2050.[77] As stated before, it would however be illusionary to expect that those reduction targets accepted by states indeed reflect what is ecologically necessary.

The EU envisages a yearly reduction of allocated emission rights by 1.74% from 2010 onwards.[78] This is however only meant to ensure that the overall quota is reached, but not that the quota shall be overfulfilled.

The fact that targets have not been and will not be dictated by ecological reason but by political compromise should be mirrored in the design of the instruments employed to reach them. It is all too tempting to conceive them as 'assigned' amount, as formulated by the Kyoto Protocol, or emission allowance as denominated by the EU system: an environmental resource is then redefined as a disposable mass, which is, it is true, limited but, more importantly, also allowed to be used. That this is treacherous becomes clear if emission allowances are compared with emission restrictions defined by

74 See Pittock (n 1) 167–206.
75 For a recent overview of actual and planned measures, see Commission (EC) 'Second Strategic Energy Review. An EE Energy Security and Solidarity Action Plan' COM (2008) 781.
76 See Commission (EC), COM (2008) 18 (n 62).
77 Cf Pittock (n 1) 325.
78 Directive 2003/87 as amended 2009, Art 9(1).

classical environmental quality standards. The latter represent upper limits, which as well are the results of compromise. But in reaction to this very fact the understanding is that they should not be used to their full extent, if possible. This is a main concern of the precept of precaution, as stated, for instance, in the already cited judgment of the German Federal Administrative Court:

> the precept of precaution in § 5(2) Federal Emission Control Act [BImSchG] provides a kind of counterweight to the compromise represented by the safety thresholds in § 5(1) BImSchG and the associated limitations of risk; . . . [measures of precaution] shall enforce a level of environmental quality, independent of harm limitations in effect, which seems realisable with regard to the existing potential of technology[79]

On closer inspection, the Kyoto Protocol can be harmonized with this approach. As its Article 3 links the assigned amount functionally with its aim of 'reducing their overall emissions of such gases by at least 5% below 1990 levels', the reduction target is here qualified as a minimum, not a maximum target. In the same direction points the precautionary approach which was adopted by the FCCC. It says in Article 3(3) that 'parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects'.

It is therefore essential that measures for an additional reduction of emissions are introduced into the concept of 'cap and trade'. They would add an element of the traditional regulatory style to the flexible mechanisms.

The first overall goal would be that states keep back and collect larger amounts of emission allowances until they lose their value at the end of the respective commitment periods. This can be achieved by four means:

(i) Annex B states should generally not be allowed to sell or buy emission allowances. They are political entities and as such in charge of good climate policy, they are not profit making actors on markets. Emissions trading should be the business of polluters, not of regulators.

(ii) The allocation of emission allowances should generally be shifted from grandfathering to BAT-benchmarking using an ambitious definition of the BAT. Instead, in the first allocation period (2005–07) existing installations received emission allowances following largely the grandfathering principle, minus 3% (the so-called compliance factor) which however only exerted a mild push towards emission reduction. BAT-benchmarking was only required for new and recently modernized installations, and BAT was rather unambitiously defined as the

79 BVerwG, 17 February 1984, BVerwGE 69, 37, 44.

"weighted average of emissions caused by energy production in modern power plants fueled with fossil fuels"[80], thus requiring average rather than best technologies and lacking pressure towards the use of renewables.[81] Commendably, for the second allocation period (2008–12) BAT-benchmarking is extended to all existing energy production facilities and defined in relation to products, not processes.[82]

(iii) The collection of non-used emission allowances should be readjusted from economic to ecological reason. Those who receive from the outset and for free more emission allowances than they need should not be allowed to keep them and use their market value as a cost factor in their tariff and price calculation. Likewise, a company which reduces its production cannot maintain the respective emission allowances. In pure economic terms the opposite would be logical, but in ecological terms it is absurd: the operator would receive a gift from the public and calculate its non-use as a cost factor. Compare this with cost calculation in a system of classical emission thresholds: no operator would calculate the undercutting of the ceiling (in other words, the foregone possibility to pollute more) as a cost factor. Of course, such allocation of unneeded emission allowances must be distinguished from the legitimate case where a company invests in improved efficiency, saves emission allowances and should thus be entitled to keep these for sale or as stock.[83]

(iv) Making operators pay for emission allowances is a potentially forceful tool towards undercutting the overall assigned emission amounts of a state, because operators may desist from buying when the price is high. At present, auctioning has been chosen as the best means of determining prices. As sketched out before, 10% will be auctioned already in the second allocation period (2008–12), and up to 100% later on.[84] However, auctioning does not prevent buying if the quantity on tender is large enough to satisfy all demand. Therefore, sales at fixed prices should be considered as an alternative. By determining

80 Reason for the bill of the Zuteilungsgesetz 2007 of 27 April 2004, BT-Drucks. 15/2966, 22.

81 See Sachverständigenrat für Umweltfragen, *Stellungnahme. Die nationale Umsetzung des europäischen Emissionshandels: Marktwirtschaftlicher Klimaschutz oder Fortsetzung der energiepolitischen Subventionspolitik mit anderen Mitteln?* (Berlin 2006) No 3.2.4.

82 Art 9 and Annex III ZuG2012. Unfortunately, the standard still significantly relies on fossil fuels. More push towards renewables and alternative production methods may be expected from harmonised benchmarking as announced in Art 10a (1) subpara 3 Directive 2003/87 as amended 2009.

83 Following economic reason, the Commission even requested the Member States to allow companies to keep emission allowances in case of a production cut. Fortunately, the European Court of First Instance called the Commission to its ecological task and quashed the decision. Still, the unused emission allowances when returned become part of the national reserve and are available for allocation to new installations. See Case T-374/04 *Germany v Commission* [2007] (CFI 7 November 2007) ECR II-4431.

84 Art 10 Directive 2003/87 as amended 2009.

> prices the states would have an additional tool of reducing sales in order to press for additional emission reductions.[85]

The second major goal would be concerned with the importation of emission credits from developing countries into industrial countries. The allowable quantity should be capped (at say 6–8% of the reduction quota, as was proposed in the earlier times of concept design[86]). States should be obliged to create a special and transparent fund for emission rights from CDM projects, thus laying how they perform in terms of joint but differentiated responsibility open. Furthermore, CDM projects should only be approved if they are in fact both 'additional' and 'supplementary'.

With these and other measures, the result could perhaps be achieved that the flexible instrument system is not an end in itself, but that it better serves the aim of climate protection. After all, the climate is not a commodity. It is a precondition of human life in the biosphere. Flexible instruments are helpful if used as a tool of ever more preservation of this precious good. They are destructive if catching minds and effort into a beautiful but ineffective and costly 'l'art pour l'art'.

85 In terms of a regulatory approach, if ambitious benchmarking is introduced, one can even envisage that part of the emission allowances needed could be allocated for free and only the remaining part sold.

86 J Levebre, 'Linking Emissions Trading Schemes: The EU ETS and the "Linking Directive"', in D Freestone and C Streck (eds), *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work* (OUP, Oxford 2005) 510–33, at 530.