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# **An evaluation of business implications of the Kyoto Protocol**

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## **CICERO**

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**Samandrag:** Denne rapporten er laga på oppdrag av Norsk Hydro ASA, og er skriva i november-desember 2001. Føremålet er å presentere og analysere den nyaste utviklinga i klimaforhandlingane, spesielt frå den sjuande partskonferansen til Klimakonvensjonen i Marrakesh, Marokko, i oktober/november 2001. Vidare skal rapporten gje ei vurdering av kva Kyotoprotokollen kan ha å seie for næringslivet etter at den er forhandla ferdig. Rapporten er bygd opp som ei samling med plansjar med støttetekst som forklarar bakgrunnen og innhaldet i kvar plansje.

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**Abstract:** This report has been commissioned by Norsk Hydro ASA and written in November-December 2001. The aim of the report is to present and analyze the newest developments in the climate negotiations, particularly the seventh Conference of the Parties to the Climate Convention in Marrakech, Morocco, in October/November 2001, and to provide an evaluation of what the finalized Kyoto Protocol means for business. The report is organized as a collection of slides with supporting text explaining the background and contents of each slide.

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## Executive summary

The Kyoto Protocol from 1997 left undecided a number of rules required to make it operational. In 1998, at a climate meeting in Buenos Aires, Argentina, the Parties to the Climate Convention agreed to start negotiations on the required rules. After three years of negotiations, the rules of the Kyoto Protocol were finalized at the climate meeting in Marrakech, Morocco, in October-November 2001. The original plan was to finalize the rules by autumn 2000, but this failed primarily due to disagreement between the USA and the EU on accounting of carbon storage in forest and land-use sinks. A further complication arose in March 2001 when the largest emitter of greenhouse gases, the USA, stated that it would not ratify the Kyoto Protocol. However, the other Parties decided to continue without the USA. A number of concessions had to be given to get support from the most reluctant countries – Japan, Canada, Russia and Australia. This means that the resulting greenhouse gas mitigating effect of the Kyoto Protocol is smaller than many had anticipated back in 1997. Nevertheless, a major political step has been taken globally since the Kyoto Protocol now is ready for ratification and is likely to enter into force within 1-2 years.

The rules of the Kyoto Protocol specify procedures for emission accounting; allowable amounts of crediting from forest activities and other carbon sink relevant activities; eligibility for use of the three mechanisms for international quota trading; fungibility between the mechanisms; banking of quotas to the next target period; accreditation of operating entities; and rules for compliance to the Kyoto Protocol.

For business and industry, a global climate policy regime is a landmark that shows that firms must prepare for a low-carbon future. New markets for carbon quotas are emerging, and these are linked to growing markets in green technologies. The first target period for the Kyoto Protocol is 2008–12, but negotiations on the next target period will commence by 2005. The next targets can be more ambitious than the present (which is to reduce emissions of the six major greenhouse gases in industrialized countries by 5.2% in 2008–12 compared to 1990). The next targets can be more ambitious and at some stage involve developing countries, which have no commitments in the first target period.

The next phase is implementation of the Kyoto Protocol in each country. Many countries have started preparations already, and some have initiated domestic emissions trading systems. The EU has plans to establish a regional emissions trading system by 2005. It is already possible to accrue credits from projects 2000 onwards in developing countries through the Clean Development Mechanism (CDM). The Kyoto Protocol provides guidance for national authorities to start developing the necessary legislation. Companies that enter the emerging carbon markets early will take some risk but will also benefit from learning and being able to position themselves in new and growing international markets.

## 1 Introduction

The aim of this report is to present the newest developments in the climate negotiations, particularly from part two of the sixth Conference of the Parties to the Climate Convention (COP6-2) in Bonn in July 2001 and COP7 in Marrakech, Morocco, in October/November 2001, and to present an evaluation of what the finalized Kyoto Protocol means for business.<sup>1</sup> The report builds on an earlier report on the Bonn agreement (Torvanger 2001).

The Kyoto Protocol was adopted in December 1997, but has not yet entered into force since not enough countries have ratified the Protocol. At the fourth Conference of the Parties in Buenos Aires in November 1998, the “Buenos Aires Plan of Action” was adopted, with the aim to develop a final regulatory framework for the Kyoto Protocol over the next two years. However, the sixth Conference of the Parties to the Climate Convention (COP6-1) in The Hague in November 2000 failed to reach consensus on the remaining issues. After the American rejection of the Kyoto Protocol in March 2001, the future of the Protocol seemed bleaker than ever before. Despite many observers having low expectations for COP6-2 in Bonn in July 2001, a number of Parties, particularly the EU, showed enough flexibility to make an accord, the so-called Bonn agreement, possible.<sup>2</sup> After hard negotiations during the last four days (and nights) of the conference, the agreement was adopted on 23 July. The negotiations on remaining rules and details continued at COP7 in Marrakech, Morocco, 29 October until 9 November 2001, where the text was finalized so as to make the Kyoto Protocol ratifiable.

Still there is no guarantee that the Kyoto Protocol will enter into force. For it to do so, industrialized countries representing at least 55% of carbon dioxide emissions among this group of countries in 1990 would have to ratify the Protocol. Without American ratification this means that most other industrialized countries have to ratify. Due to their large share of 1990 emissions, Russia and Japan are two pivotal countries in this context. The negotiations showed that Japan, Russia, Australia, and Canada might be the countries that are most reluctant to ratify. Some Parties to the Protocol have expectations that it might enter into force by the new global summit “Rio plus ten” in South Africa in September 2002. This might be possible, but it is more likely that the Kyoto Protocol could enter into force by the end of 2002 or the first half of 2003. The next Conference of the Parties, COP8, will take place 23 October to 1 November 2002, probably in New Delhi, India.

In the next section of this report, a short analysis of the negotiation positions of major Parties with regard to four important topics is presented, in both a static and dynamic perspective. Then in section 3 the main contents of the Bonn and Marrakech agreements are presented, divided into the four main areas of i) compliance under the Kyoto Protocol, ii) sinks (i.e. land-use, land-use change and forestry (LULUCF)), iii) the Kyoto mechanisms (i.e., emissions trading (ET), Joint Implementation (JI), and the Clean Development Mechanism (CDM)), and iv) funding of climate measures in developing countries. The emphasis here is on compliance and the Kyoto mechanisms, since they are assumed to be of particular interest to business. Section 4 covers business implications of the climate agreement. Section 5 discusses the

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<sup>1</sup> The official name of the Climate Convention is the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol is a protocol to the UNFCCC.

<sup>2</sup> The Bonn agreement is presented in the document UNFCCC, 2001.

prospects for the Kyoto Protocol and an analysis of the present and future position of the US. Finally, section 6 explores the challenges of harmonizing different national and regional emissions trading initiatives, and trading under the Kyoto Protocol, particularly with respect to trading between the US and countries within “the Kyoto block.”

## **2 Negotiation positions of major Parties**

One of the challenges of the negotiations under the Buenos Aires plan of action has been to bridge the Parties’ different views and positions on important components of the Kyoto Protocol. **Slide 1** shows some major Parties’ positions on sinks and complementarity up to early 2000 or November 2001 (COP7) (compare with the change in positions depicted in Slide 3). Along the horizontal axis, some Parties favored soft rules on sinks (LULUCF) that would make it possible for many countries to account for sizeable volumes of carbon fixation in living or dead biomass stock as part of fulfilling their Kyoto target. Other Parties, such as the EU, favored stricter rules, arguing that scientific knowledge in the area is lacking at present, that there are many technical difficulties, and that soft rules would undermine the Kyoto targets and incentives to de-carbonize energy systems. Along the vertical axis, the Parties’ position on the complementarity clause of the Kyoto Protocol is shown, where the idea is to focus the Parties’ attention on domestic actions to mitigate emissions.<sup>3</sup> The so-called Umbrella Group (Australia, Canada, Iceland, Japan, New Zealand, Norway, Russia, Ukraine, and the USA) favored soft rules on complementarity, which would imply no quantified ceiling on the use of the Kyoto mechanisms, whereas the EU and developing countries (G77/China) favored stricter rules.<sup>4</sup> At the Buenos Aires conference, the EU proposed that “a concrete ceiling on the use of the flexibility mechanisms has to be defined in quantitative and qualitative terms....” Before COP5 in Bonn in 1999, the EU elaborated this proposal into a formula-based approach to define an absolute ceiling on using the Kyoto mechanisms, roughly equivalent to limiting the purchase and sale of quotas to 50% of the required emissions reductions to meet the national Kyoto targets.

**Slide 2** presents a similar position map as Slide 1, but now with funding of climate measures in developing countries along the horizontal axis and compliance along the vertical axis. Japan, Russia and Australia have resisted setting specified amounts for industrialized countries to transfer to the three funds under the Climate Convention and the Kyoto Protocol that support developing countries in coping with the challenges of climate change. In earlier proposals by the President of COP6, Dutch minister of environment Jan Pronk, a figure of one billion USD annually was mentioned. In contrast, developing countries, the EU and some other countries favored a specified funding level. In terms of compliance to the Kyoto Protocol, countries such as the USA, the EU and Canada argued for a strict regime as an important underpinning of the environmental efficiency of the Kyoto Protocol and a solid

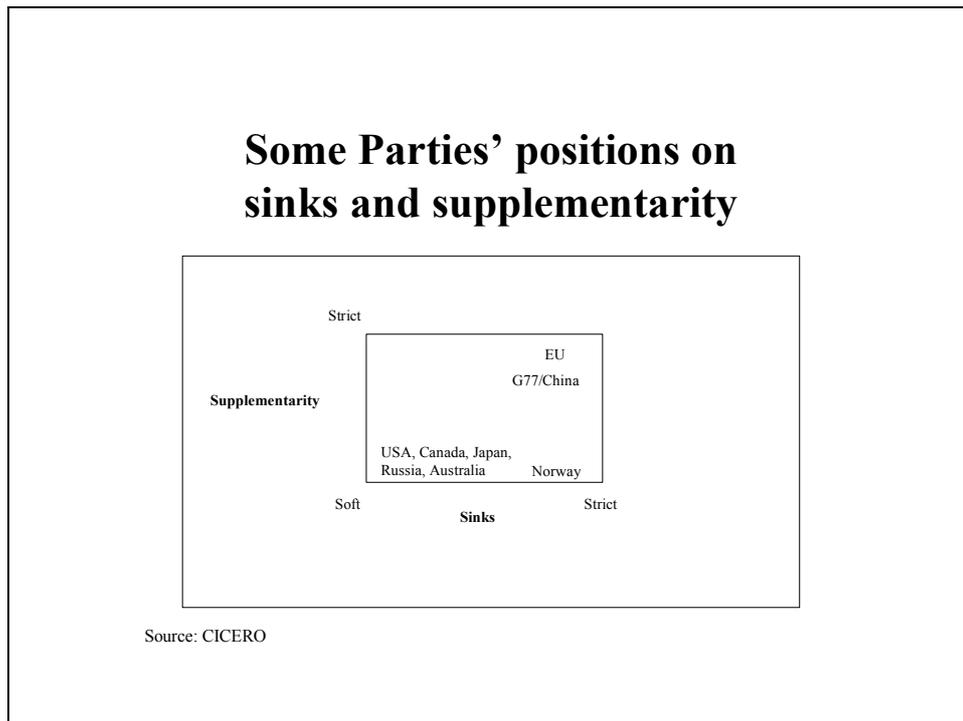
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<sup>3</sup> Article 17 on emissions trading states that “Any such trading shall be supplemental to domestic actions ....”

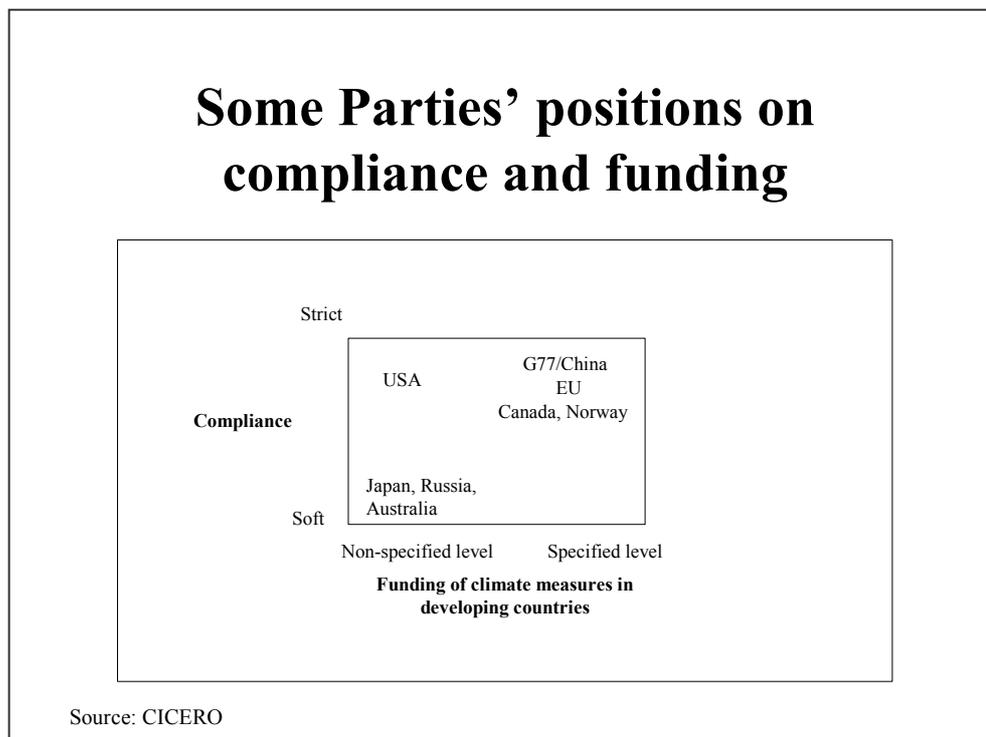
<sup>4</sup> Another important conflict area was the degree of fungibility between the flexibility mechanisms and the rules of banking of surplus quotas to the next target period. Developing countries argued that only a surplus generated through domestic emission mitigation actions, without counting quotas bought through the flexibility mechanisms, would be valid for transferal to the next target period. Industrialized countries wanted quotas acquired through the flexibility mechanisms to have the same validity as a surplus generated through domestic actions to reduce emissions. The compromise struck led to the adoption of a new unit named removal units (RMU) generated from sink activities in industrialized countries that cannot be banked (see section 4).

basis for the Kyoto mechanisms. This position has been opposed by Japan in particular, but also by Russia and Australia, since these countries have argued for a softer compliance regime. Japan managed to have “legal” removed from the wording “To adopt, at its sixth session, a legal instrument on procedures and mechanisms relating to compliance as an integral part of the Kyoto Protocol,” and to postpone the final decision on compliance to the first meeting of the Parties to the Kyoto Protocol (MOP), which can take place only after the Protocol has entered into force.

**Slide 1. Some Parties’ position on sinks and complementarity**

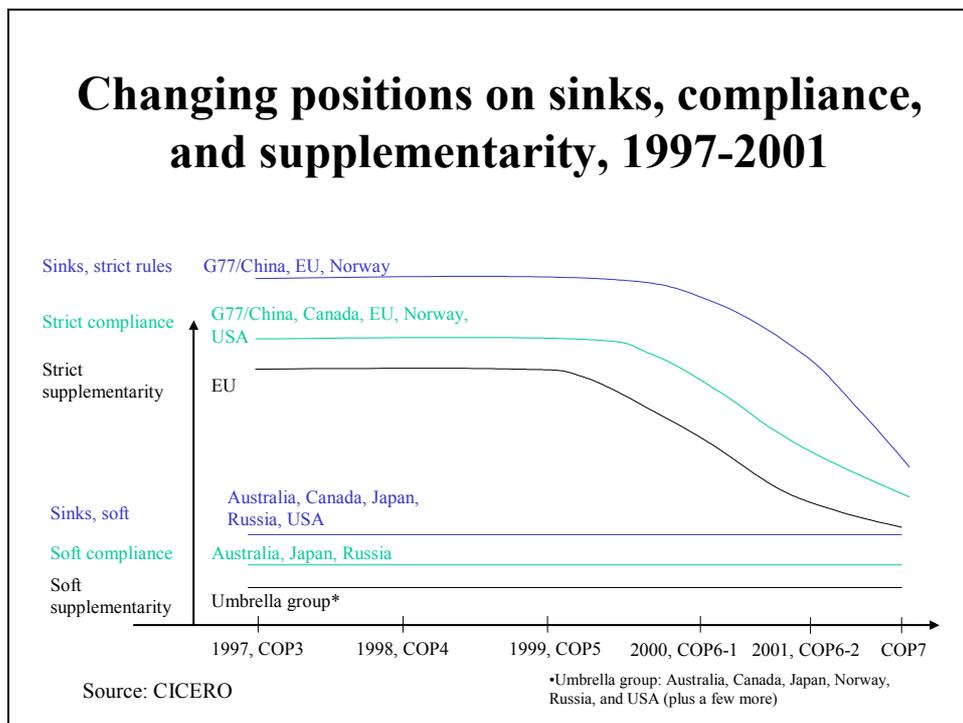


**Slide 2. Some Parties’ positions on compliance and funding**



**Slide 3** presents the dynamics of the positions on the same issues as in Slide 1 and 2. We see that the positions on supplementarity were more or less fixed from the Kyoto conference in 1997 until summer 2000, where Parties prepared for COP6 in The Hague. The positions on sinks and compliance were relatively fixed up to summer 2001 and COP6-2 in Bonn, where the EU and G77/China in particular had to give in on their strict positions to make an accord achievable in Bonn. The countries fighting for soft rules, particularly Australia, Canada, Japan, and Russia won this battle. Thus the end result was a weaker Kyoto Protocol than what many observers had anticipated after the Kyoto conference in the sense that there is a large opening for sinks, that it is more or less up to a country to decide if the requirement of supplementarity in the use of the Kyoto mechanisms is met, and that sanctions in the case of non-compliance seem to be relatively mild.

**Slide 3. Changing positions on sinks, compliance, and supplementarity, 1997–2001**



### 3 The Bonn and Marrakech agreements

The four main issue areas of the Bonn and Marrakech agreements are shown in Slide 4.

#### Slide 4. The Bonn and Marrakech agreements

**The Bonn and Marrakech agreements**

*Four main areas:*

- Compliance
- Land-use, Land-use change and forestry (LULUCF)
- The Kyoto mechanisms: Emissions trading (ET), Joint Implementation (JI), and the Clean Development Mechanism (CDM)
- Funding for developing countries

Source: CICERO

#### 3.1 Compliance

Slide 5 lists the main contents of the two accords on compliance to the Kyoto Protocol.

The Compliance Committee consists of 20 members. It is divided into a facilitative branch and an enforcement branch. In addition there is a bureau consisting of the chairperson and the vice-chairperson for each of the two branches and a plenary consisting of all members of the Committee. The chairperson and vice-chairperson of each branch must represent a developing country Party and an industrialized country Party. Each of the branches consists of one member from each of the five regional groups of the United Nations, one member from the small island developing countries, two members from industrialized countries, and two members from developing countries.

The facilitative branch is “responsible for providing advice and facilitation to Parties in implementing the Protocol, and for promoting compliance by Parties with their commitments under the Protocol”. The branch is specifically responsible for reviewing the Parties’ reports showing that the use of the mechanisms is supplemental to domestic action. This indicates that supplementarity is not an eligibility criterion for using the mechanisms.

The enforcement branch is responsible for determining whether a country (included in Annex I) is not in compliance with its Kyoto target, methodological and reporting requirements, and eligibility requirements under the Kyoto mechanisms.

The Committee receives questions of implementation from reports of expert review teams, together with any comments by the Party subject to the report, or other Parties. The bureau of the Committee distributes the questions of implementation to one of the two branches in accordance with their particular mandates. A preliminary examination must be completed within three weeks. The Party subject to the report must be informed of the process and can comment on all relevant information. The Party can designate one or more persons to represent it. Within ten weeks of receiving notification of a decision to proceed with the implementation question, the Party can make a submission in writing to the enforcement branch. If the implementation question relates to eligibility for the flexibility mechanisms an expedited procedure is called for. After a final decision has been made by the enforcement branch, the Party in question may appeal to the Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol if the question is related to meeting its Kyoto target and if “it has been denied due process.” In terms of meeting its target for the first Kyoto period, a Party can continue to buy quotas through the flexibility mechanisms from this target period up to 100 days after the date set for the completion of the expert review process for the last year of the first Kyoto target period.

The Compliance Committee must base decisions on consensus. If consensus is not possible, a majority of at least three quarters of the members present and voting is required to make a decision. An additional requirement in the enforcement branch is a majority both among industrialized country members and developing country members present and voting.

In case of non-compliance with regard to the Kyoto Protocol emissions target, the key concept is the requirement to “restore non-compliance”<sup>5</sup> to ensure environmental integrity. Thus the country must present a plan demonstrating how it intends to comply with the Protocol in the future. Furthermore, the country must comply with the national reporting procedure and with the prerequisites for using the Kyoto mechanisms. However, a country will not lose its eligibility to use the mechanisms even if not all reporting requirements are met.<sup>6</sup> If the greenhouse gas emissions of a country are for instance 10 Mt Carbon above the Kyoto target in the period 2008–12, it must cover its deficit plus 30% in the next budget period (for instance 2013–17); that is, in the next commitment period it must reduce its emissions by 13 Mt carbon plus its original target for that period. In addition, the country cannot sell quotas (AAUs under Article 17 of the Kyoto Protocol) until compliance is restored. Compliance can be restored through domestic mitigation or use of the Kyoto mechanisms.

The Kyoto Protocol in Article 18 states that legally binding consequences shall be adopted as an amendment to the Protocol. Thus a Party may ratify the Protocol without necessarily accepting binding consequences of non-compliance. The Conference of the Parties serving as the first Meeting of Parties to the Kyoto Protocol is to decide on the legal form of the procedures and mechanisms relating to compliance. The first Meeting of the Parties to the Kyoto Protocol can first take place after the Protocol has entered into force.

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<sup>5</sup> In the context of the Kyoto Protocol, “restore non-compliance” means to return to a state of compliance.

<sup>6</sup> Specifically this refers to reporting of adverse impacts of climate change and response measures in industrialized country Parties on developing country Parties (Article 3.14 of the Kyoto Protocol).

## Slide 5. Compliance

### Compliance

- Establishment of a Compliance Committee with a facilitative branch, an enforcement branch, and a bureau
- Restoration of non-compliance plus 30% deduction rate in the next budget period
- Suspension of eligibility to sell quotas until compliance is restored
- The legal form of procedures and mechanisms postponed until first Meeting of the Parties (MOP) to the Kyoto Protocol

Source: CICERO

## 3.2 Sinks

**Slide 6** shows the main contents of the Bonn and Marrakech agreements with regard to sinks (i.e., land-use, land-use change and forestry (LULUCF)). Final rules for inclusion of afforestation and reforestation projects under the CDM will be decided by COP9 (in 2003).

Quotas from LULUCF activities in industrialized countries are defined as ‘removal units’ (RMU). Such quotas cannot be banked, that is, transferred to the next budget period.

A Party must demonstrate that the activities have occurred since 1990 and are human-induced. The accounting of agricultural activities is net-net, which means that net emissions or removals over the commitment period less net removals in the base year, times five, should be accounted for. A ceiling on eligible forest management activities for each industrialized country is specified in Annex Z to the Bonn agreement. The figure is 0 Mt Carbon per year for Australia, 12.00 Mt Carbon for Canada, 0.88 Mt Carbon for France, 1.24 Mt Carbon for Germany, 13.00 Mt Carbon for Japan, 0.40 Mt Carbon for Norway, 33 Mt Carbon for Russia, and 1.11 Mt Carbon for Ukraine. Russia got a ceiling of 17.63 Mt Carbon in Bonn, but the other Parties had to give in to its demand of 33 Mt in Marrakech. On the other hand, Russia has not yet provided an acceptable inventory of sinks and emissions, which is a prerequisite for trading. In addition there is a constraint on sink activities under the CDM, which are limited to 1% of base year emissions, times five, due to the commitment period length of five years (2008–12). Furthermore sink activities under the CDM are limited to afforestation or reforestation projects. However, there are no constraints on generating RMU from afforestation, reforestation, and deforestation activities. Cropland management, grazing land

management, and revegetation are also eligible sink activities for generating RMU. These accounting rules apply to the first budget period 2008–12, and may thus change later.

## **Slide 6. Sinks**

### **Sinks: Land-use, Land-use change and forestry (LULUCF)**

- Forest, cropland and grazing land management, and revegetation are eligible activities
- Quotas from LULUCF activities undertaken in industrialized countries are named removal units (RMU)
- Net-net accounting of agricultural activities
- A specified ceiling on forest management activities (Appendix Z)
- LULUCF activities under the CDM mechanism limited to 1% of 1990 emissions, times five (due to the 5-year commitment period 2008-12)
- Future reversal of any removal must be accounted for at the appropriate point in time
- Technologies relating to fossil fuels that capture and store greenhouse gases mentioned

Source: CICERO

Another sink option is technologies relating to fossil fuels that capture and store greenhouse gases. Cooperation on the development and diffusion of such technologies is mentioned under Article 3.14 of the Protocol as an action industrialized countries should give priority to. This article deals with potential adverse social, environmental, and economic impacts on developing countries from climate policy measures undertaken in industrialized countries. Furthermore the IPCC has been asked to prepare a technical paper on geological carbon storage technologies in time for the second Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.

### **3.3 The Kyoto mechanisms**

**Slide 7** presents an overview of the Kyoto mechanisms and domestic emissions trading, featuring units, participants, limits on transfer and bankability.<sup>7</sup> Annex B countries are industrialized countries and non-Annex B countries are developing countries.

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<sup>7</sup> For simplicity, all three Kyoto mechanisms are referred to as “quotas” as long as discrimination between them is not important in the context.

**Slide 8** shows the main contents of the Bonn agreement with regard to the flexibility mechanisms (Kyoto mechanisms). As noted earlier, the supplementarity requirement has softened compared to some earlier proposals. The wording now is that “the use of the mechanisms shall be supplemental to domestic action and domestic action shall thus constitute a significant element of the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction commitments under Article 3, paragraph 1.”<sup>8</sup>

**Slide 7. Flexibility mechanisms and units for greenhouse gas emissions trading**

| <b>Flexibility mechanisms and units for greenhouse gas emissions trading</b> |  |   |  |   |
|--|--|---|--|---|
| <b>Mechanism</b>   | <b>Unit</b>                                  | <b>Participants</b>   | <b>Limits to transfer</b>  | <b>Bankability</b>  |
| Domestic emissions trading   | Quota  | Companies and other domestic legal entities                     | Depends on national design   | Depends on national design                                      |
| International emissions trading  | Quota<br>Assigned Amount unit (AAU)          | Annex B countries.<br>Legal entities.                           | Unlimited within and between Annex B countries. Fungible with ERU, CER, and RMU.   | Unlimited   |
| Joint Implementation   | Credit<br>Emission Reduction Unit (ERU)      | Annex B countries.<br>Legal entities.                           | Unlimited within and between Annex B countries. Fungible with CER, AAU, and RMU.   | Banking limited to 2.5% of a Party's assigned amount in Annex B |
| Clean Development Mechanism  | Credit<br>Certified Emission reduction (CER) | Annex B countries and non-Annex B countries.<br>Legal entities. | Unlimited within and between Annex B countries. Fungible with ERU, AAU, and RMU. CER from sinks activities limited to 1% of base year times 5. | Banking limited to 2.5% of a Party's assigned amount in Annex B |
| Sequestration credits in Annex B countries                                   | Credit<br>Removal Unit (RMU)                 | Annex B countries   | Unlimited within and between Annex B countries. Fungible with ERU, CER, and AAU.   | Cannot be banked  |

Source: CICERO and Natsource (2001)

To use the flexibility mechanisms, Parties must meet a number of eligibility criteria, where the strictest applies to participation in international emissions trading. The most important criteria are that the Party must establish its assigned amount, a national system for estimating man-made emissions by source, and a national registry, as well as submit the newest annual inventory and the supplementary information on the assigned amount. The issue of whether meeting the reporting requirements of LULUCF (sink) activities should be an eligibility criterion for using the mechanisms is postponed to the first Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol. If the eligibility criteria for one or more of the flexibility mechanisms is not met, the Party's right to use that or those mechanisms is suspended. The issue of eligibility to use the mechanisms in cases of non-compliance with the Kyoto target was deferred until the first Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol (Natsource 2001). The argument behind this decision was that denial of eligibility would be binding and thus must be taken by the Parties to the Kyoto Protocol in an amendment.

<sup>8</sup> Annex I comprises industrialized countries as defined by the UNFCCC.

The principle of transparency regarding national registries is emphasized. For each account, the identity of the holder and the total quantity of quotas at the beginning of each year will be public information. Meetings of the JI Supervisory Committee and the CDM Executive Board must be open to all Parties and observers.

Legal entities that want to participate in international emissions trading must be authorized by a Party, but the Party remains responsible for its commitments under the Kyoto Protocol. The Party must be eligible for international emissions trading for the legal entity to participate. However, a Party may buy quotas even if it is not in compliance. Regarding CDM quotas from afforestation and reforestation, the Party must assure that they constitute no more than 1% of base year emissions, times five. The CDM Executive Board is responsible for accrediting operational (legal) entities. Regarding JI, a Party may authorize legal entities to participate under its responsibility. Legal entities can be domestic (such as a private or public company or organization) or an international organization.

The CDM Executive Board is required to supervise the CDM, under the authority and guidance of the Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol. Decisions must be made by consensus if possible, otherwise by a majority of three-fourths of the members present and voting, and with a majority among developing country members and industrialized country members. The Board was established in Marrakech. John Ashe from Antigua and Barbuda is the chair. There are alternates for each member of the board. Georg Børsting from Norway is an alternate member from industrialized countries. There is still a lot of work on developing methodologies for baselines and verification of projects to be done by the CDM Executive Board.

The Supervisory Committee for Joint Implementation will be established, with responsibilities similar to those of the Executive Board of the Clean Development Mechanism. A major task of the committee is to issue JI quotas (ERUs). The committee comprises ten members where three are from economies in transition, three are from other industrialized countries, three are from developing countries, and one is from the small island developing states.

Each Party participating in the CDM must designate a national authority for the CDM.

A Party can participate in the JI mechanism in two ways: First, if a host Party is eligible to participate in international emissions trading, it may then verify quotas from a JI project. Second, if a host Party that does not meet the eligibility requirements for international emission trading (due to inadequate registry and reporting systems) but is still eligible to participate in JI, it may participate in a project cycle similar to that for CDM projects where the quotas are to be verified through the JI Supervisory Committee.

The only Kyoto mechanism with a levy is the CDM, where 2% of the certified emissions reductions issued for a CDM project activity go toward financing the Kyoto Protocol adaptation fund (see section 4.4). CDM projects in least developed countries are exempted from this levy. This means that 2% of the credits produced by a CDM project are sold in the market and the earnings transferred to the adaptation fund. Another fee to cover administrative expenses of the CDM will be introduced later. In terms of JI projects, a share of the proceeds will be used to cover administrative costs related to the JI Supervisory Committee (IETA 2001).

With regard to both JI and CDM it is stated that Annex I Parties are to refrain from using credits generated from nuclear facilities to meet their Kyoto commitments. There is some

uncertainty with regard to whether the wording “are to refrain from using” should be interpreted as “must not use,” so the final legal text and its interpretation should be scrutinized.

The Bonn agreement states that it is the host Party’s prerogative to confirm whether a CDM project assists in achieving sustainable development. Article 12 of the Kyoto Protocol outlines that the CDM has the dual objective of both helping Annex I Parties meet their commitments and assisting the host developing country in achieving sustainable development. Allowing the host country to ascertain the sustainability of potential CDM projects is a simplified approach that probably saves transaction costs, but may create uncertainty about the sustainability effects of CDM projects. The host country’s evaluation would depend on the priority given to sustainability compared to benefits in terms of e.g. technology transfer through CDM projects. In the absence of clear and standardized criteria for sustainability, a CDM project that is acceptable in one host country may not be acceptable in another host country. A requirement that JI projects contribute to sustainable development is included in Slide 8 since this is mentioned in the Bonn agreement (UNFCCC 2001).

### **Slide 8. The flexibility mechanisms**

#### **The flexibility mechanisms**

- No specified ceiling on trade (“domestic action shall thus constitute a significant element of ...”)
- A 2% fee on the CDM mechanism (transferred to the adaptation fund)
- Refrain from nuclear power
- Host party to confirm whether a CDM or JI project contributes to sustainable development
- Fast-track for small-scale CDM projects
- CDM crediting from January 2000
- Fungibility between the mechanisms
- AAUs, JI and CDM quotas can be banked (limited to 2.5% of Kyoto target for JI and CDM)
- Commitment period reserve for all quota types

Source: CICERO

The Bonn agreement establishes a fast-track procedure for small-scale CDM projects, whereby renewable energy projects with maximum output capacity less than 15 megawatts, energy efficiency improvement projects that reduce energy consumption by up to 15 gigawatt hours per year, and other project activities that reduce anthropogenic emissions by less than 15 kilotonnes of carbon dioxide equivalents annually can benefit from simplified modalities and procedures.

Unilateral CDM projects are allowed. This means that a developing country Party can develop a CDM project without an Annex I partner and sell the quotas (CERs) on the market.

CDM projects can earn credits from 1 January 2000, provided that they are submitted for registration before 31 December 2005. The Parties involved in a CDM project can either choose a maximum ten-year crediting period with no renewal possibilities, or a maximum of seven years which may be renewed up to two more times after informing the CDM Executive Board that the baseline is still valid or has been updated due to new data. JI projects that were initiated in 2000 or later can be accepted, but crediting can first take place from 2008.

Fungibility between the Kyoto mechanisms refers to the degree to which quotas and credits generated through them can be interchanged at the global market, and thus function as one commodity in one market. If there are three segregated markets for the mechanisms, the fungibility is low. The Bonn and Marrakech agreements state that the national quotas defined by the Kyoto target (AAUs), removal units (from sink projects) and all three mechanisms can be employed to meet a Party's Kyoto commitments, thus supporting high fungibility at that level. However, due to some differences in the rules of the mechanisms – for instance with regard to who can participate, different constraints on the use of the mechanisms, and the fee placed only on the CDM – there is going to be less than full fungibility between the them.

Even if removal units are not directly transferable to the next target period, they may be transferred indirectly since other quota types can be transferred and there is fungibility between all quota types. However, there is a limit on transferal of JI and CDM quotas to the next target period equal to 2.5% of the Kyoto target.

With the aim of preventing Parties from overselling their quotas and thus making compliance to their Kyoto target later impossible, a commitment period reserve rule was adopted. **Slide 9** explains the main features of this rule. At all times during the budget period 2008–12, a country should keep a reserve equal to 90% of its Kyoto target in the national registry. Thus the net sum of all transfers must be less than 10%. If a country in its most recent verified national report has emissions lower than 90% of its Kyoto target, this country would be allowed to transfer quotas equal to the difference between reported emissions and the Kyoto target. The 90% rule could pose a challenge for some countries that risk large companies wanting to transfer a sizeable share of their quotas to other countries, which could compromise the commitment period reserve rule. In designing a national emissions trading scheme, it is expected that the authorities will build in features that reduce the possibility of such occurrences. If a Party's reserve reaches less than 90%, the UNFCCC secretariat must notify that Party and set a 30-day time-limit to bring its holdings to the sufficient level.

### **Slide 9. Commitment period reserve**

#### **Commitment period reserve**

- A country shall keep a reserve equal to 90% of its Kyoto target in its national registry, counted as all valid quota types and quotas for the first commitment period
- This means that net transfer of quotas to registries in other countries should at all times through the budget period 2008-12 be less than 10% of the Kyoto target of a country
- Alternatively, a country can transfer to other countries up to five times (due to the five-year budget period) the difference between its annual emissions according to the newest verified national report and its Kyoto target (provided the reported and verified emissions are lower than 90% of the Kyoto target)
- The motivation is to prevent nations from overselling their quotas and thus making compliance to their Kyoto targets later impossible
- If large companies for some reason want to transfer a large share of their quotas to registries in other countries, this could be in conflict with the reserve requirement of a country
- The national quota system must be designed to fulfill the requirement of a commitment period reserve

Source: CICERO

### **3.4 Funding**

**Slide 10** shows the decisions on funding of climate policy measures in developing countries.

Altogether three funds under the UNFCCC and the Kyoto Protocol have been established. The aim of the Special Climate Change Fund is to finance activities, programs and measures related to climate change in the areas of adaptation, technology transfer, resource management, and to assist developing countries highly dependent on fossil fuel production in diversifying their economies. The aim of the Least Developed Countries Fund is to support a work program for this group of countries, including National Adaptation Programs of Action. The aim of the Kyoto Protocol Adaptation Fund is to finance concrete adaptation projects and programs in developing countries that are Parties to the Protocol. No specific amount to be transferred to these funds is mentioned, apart from the 2% fee on the CDM to the adaptation fund. The group of countries shown in the last bullet point of Slide 10 made a joint statement at the same time as the Bonn agreement was announced that they will transfer USD 410 million annually to these funds by 2005. It seems that this promise, even if it is outside of the Kyoto Protocol, was required to have the developing countries accept the political compromise of the Bonn agreement.

## **Slide 10. Funding**

### **Funding**

- Special Climate Change Fund and a Least-developed Countries Fund under the UNFCCC
- The Kyoto Protocol Adaptation Fund
- Amounts not specified
- The EU, Canada, Iceland, New Zealand, Norway and Switzerland to contribute USD 410 million annually to these funds from 2005

Source: CICERO

## **4 Business implications**

In this section we discuss business implications of the ratification ready Kyoto Protocol, with a focus on compliance and the three flexibility mechanisms international emissions trading, JI and CDM.

The main achievement of the Bonn and Marrakech accords is to give clear policy signals to business: emissions of greenhouse gases will cost you and you should be planning for a low-carbon future. Likewise the emissions of other greenhouse gases will be restricted. Furthermore, the operating rules for the flexibility mechanisms are now in place. Even if there are some restrictions on the use and fungibility of the flexibility mechanisms, the decisions made are mostly favorable for an efficient working of the emission and quota markets. The early start and relative certainty of the CDM makes it particularly interesting for business to learn and get into position before 2008. As long as the USA does not fully participate there will be a much larger uncertainty for American business than business in other countries with regard to regulatory future.

### **4.1 Compliance**

If a Party is not in compliance with its commitments, its eligibility to sell quotas under international emissions trading could be suspended. In that case, firms authorized by the Party to trade such quotas would also have their right to sell suspended. However, they would still be allowed to buy quotas.

One aspect of a softer compliance system as part of the Kyoto Protocol is a weaker foundation for the Kyoto mechanisms and thus greater uncertainty with regard to future demand for quotas and consequently quota prices.

#### **4.2 The flexibility mechanisms**

Even if the finalized Kyoto Protocol provides adequate guidelines for national legislative bodies to implement the Protocol and the mechanisms, for the most part legislation defining the regulatory framework to govern business still remains to be developed.

Full fungibility (transferability) between units from the flexibility mechanisms and removal units implies that transaction costs are reduced and the liquidity of the markets increases, which is important for business since cost-effectiveness is improved. Even if removal units cannot be banked to the second target period, this is of less importance as long as the other units can be banked and there is full fungibility between them. Thus removal units can be used for compliance in the first target period and, for instance, assigned amount units banked. Stakeholders should also be aware of the 2.5 % limit on banking of units from JI and CDM compared to the initial Kyoto target. Thus these units will be less flexible than assigned amount units, and this may be reflected in their price. If there should be a surplus of removal units in the first target period they may be dumped in the market and thus lower the quota price. Given these rules, the preferred unit for banking should be AAUs from emissions trading or from the national quotas defined by the Kyoto target, whereas the other units can be used for compliance purposes.

Business in a country is dependent on the eligibility of the Party to engage in international emissions trading, JI and CDM. If the Party fails to meet the criteria for a mechanism and is suspended from using it, companies in the country will encounter the same problems.

The emphasis on public access to information regarding the identity of an account holder and quantity of units may be seen as a problem for some companies. However, this can be circumvented by differentiating between a holding account and an anonymous trading account with a broker (IETA 2001). Likewise the transparency of deliberations in the JI Supervisory Committee and the CDM Executive Board may be seen as a risk for losing competitive advantages by some companies (op. cit.).

The commitment period reserve requirement could affect quota trading of large companies. If a large amount of quotas is transferred from the national account and the 90% floor is met, the UN transaction log would interfere and thus potentially stop a company from selling these quotas abroad. Consequently quota trading between countries will be more complicated. This could lead to relatively more interest in the CDM.

##### *Joint implementation*

The price of JI quotas are likely to rise when a levy is introduced to cover administrative expenses. However, a similar levy will be put on CDM quotas, and in addition there is a 2 % levy on CDM projects to finance the adaptation fund under the Kyoto Protocol.

##### *The Clean Development Mechanism*

Since there is a limit of 1% annually (out of base year emissions) on the purchase of (inexpensive) CDM quotas from afforestation and reforestation projects, companies that want to buy such quotas must get approval from the national authority. Either the approval can be

based on a “first come, first serve” basis, or the national authority could establish some type of auctioning of these quotas.

All entities selling or buying CDM quotas can only do so if the authorizing Party is eligible to participate in the CDM mechanism. This means that both the host Party and the investing Party must be eligible to participate, which may cause problems for companies engaged in CDM projects in countries where the eligibility criteria is most difficult to meet.

The host country is responsible for confirming whether a CDM project assists in achieving sustainable development. The lack of clear methods and criteria for evaluation of sustainability means that one project type may be accepted in one country but rejected in another country. This is a disadvantage in terms of environmental integrity and cost-effectiveness of the CDM mechanism. For business, it means higher transaction costs since the transferability of a project type across countries is reduced.

## **5 The future of the climate policy regime**

### ***5.1 Prospects for the Kyoto Protocol***

**Slide 11** notes some points on the prospects of the Kyoto Protocol and thus the climate policy regime. A number of countries, including Japan and the EU have declared their intent to ratify the Kyoto Protocol by the next Earth summit ‘Rio+10’ in September 2002. However, it is still the case that the fate of the Kyoto Protocol depends on the final willingness of countries such as Russia, Japan, Australia, and Canada to ratify the Protocol. Since the USA (which is responsible for 36.1% of carbon dioxide emissions among industrialized countries in 1990) has rejected ratification, most of these countries must ratify the Protocol for it to enter into force. Russian ratification is required under all circumstances (Russia is responsible for 17.4% of the emissions), whereas Japanese ratification (Japan is responsible for 8.5% of the emissions) is not required if (almost) all other industrialized countries ratify. The entry into force threshold is that countries representing at least 55% of 1990 carbon dioxide emissions among industrialized countries must ratify the Protocol, thus the USA plus countries representing more than 8.9% of these emissions can block the Protocol.

In the best case, enough countries could ratify the Protocol to make it enter into force late in 2002 or first half of 2003. Thus in the best case, the first meeting of the Conference of the Parties serving as Meeting of the Parties to the Kyoto Protocol can take place in 2003. At this meeting the Compliance Committee could be elected. From 2004 the national systems for accounting and reporting could be established, and from 2005 the final national assigned units established, to provide a basis for starting emissions trading.

**Slide 11. Prospects for the Kyoto Protocol**

## **Prospects for the Kyoto Protocol**

- Will Russia, Japan, Australia and Canada ratify the protocol?
- In the best case the protocol could enter into force late next year (the World summit 'Rio plus 10' takes place in South Africa in September 2002)
- The parties are to show demonstrable progress in meeting the protocol commitments by 2005; and they must engage in negotiations on targets for new budget periods by the same year

Source: CICERO

### **5.2 The United States' position**

**Slide 12** presents some points on the American position and likely consequences for the climate regime. A number of analyses show that US withdrawal will reduce quota prices on the global market due to the large potential quota demand of the United States (see e.g. Hagem and Holtsmark 2001). This will benefit buyers of quotas, but will also give weaker incentives for domestic climate measures and the development of new efficient, green technologies within countries that have ratified the Kyoto Protocol. Under all circumstances the USA is likely to develop its own climate strategy and be interested in establishing a domestic emissions trading system. There are good reasons to believe that the USA will allow American companies to meet, at least in part, their domestically fixed emissions reduction or limitation targets through participation in the Kyoto mechanisms. The authorities are interested in maintaining and developing US relations with important regions and countries such as the EU, Russia and China for economic, strategic and political reasons, apart from collaboration in the area of climate politics. Furthermore, such a policy might facilitate a later entry into the Kyoto Protocol regime. A high future flexibility in this area should be beneficial whatever the present climate policy looks like. American companies would be keen to participate in the global markets to gain experience, and also with a view to possible future re-entry by the USA. In addition, the companies could save expenses if the quota price is lower on the international market. Parties to the Kyoto Protocol could favor the participation of American companies in the Kyoto mechanisms since this might increase the chance of later US entry into the Protocol. The USA may choose to follow the definitions and rules of the Kyoto mechanisms or develop their own variants, which will have consequences for transaction costs, see section 5.

## Slide 12. The United States' position

### The position of the United States

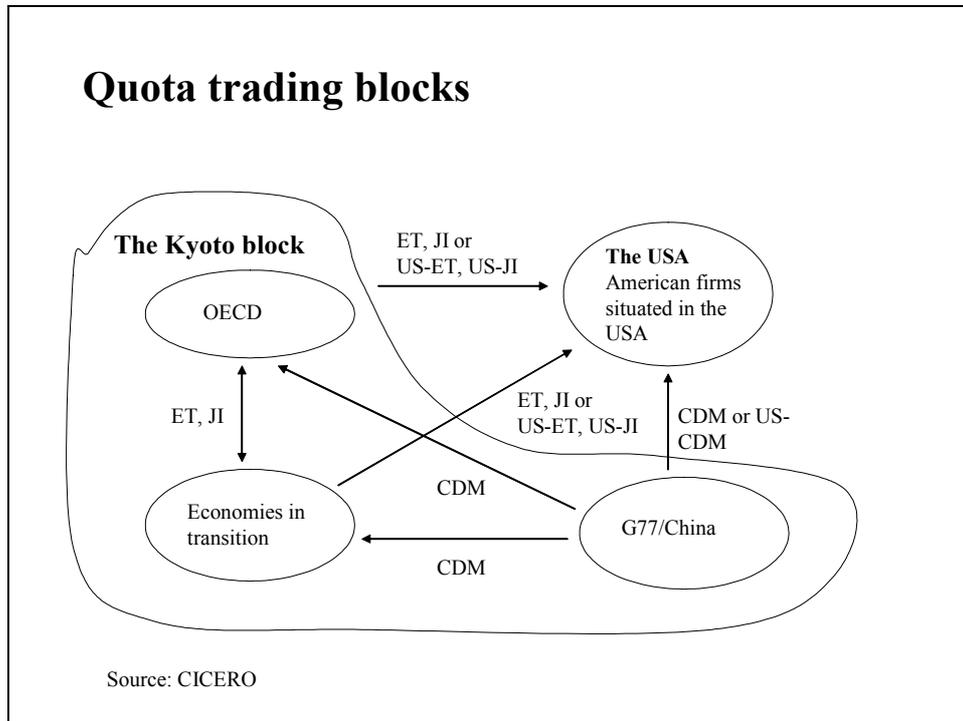
- The US withdrawal from the Kyoto Protocol reduces quota demand and thereby reduces the quota price
- The United States will develop a national climate policy strategy
- The United States may ratify the protocol later, and thus might participate in the second budget period (2013-17)
- The United States is likely to develop its own emission trading system
- American companies could be allowed to trade quotas with parties to the protocol as part of meeting targets defined under a national climate strategy
- The USA can choose quotas similar to the Kyoto mechanisms, or their own variants (ET-US, JI-US, CDM-US)
- The USA would be interested in quota trade with EU, China, Russia, and other countries for both economic, strategic and political reasons

Source: CICERO

## 6 Harmonizing quota trading systems

**Slide 13** depicts the main trading blocks in the global greenhouse gas quota market. The “Kyoto block” is divided into three parts: the OECD (Annex II); economies in transition to a market economy (EITs, countries that are a member of Annex I but not Annex II); and developing countries (G77/China; non-Annex I Parties). The slide shows how the various Kyoto mechanisms can be applied by a block for trading quotas with other blocks. If trading between the Kyoto block and the USA is allowed, this can take place through the Kyoto mechanisms (ET, JI and CDM) or through American versions (US-ET, US-JI, or US-CDM). In the figure it is assumed that American companies situated in the USA can only buy quotas, and are thus not able to sell quotas on the global market due to the fact that the national target for the USA, however that is specified, is not part of the Kyoto Protocol. However, there is a possibility that American firms are allowed to sell JI credits on the global market since these are project-based. Branches of American companies situated within the Kyoto block, for instance in Europe, are allowed to participate fully in the Kyoto mechanisms.

**Slide 13. Quota trading blocks**



Slide 14 presents some noteworthy points for the design of emissions trading systems to reduce transaction costs.

**Slide 14. Harmonizing quota trading systems**

**Harmonizing quota trading systems**

- There are initiatives to launch quota trading systems by 2008 or earlier in the EU (from 2005), Denmark (from 2001), the United Kingdom (from 2002), the Netherlands (from 2005), Norway (from 2005), and Australia, Canada, Sweden and some other countries
- A number of features of the national and regional initiatives differ from one another
- The features of an American quota trading system are still uncertain
- Harmonization of trading rules is required to reduce transaction costs between countries both before 2008 (e.g. linking national systems with the EU trading scheme) and after 2008 (connecting national systems to the Kyoto Protocol system)
- Transaction costs are lowest when all quotas can be regarded as one commodity, and there is no need for risk adjustments of the price according to origin (i.e. seller liability)
- Transaction costs are lower the higher the level of fungibility between emissions trading, the CDM, and Joint Implementation

Source: CICERO

There are a number of emissions trading systems initiatives with differing features, but this should not give rise to significantly higher transaction costs as long as the essential features are the same (see Slide 14). The simplest solution in this regard is to establish the finalized rules for the Kyoto mechanisms as the standard in all systems, also for a domestic system in the USA. Transaction costs are lowest when all quotas can be regarded as one commodity, even if such an ideal situation is not likely for even the Kyoto mechanisms alone.

**Slide 15** shows quota system features that are important for harmonizing different quota trading systems on the background of a number of different initiatives in single countries and the EU to establish domestic systems before the first Kyoto target year 2008.

**Slide 15. Important features for harmonization of quota trading systems to reduce transaction costs**

| <b>Important features for harmonization of quota trading systems to reduce transaction costs</b> |                                    |   |
|--|------------------------------------|---|
| <b>Quota system features</b>   | <b>Important for harmonization</b> | <b>Less important for harmonization - national authorities may choose different solutions</b> |
| Quota definition and measurement   | +                                  |   |
| Strict reporting and verification rules  | +                                  |   |
| Sanctions on non-compliance  | +                                  |   |
| Participation by private and public entities   |                                    | +   |
| Sector and greenhouse gas coverage   |                                    | +   |
| Quota allocation principles  |                                    | +   |

Source: CICERO

Furthermore, harmonization of quota system features is important to minimize transaction costs in the case of trading between the USA and the Kyoto block. Thus the table presented indicates what features the USA might want to build into their domestic system to facilitate participation in the Kyoto mechanisms. The slide shows that the critical features for harmonization of quota trading systems are quota definition and measurement, strict reporting and verification rules, and sanctions on non-compliance. Features like sector and greenhouse gas coverage, what legal entities are allowed to participate, and quota allocation system are of less importance. Note that the Kyoto target implementation cost of a country depends not only on low transaction costs. Implementation costs are reduced if there is the widest possible coverage of sectors, private and public entities, and greenhouse gases included in the Kyoto Protocol. Thus points four and five in the table are important from an implementation cost perspective.

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