

# Introduction

## The challenges of implementing the Kyoto Mechanisms

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In the early hours of the morning of December 11, 1997, after more than 12 hours of continuous negotiation, the Conference of the Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC), meeting at its Third Session in Kyoto, concluded the long awaited Protocol. The 1997 Kyoto Protocol strengthened the commitments of the 1992 Convention by setting out a firm schedule for reductions of greenhouse gas (GHG) emissions by developed countries (listed in its Annex I) and firm targets to be met within an agreed commitment period (2008–2012). The Protocol envisaged the Annex I countries reducing their emissions by an average of 5.2 per cent from 1990 levels. The specific targets (or assigned amounts) were set out in Annex B of the Protocol, and they ranged from those for Iceland and Australia, which enabled them to increase their emissions from 1990 base levels (by 10 and 8 per cent respectively) to those for the EU Member States, which stipulated an 8 per cent reduction from 1990 levels.

The potential economic impacts of these obligations are unparalleled in international environmental law.<sup>1</sup> However,

the most innovative aspects of the Protocol may in fact not be these strict commitments but the introduction of so-called market Mechanisms, initially called Flexibility Mechanisms (or Flex-mechs) but now known as the Kyoto Mechanisms, into the process by which Annex I countries can meet their obligations.

The aim of this Special Issue is to provide an overview of the regime established by the Kyoto Protocol to the UNFCCC and to examine in detail some of the experiences gained in implementing the Kyoto Mechanisms, nearly a decade after the conclusion of the Protocol and a year before the beginning of the Protocol's first commitment period. This first article will introduce some of the key processes and describe some of the concepts that will be further developed in later articles.

### The UNFCCC and its Kyoto Protocol

The UNFCCC was concluded in New York on May 9, 1992.<sup>2</sup> It was opened for signature in June 1992 as a part of the UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. It now has 189 Parties. The basic objective of the Convention, set out in Article 2 is not to reverse GHG emissions but to stabilize them 'at a level that would prevent dangerous anthropogenic interference with the climate system'.<sup>3</sup> Indeed, that article goes on to require that such stabilization should be achieved 'within a time frame sufficient to allow eco-systems to adapt naturally to climate change, to ensure that food production

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\* The views expressed in this article are the views of the authors and do not necessarily represent the views of the World Bank. Dr Freestone and Dr Streck are the editors of a major reference work on the implementation of the Kyoto Mechanisms: *Legal Aspects of Implementing the Kyoto Mechanisms: Making Kyoto work* (Oxford University Press Oxford 2005). Many of the issues discussed in this Special Issue are covered in even greater detail in that volume and the editors are grateful to OUP for allowing some of their authors to utilize material published there.

1 The potential impacts of the economic changes necessary to meet the commitments are different in kind from the very significant commitments made by developed countries under the 1987 Montreal Protocol (as amended and adjusted) to the 1985 Vienna Convention for the Protection of the Ozone Layer 26 ILM (1987) 1527. The text of the Montreal Protocol on Substances that Deplete the Ozone Layer, as changed by the London adjustments and the amendments of 1990, 1992, 1995 and 1997 can be found at <http://www.unep.org/ozone>.

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2 UN Doc Distr. General A/AC.237/18 (Part II)/Add.1. May 15, 1992.

3 This important limitation of the Convention is pointed out by Patricia Birnie and Alan Boyle in *International Law and the Environment* (2nd edn OUP Oxford 2002) 527.

is not threatened and to enable economic development to proceed in a sustainable manner'.<sup>4</sup>

When approving the Kyoto Protocol, the Conference of the Parties (COP) to the UNFCCC recalled that at its first session in 1995 it had agreed that the process would not introduce any new commitments for developing countries but would reaffirm existing commitments in Article 4(1) and continue to advance the implementation of these commitments in order to achieve sustainable development, taking into account UNFCCC Article 4(3), (5) and (7).

Some degree of co-operation had been envisaged by the 1992 Convention itself which in Article 4(2)(b) talks of the aims of 'returning [GHG emissions] individually, or jointly, to their 1990 levels ...'.<sup>5</sup> The wording of the 1992 Convention is echoed in Article 3(1) of the Protocol which reaffirms that these commitments may be made individually or jointly, and has also been developed further in Article 4 in response to requests by the EU to allow them to be effected within the EU Member States as a whole. This Mechanism, the so-called EU 'Bubble', requires that Parties in Annex I who reach an agreement to fulfil their commitments under Article 3 jointly shall be deemed to have met those commitments if their total combined aggregate emissions do not exceed their assigned amounts calculated in accordance with Annex B. Such an inter-state agreement must be formally concluded and notified to the Parties through the UNFCCC Secretariat and in the event of failure of the Member States to meet the required reductions, each Party again becomes individually liable for its own levels of emissions.<sup>6</sup> In 1998, the EU made use of the possibility of pooling its emission limitation obligations and concluded the so-called Burden Sharing Agreement.<sup>7</sup>

Based on Article 4(2)(b) of the 1992 Convention UNFCCC Parties decided in 1995 to establish a pilot phase for Activities Implemented Jointly (AIJ) among Annex I Parties and, on a voluntary basis, with developing country Parties who so requested.<sup>8</sup> The COP decided to create the

AIJ as a pilot through a simple decision under the UNFCCC. Other than when deemed necessary by those who argued for the adoption of a project-based GHG mitigation Mechanism involving developing countries in the context of a strong supporting framework, preference was given to the idea of gaining experience through a voluntary pilot program.<sup>9</sup> Consequently, participation in AIJ projects was voluntary, funds needed to be additional to Official Development Assistance, and no credits were granted to any Party as a result of any reduction in GHG emissions stemming from AIJ projects. Emissions reductions generated through AIJs could not be used for the fulfilment of commitments of Annex I Parties under Article 4(2)(b) of the Convention, although they could contribute to the achievement of the objective under the Convention and to the fulfilment of commitments under Article 4(5) of the Convention.<sup>10</sup>

### The Kyoto Mechanisms

Conceptually based on the experiences gained from the implementation of the voluntary AIJ program (although more radical than the joint responsibility agreements envisaged under Article 4), are the so-called 'Flexible Mechanisms' of the Kyoto Protocol. Under these the Parties may achieve some portion of the required emission reductions beyond their own borders through the use of a variety of economic instruments. These instruments define project based Mechanisms under Article 6 (Joint Implementation) and Article 12 (Clean Development Mechanism) of the Kyoto Protocol – each of which envisages that in various ways emission reductions financed in other countries might be set off against the financiers' GHG reduction targets. The theory behind this approach is that the 'marginal abatement cost', ie the cost of financing emission reduction, will usually be far higher in a relatively energy efficient industrialized country than in a country such as a developing or an Eastern European transition country which may have less efficient fuel-use technology. As the global climate system benefits from these reductions wherever they are made, making reductions in another country as part of a national strategy (which also of course includes the introduction of domestic 'policies and measures' to reduce emissions at home) will make the cost

4 UNFCCC art 2.

5 The idea that the Parties might seek to do this jointly was the basis for the Activities Implemented Jointly (AIJ) pilot phase in which the modalities of international co-operation were explored.

6 See also art 4(6) which applies the same principles to co-operation within a 'regional economic integration organization' (the standard treaty language for bodies such as the EU) which is itself a Party to the Protocol.

7 Council Decision of April 25, 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilments of commitments thereunder (2002/358/CE).

8 UNFCCC/1995/7/Add.1 Decision 5/CP.1.

9 C Jeepma, W van der Gaast *On the Compatibility of Flexible Instruments* (Kluwer Dordrecht 1999); C Carraro (ed) *International Environmental Agreements in Climate Change* (Kluwer Dordrecht 1999).

10 UNFCCC/1995/7/Add.1 Decision 5/CP.1 para (b) of the recitals.

of reaching these reduction targets cheaper and increase the chances that they will actually be reached. The consequential advantages for the project host countries are new resource and technology transfers, including access to cleaner technology and contributions to sustainable development. In addition to the project based Mechanisms of JI and CDM, Article 17 contemplates a system of emission rights trading whereby one Annex I country might directly purchase from another Annex I country some of its rights to emit GHGs, known as Assigned Amount Units (AAUs).

### Article 6: Joint Implementation

Article 6 builds directly on the AIJ Mechanism and the wording of Article 4(2)(b) of the 1992 Convention (above) which envisages that countries listed in Annex I may act individually or jointly to meet their emission reduction objectives. Article 6 of the Kyoto Protocol allows any Annex I country to transfer to, or acquire from, another Annex I country reductions of GHG emissions, described as Emission Reduction Units (ERUs), achieved by project activities.<sup>11</sup> These ERUs may be generated by any projects that reduce anthropogenic emissions of designated GHGs or which enhance the anthropogenic removal by sinks<sup>12</sup> of such gases. The key feature of this Mechanism is that all the emission reductions need to be brought about, and verified, by investments in specific projects. The Mechanism is also subject to a number of further requirements. First, these projects require the express approval of both the State Parties acting as transferor and transferee. The Protocol uses the term Parties and hence both States must be Parties to the Protocol. Secondly, the reduction of GHGs that takes place as a result of the project must also be 'additional' to any that would otherwise have occurred.<sup>13</sup> Thirdly, no State Party can acquire ERUs if it is not itself in compliance with a number of other obligations under the Protocol;<sup>14</sup> and, finally, the acquisition of such ERUs is not a substitute for domestic action to reduce GHG emissions, for all such acquisitions must be 'supplemental to domestic actions'.<sup>15</sup>

In order to participate in the Mechanism and to be eligible to receive and transfer ERUs any participating Annex I Party must meet certain requirements.<sup>16</sup> In case compliance with these requirements is in question, the Protocol provides that transfer and acquisition transactions may continue but do so entirely at the risk of the acquirer. As the usual modality for these transfers will be by investment or purchase, this is known as 'buyer risk'.<sup>17</sup>

The final issue of importance is that although the Protocol talks clearly about Party-to-Party transactions it does envisage other entities such as the private sector (or even international organizations, such as the World Bank) participating in the financing and organizing of such projects. Article 6(3) permits any Party to authorize a legal entity to participate in 'action leading to the generation, transfer or acquisition' of ERUs, provided however that that authorization is under the responsibility of the authorizing State Party.

### Article 12: The Clean Development Mechanism

Article 12 was the great surprise of the Kyoto Meeting. The forms and modalities of the Clean Development Mechanism defined in Article 12 were truly the results of the negotiations at Kyoto.<sup>18</sup> Perhaps as a result of the fact that the negotiation of Article 12 took place in a different drafting group from that of Article 6, or perhaps deliberately, each article uses rather different language to describe concepts that are essentially very similar. The most important aspect of Article 12 is the fact it would be used by Annex I countries to finance emission reductions in countries which have not made commitments under the Protocol to meet GHG emission reduction targets, ie developing countries which are not listed in Annex I. Article 12(2) sets out the double objective of the Mechanism which is 'to assist Parties not included in Annex I to achieve sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included

11 Once verified and reported in accordance with guidelines to be elaborated by the UNFCCC COP/MOP, art 6(2).

12 Such removal could include the sequestering of carbon by land use, land use change or forestry (LULUCF).

13 The requirement for being additional (or the additionality requirement) can be understood generally as a 'but for' test: 'but for the project' a particular benefit would not have happened. However, defining the scope and weight given to the additionality requirement has been contentious.

14 See Kyoto Protocol arts 5 and 7.

15 The EU has decided that 50 per cent of its emission reductions must be achieved internally.

16 FCCC/KP/2005/ CMP/8/Add.2, Decision 10/CMP1 Annex 21.

17 Article 6(4) reads: 'If a question of implementation by a Party included in Annex I of the requirements referred to in this Article is identified in accordance with the relevant provisions of Article 8, transfers and acquisitions of emission reduction units may continue to be made after the question has been identified, *provided that any such units may not be used by a Party to meet its commitments under Article 3 until any issue of compliance is resolved*' (emphasis added).

18 J Werksman 'Unwrapping the Kyoto Surprise' (1998) 7 Review of European Community and International Environmental Law 147, 151.

in Annex I in achieving compliance with their ... commitments under Article 3’.

The particular appeal as well as the tension of the CDM lies in the fact that countries with commitments are contributing to the financing of projects in countries without commitments. This should mean of course that developing countries share the benefits of project investments in clean technology within their economies, but also that a far wider pool of potential emission reductions are possible than would be available through reductions in Annex I countries alone. Despite some initial concerns that this might be seen as the ‘thin end of the wedge’ in the introduction of commitments to developing countries, in fact the basic assumptions on which the CDM is based are sound. Even if the majority of the responsibility for the historical emissions leading to anthropogenic climate change can be laid at the doors of the developed world, a reduction of emissions anywhere in the world has an equally beneficial impact on the global climate system, and it is in the developing world – notably in India and China – where much of the increase in future emissions of GHGs will take place in the decades to come. Therefore, a Mechanism that encourages investments in climate friendly projects in developing countries should also have a beneficial impact on the global climate system as well as a net beneficial impact on sustainable development. There is, however, also a global community interest in ensuring that Annex I countries or entities are only permitted to claim credit for those projects in developing countries which demonstrably reduce GHG emissions. Hence the Protocol mandates the establishment of a supervisory structure – centred on the CDM Executive Board – including an internationally approved and supervised emission reduction verification and certification system. Each CDM project needs to be validated by ‘operational entities’ designated by the COP/MOP,<sup>19</sup> who are also responsible for verifying and certifying that emission reductions have actually occurred. Validation of the project through the operational entity represents the certification of the project as contemplated by Article 12(5) of the Protocol. An emission reduction so certified is therefore termed a Certified Emission Reduction (CER) – to distinguish it from the product of Article 6 projects, which is termed an Emission Reduction Unit (ERU).

The administrative expenses of the Protocol servicing these bodies is covered inter alia by a levy of ‘a share of the proceeds’ from registered project activities. A portion of this share will be used to ‘assist developing countries that

are particularly vulnerable to the adverse effects of climate change to meet the cost of adaptation’.<sup>20</sup> In a number of other respects CDM projects will resemble Article 6 projects. Participation in CDM projects must be voluntary; projects must manifest real measurable and long-term benefits relating to mitigation of climate change; and a project activity generating CERs must be ‘additional’ to that which would have occurred in its absence.<sup>21</sup> Participation in the CDM is also open to the involvement of private and/or public entities,<sup>22</sup> subject to the approval and authorization of the country hosting the CDM project activity and the respective investor country or countries. More significant, however, is the absence from Article 12 of the express distinction (made in Article 6) between emission reduction activities and those designed to enhance anthropogenic removal by sinks of GHGs. The COP/MOP has overarching responsibility to provide ‘authority and guidance’ and is responsible for elaborating ‘modalities and procedures’<sup>23</sup> for the operation of the CDM. At COP 7 it was decided that ‘afforestation and reforestation’ projects were CDM eligible<sup>24</sup> and the modalities for such projects were finalized at COP 9 in Milan in December 2003,<sup>25</sup> although the COP has yet to reach final decisions on whether other sink projects will be CDM eligible.<sup>26</sup>

20 The share of proceeds for adaptation measures is fixed at 2 per cent. In addition, the participants in a CDM project have to pay an administrative fee of US\$0.10 for the first 15,000 CERs issued for each project. An additional US\$0.20 has to be paid for all subsequent CERs. FCCC/KP/2005/CMP/8/Add.1, Decision 3/CMP 1, Modalities and procedures for the Clean Development Mechanism as defined in Article 12 of the Kyoto Protocol, para 15(a) and the relevant decision of the Executive Board at its 23rd meeting (Annex 35 to the report of the Executive Board).

21 See art 12(5)(c).

22 cf art 6(3) which says legal entities may participate in ‘actions leading to the generation, transfer or acquisition ... of emission reduction units’. This could be interpreted as saying that they may not be transferred or acquired (and therefore perhaps not owned?) by such entities. By contrast art 12 envisages ‘participation ... in the acquisition of certified emission reductions’ suggesting that private/public entities might own these CERs.

23 Article 12(7) empowers the COP/MOP at its first meeting, to ‘elaborate modalities and procedures with the objective of ensuring transparency, efficiency, and accountability through independent auditing and verification of project activities’.

24 FCCC/CP/2001/13/Add.2 Decision 17/CP.7, para 7, Modalities and procedures for the Clean Development Mechanism as defined in Article 12 of the Kyoto Protocol.

25 FCCC/KP/2005/CMP/8/Add.1, Decision 5/CMP1. Modalities and procedures for afforestation and reforestation project activities under the Clean Development Mechanism in the first commitment period of the Kyoto Protocol.

26 The treatment of Land use, land use change and forestry project activities under the CDM in future commitment periods will be decided as part of the negotiations of the second commitment period, FCCC/KP/2005/CMP/8/Add.1, Decision 5/CMP1 recital 3.

19 Conference of the Parties to the UNFCCC serving as Meeting of the Parties to the Kyoto Protocol.

## Article 17: Emissions trading

The third Mechanism envisaged by the Kyoto Protocol allows the trading of AAUs among Annex I countries (Article 17 of the Protocol). ‘Assigned Amount’ refers to the quantity of GHGs a Party to the Kyoto Protocol is permitted to release into the global atmosphere as calculated on a yearly basis in Annex B of the Protocol (Article 3 of the Protocol). This Mechanism is also referred to as ‘emission trading’, a term commonly used to describe the trading in emission rights. Article 17 of the Kyoto Protocol forms the basis for a global emissions trading system among Annex B Parties, which may be used by Annex B Parties for compliance purposes. Since international emission trading involves the transfer of AAUs, actual trades can only be settled once the first commitment period of the Kyoto Protocol has started in 2008. While the testing of the international emission trading system is still ahead of us, the Mechanism as such is going through a period of unprecedented popularity. Within the last few years, emission trading systems in Australia, the UK and Denmark, followed by an EU wide emission trading system, have been implemented. Legislative conditions for State level emission trading are currently being created in the north eastern states of the US as well as in California. In addition, there are several bills proposing the establishment of a federal emission trading system being considered by the US Congress. Taking into account the flurry of initiatives in the area of emission trading as well as their mostly national character, we have decided to focus in this special issue on the JI and CDM Mechanisms with only passing reference to emissions trading. The implementation of this Mechanism in the various national systems may be dealt with in the future in a separate volume.

## Marrakech to MOP 1

Immediately after the finalization of the Kyoto Protocol, the Parties to the UNFCCC began negotiating the ways in which its Mechanisms would operate. However, the negotiations over the modalities for operating the Kyoto Mechanisms encountered a number of major roadblocks – including serious problems with the role that carbon sequestration (or sink) projects would play in helping countries to meet their Annex B commitments under Kyoto. It was not until the Seventh Session of the Conference (COP 7) took place in Marrakech in November 2001 that the Parties were in a position to agree a major package of measures to enable the Kyoto Mechanisms to start operations. This bundle of some 262 pages and 39 decisions

was called the Marrakech Accords. The Accords were formally adopted by the COP/MOP1 in Montreal in December 2005<sup>27</sup> and provide a much needed framework of ‘guidelines, modalities and rules’ for moving forward with the implementation of the Protocol. However, a number of key issues still remain to be settled either through practice or by further COP decisions.

It will be remembered, however, that in 2000 the incoming US administration had announced its intention to withdraw from the Kyoto Protocol. To enter into force the Kyoto Protocol required ratification by 55 Parties to the Convention including ratification by Annex I Parties ‘which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I’.<sup>28</sup> As a result of the US decision, the Protocol required ratification by virtually all the other Annex I parties – including the Russian Federation – in order to bring it into force. However, at the end of 2004 this major milestone was reached and the Protocol came into force February 16, 2005. Even before that important date, however, the UNFCCC Parties had started to move forward with the establishment of the various bodies – such as the CDM Executive Board – and of the procedures to enable an immediate start of the Kyoto Mechanisms once the Protocol entered into force.<sup>29</sup>

## Where do we stand in the implementation of the Kyoto Mechanisms?

The Flexible Mechanisms had put a market value on GHG emission reductions even before the Kyoto Protocol entered into force. Today the carbon market created under the Kyoto Protocol and a number of regional and national emission trading schemes, with the EU Emission Trading Scheme as the main driver behind the carbon markets, is worth billions of dollars each year.<sup>30</sup> In the last few years, the issue of ‘global warming’, once considered a subject exclusive to environmentalists and non-governmental organizations, has moved up the policy agenda and entered the arena of politics and major corporate global players. Although it is only a

27 FCCC/KP/2005/ CMP/8/Add. 1 and 2, Decision 1-15/CMP1.

28 Kyoto Protocol art 25(1).

29 Indeed many of the preliminary procedures such as validation of project baseline methodologies by the Executive Board and its Methodology Panel began before 2005.

30 According to the World Bank, more than US\$30 billion was traded in the international carbon markets in 2006. C Capoor and P Ambrosi, ‘State and Trends of the Carbon Market 2007’, IETA – The World Bank, Washington, D.C., [http://carbonfinance.org/docs/Carbon\\_Trends\\_2007-\\_FINAL\\_-\\_May\\_2.pdf](http://carbonfinance.org/docs/Carbon_Trends_2007-_FINAL_-_May_2.pdf) (accessed May 7, 2007).

modest first step in tackling the problem, the Kyoto Protocol and various regional emission trading schemes have already had an important impact in making companies internalize and integrate a price for GHG emissions into their operations. Trading in carbon credits, allowances and emission rights now forms part of the GHG emissions management of most major industrial polluters and only few corporate players today have not yet engaged in this fast growing market, which over the last five years has expanded exponentially. The trading of carbon credits has lost much of its exotic flavor and is considered a serious factor in the closely related oil, gas and electricity markets.

In this rapidly evolving market, the Kyoto Mechanisms provide the reference case for a growing number of regulations, systems and standards, and the Clean Development Mechanism remains the only Mechanism that links emission reductions achieved in developing countries to the global carbon markets. The link between the Kyoto Protocol Mechanisms and the EU Emission Trading Scheme through the adoption of the 'Linking Directive'<sup>31</sup> has increased the attractiveness of credits generated by CDM and JI projects for private sector participants. Of the two Mechanisms, it has been the CDM which has attracted most attention – and the majority of funds. JI has been put at a disadvantage compared with the CDM, not only because the countries holding the biggest JI potential (Russia and Ukraine) have been slow to develop an approval framework, but also because JI does not benefit from the 'prompt start' provisions of the CDM. The prompt start of the CDM is based on Article 12(10) of the Kyoto Protocol and allows emission reductions obtained between 2000 and the beginning of the Protocol's first commitment period to be used to meet Annex I commitments. Consequently, the CDM started operating shortly after the adoption of the Marrakech Accords in 2001 and the Parties authorized the retroactive crediting of emission reductions from 2000. As the first international Mechanism to start operating, the CDM gave project developers time to design and develop emission reduction projects. As of May 17, 2007, 662 CDM projects have been internationally approved and registered. Most of the experience in the development of emission reducing projects, the development of baseline and monitoring methodologies and the financial structuring of

carbon finance can thus be attributed to the CDM. This enthusiasm for the CDM is surprising, bearing in mind that the CDM is the most complex of the Mechanisms established under the Kyoto Protocol. It is governed by a complicated (unsystematic and not readily available) set of rules, decisions and a guidance document established by the COP/MOP, the Executive Board, interpreted and drafted by its panels and working groups as well as the UNFCCC secretariat.

The process is complicated and not always transparent and there is ample room for criticism. And criticism there is. Some see the practice of the CDM leaning too much toward the objective of generating cost-efficient emission reductions – mostly through projects involving the simple destruction of high potential GHG gases – losing sight of the impact of the CDM on sustainable development, the other objective of the Mechanism. Others complain about the long and costly procedures, the dubious added value of the additionality test and the lack of transparency of the process. Many stakeholders have complained about the lack of efficiency and transparency of the process. While it is obviously necessary to ensure the environmental integrity of the process through rigorous standards and evaluation mechanisms, the CDM institutions are currently being challenged by the very popularity of the Mechanism. The increasing number of projects processed by the Executive Board and its panels are demonstrating the obvious constraints and limitations of using UN procedures and committees to regulate a private market.

Despite these valid points of criticism, the CDM must be considered a success. The measure of its success lies not only in the reduction of GHG emissions that it has facilitated – for these are still too small to change the emission trends on a global scale – but more importantly in the fact that the CDM has helped to create a global partnership between countless actors united in their efforts to finance emission-reducing projects and create emission reductions. The CDM has proven to be a global market experience of unprecedented scale. It has brought the idea of market-based approaches to parts of the world new to the notion of a global market. It has helped to leverage funds for renewable energy technologies and other emission reducing activities. And, last but not least, it has helped to test methods to calculate emissions and emissions reductions, develop monitoring protocols, and an essential infrastructure of emission registers. Two important chapters of this Special Issue evaluate the status of the CDM. Werksman and Meijer examine the extent to which the CDM has been able to maintain its environmental integrity despite the pressures put upon it and Streck provides a devastating critique of these processes from a private sector

31 Directive 2004/101/EC of the European Parliament and of the Council of October 27, 2004 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.

perspective – proposing major reforms if the CDM is to live up to its potential.

Building on the experiences of the early AIJ projects, governments and international organizations started developing JI projects as early as 1999. The World Bank and the ERUPT Programme of the Dutch Government signed contracts for JI projects before engaging in the CDM market. However, the fact that the establishment of the basic JI infrastructure was dependent on the Kyoto Protocol entering into force delayed the establishment of the JI Supervisory Committee (JISC, the equivalent to the CDM Executive Board) until December 2005. The detailed rules governing the various aspects of JI are still under development. However, in parallel to the activities of the JISC an increasing number of JI projects are being designed and the forward market in ERUs has gained momentum. The most active buyers remain EU Governments and Japan. The private sector, which traditionally considered the JI market as too ‘close to Government’ and thus too risky, also now shows an increasing interest in JI projects.

In the CDM, the host country has no emission reduction obligations itself and as it is paid for the reductions it generates, it has the same incentive as the acquiring country to transfer as many emission reductions as possible. For these conflict of interest reasons, the CDM host country is not authorized to undertake verification; the credibility of the CDM Mechanism therefore relies on a system of international certification and registration. In JI, where the host country is ultimately responsible for all project activities, the host country has the right, under the so-called Track I procedure, to verify emission reductions as being additional as soon as it has the proper monitoring and accounting framework in place.<sup>32</sup> Even if the Annex I country hosting a JI activity does not meet the full set of accounting criteria, it can nevertheless participate in JI, in which case the rules and procedures are modelled after the CDM (Track II JI). But even then the country needs to meet the reporting requirement of the Protocol in order to issue and transfer ERUs.<sup>33</sup> Consequently, Article 12(7) states that the COP/MOP ‘shall’ at its first session elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through

independent auditing and verification of project activities.<sup>34</sup>

The COP/MOP1 complied with this mandate when it established the JISC and elaborated the basic procedures governing Track II JI. Since its establishment the JISC has completed an amazing amount of work, generally in an efficient and cooperative manner. The Committee relies wherever possible on the model documents and procedures of the CDM Executive Board without uncritically copying them. It evaluates, interprets and modifies the CDM rules wherever it considers it inadequate, bearing in mind that JI is a Mechanism implemented between two countries with quantified emission reduction targets where ultimate liability for any overestimation of emission reductions lies with the host country. In this Special Issue, Ratliff contrasts late-starting JI with the CDM, suggesting that if the CDM is the Belle of the Carbon Ball, JI is still something of a wallflower, and looks at the reasons for this. Massai looks in even more detail at the JI record to date within the EU.

While Western Europe, Japan, Canada and New Zealand are short of AAUs, the majority of Central and Eastern European countries (including Russia) manage a comfortable surplus. Because the Kyoto Protocol allocated these AAUs to industrialized countries on the basis of their past emissions, the economic downturn in the 1990s after the collapse of the communist systems meant that most Eastern European countries now have a significant surplus of AAUs, which they can sell to countries whose emissions exceed their targets. Central and Eastern European countries have the potential to raise billions of euros by selling their surplus. However, the trading of AAUs between governments not linked to any emission reducing activity is not, or not yet, supported by Annex I countries in need of AAUs. Most governments are reluctant to use taxpayers’ money for the purchase of abstract paper values and have expressed a clear preference for ‘greened’ AAUs. Green Investment Schemes (GISs) offer a way to earmark AAU revenues for environment-related activities. Selling countries can choose to reinvest their proceeds into measures that further reduce their emissions, thereby freeing up additional AAUs, or to support measures with other environmental benefits. A credible GIS increases the value of the traded AAUs and is in the interest of both the selling and the buying country. The World Bank has been pioneering the design of GISs and Vayrynen and Ebinger examine the modalities and issues surrounding the important emerging market for these ‘green’ AAUs.

32 In the same context, difficulties in measurements of activities involving carbon sinks have restricted the use of forestry projects in the CDM to afforestation and reforestation activities, whereas the government guarantee and AAU backing in JI has given the COP the confidence to allow ERUs to be generated from all forestry activities.

33 FCCC/CP/2001/13/Add.2 Draft Decision-/CMP/1 (art.6), Annex, para 25.

34 The COP has adopted with the Marrakesh Accords the necessary guidelines and modalities and will submit the Accords to the COP/MOP for adoption at its first session.

The last section of this publication is dedicated to the private and contracts law aspect of the Flexible Mechanisms. Any type of transaction involving the transfer of carbon credits needs to rely on a proper set of contracts. Once issued, CERs and ERUs as well as allocated allowances under various emission trading schemes are being traded on the so-called secondary market. Most of these secondary transactions are governed by standard and relatively simple spot contracts. However, most JI and CDM credits are still traded under forward contracts (commonly referred to as Emission Reduction Purchase Agreements or ERPAs).<sup>35</sup> The implementation of JI/CDM projects leads to the establishment of legal links between the different sovereign Parties and the private or public project participants involved. Carbon contracts governing the implementation of the Kyoto Mechanisms include the following type of contractual instruments:

- unilateral instruments of non-Annex I and Annex I Parties, such as Approval Letters for JI and CDM project activities<sup>36</sup>
- bilateral instruments between Parties, such as Host Country Agreements or Memoranda of Understanding that govern the transfer of AAUs<sup>37</sup> or ERUs under Article 6 or Article 17 of the Kyoto Protocol
- bilateral or multilateral instruments between project participants, which may include Annex I and non-Annex I Parties, private and public sector entities, and which govern the implementation of the emission

reduction project, risk allocation and the transfer of funds and carbon credits.

The first two categories of agreements focus on the authorization of the project by the Parties involved and the transfer of the internationally defined carbon credits to the extent that sovereign action is necessary. JI project activities rely on the confirmation of the host government to convert AAUs into ERUs once they have been verified. In the case of the CDM a simple host country approval is sufficient to allow the issuance of credits. For the purpose of this Special Issue, we will focus in our analysis on the last of the three categories, which includes the commercially structured contracts that govern the purchase and sale of rights to the GHG emission reductions (or removals) generated by CDM or JI projects.

CDM and JI transactions need to be based on innovative and robust contracts which enable the parties successfully to implement the project long after the attention of the initial project developers and consultants has moved on to other tasks.<sup>38</sup> Carbon contracts define the relationship between parties in an emerging market, which is characterized by a wide variety of uncertainties and risks. The contracts need to record the agreement between the parties, identify responsibilities, allocate risks, establish rights and create clear and enforceable obligations.

There have been various efforts to standardize ERPAs and other carbon related documents. Experience shows, however, that carbon projects come in all kind of forms and varieties. Regional context, project type, project size and financial status of the project and project owner determine the conditions of and the format of forward CDM/JI transactions. Still, publicly available contract models assist buyers and sellers of emission reductions in the definition of the key terms, in the proposal of model formulation, and in providing a starting point for negotiations. The World Bank as well as the International Emission Trading Association have developed standardized and publicly available ERPA templates. In this Special Issue we have contributions from lawyers at the cutting edge of these developments. Willis and Wilder provide an overview of the issues raised by such contracts. De Witt Wijnen and Zaman examine the 'Master Agreement' developed by the International Emissions Trading Association (IETA), Carr and Rosembuj look at the way World Bank ER contracts have evolved as the Bank portfolio has grown and O'Sullivan analyzes a new

35 In the course of negotiating the very first project of the Prototype Carbon Fund in Latvia, the World Bank transformed its traditional project finance agreement into a totally new instrument – an Emissions Reduction Purchase Agreement. This is discussed in detail in 'The World Bank's Prototype Carbon Fund: Mobilising new Resources for Sustainable Development' in S Schemmer-Schulte and Ko-Yung Tung (eds) *Liber Amicorum for Ibrahim S.I. Shihata* (Kluwer Law International The Hague 2001) 265–341. The basic structure was that in return for the project generating emission reductions verified by an independent certifier, the PCF would pay agreed amounts. This model, with modifications, appears to have been the one that the market has followed and recent developments are discussed in this volume Special Issue.

36 Letters of Approval have an interesting double nature as administrative instruments under the domestic law of the host country and at the same time as unilateral statements under international public law generally directed towards an Annex I Party and authorizing private entities to participate in the project.

37 For the CDM, the Executive Board has clarified that a project participant is either a Party involved or a private and/or public entity authorized by a Party to participate, under the Party's responsibility, in CDM project activities which takes decisions on the allocation of CERs from the CDM project activity under consideration. See CDM-PDD Glossary of terms available under the documents section at <http://cdm.unfccc.int/> (accessed March 31, 2004).

38 Most JI/CDM projects are still developed with extensive assistance of outside consultancy firms.

‘Certified Emission Reduction Sale and Purchase Agreement’ template (CERSPA) designed to assist small and medium sized project developers, particularly in developing countries, to understand CER sales contracts and participate in the global carbon market on an equal footing with more experienced buyers.

## Conclusion

The carbon market today, rather than a being homogenous market, is a mosaic of various markets differing in their scope and coverage, their linkages to others and to the international regime and in their voluntary versus obligatory nature. The Flexible Mechanisms of the Kyoto Protocol are the only carbon trading Mechanisms that have been recognized and implemented worldwide and as such stand as models for various other markets and initiatives. The Mechanisms still show teething problems and continue to be plagued by a number of design failures. However, these failures can be addressed through relatively simple adjustments to the Mechanisms. A professional regulatory system, free from political interference (to achieve transparency and a guarantee of administrative due process) and with a long-term perspective of the carbon market (to achieve long-term investment security) are among the most important points on the reform agenda. Such long-term certainty is an indispensable precondition for the creation of the necessary investment framework for research and development in technology as well as for mobilizing large investments in low emission technologies. The stability of the market is thus dependent on the conclusion of an

international agreement for the post-Kyoto period. The negotiations of a second commitment period for the Kyoto Protocol and alternative international agreements started in 2005, but the negotiators remain far from agreeing even on the basic principles of such agreement. While the negotiations at the international level are moving slowly, European countries have decided to move ahead unilaterally. In March 2007, EU leaders decided to slash GHG emissions and adopted a mandatory target for renewable energy sources to make up one-fifth of the EU energy use by 2020. The governments further committed to reduce GHG by 20 per cent by 2020 and offered to go to a 30 per cent reduction if other emitters would follow suit.

In an amazingly short time, the international carbon market has taken shape. It holds promise for the future and is likely to be included in any regime that regulates the long-term reduction of GHG emissions. However, the recent Stern Review warns us that that the costs of dealing with a world in which concentrations of carbon have risen above 550 parts per million (ppm) could be as high as 20 per cent of global income annually. Action within the next 10–15 years to keep carbon concentrations under that critical level could cost 1 per cent of global product – ie some US\$3.5 trillion a year. This is a great deal of money but a highly cost effective investment, for – as the Stern Review points out – there is an ‘extremely high price for delay’.<sup>39</sup> The carbon market is a means rather than an end and the success of the market and its various segments will be judged by how effectively it assists us in lowering GHG emissions, decarbonizing our economies and in achieving truly sustainable development.

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39 The Stern Review was commissioned by the UK Chancellor of the Exchequer: ‘The Economics of Climate Change 2007’ available at [http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm).