

*Special Feature on the Kyoto Protocol*

# Overview of the Kyoto Mechanisms

Erik Haites<sup>a</sup> and Farhana Yamin<sup>b</sup>

This paper provides an overview of the three Kyoto mechanisms—joint implementation, the Clean Development Mechanism (CDM), and international emissions trading. These mechanisms enable parties to the Kyoto Protocol with emissions limitation commitments for 2008 to 2012 (Annex B parties) to meet those commitments at lower cost. Projects under the CDM also contribute to the sustainable development of the non-Annex B host parties. At present only the CDM is operational. The other mechanisms will begin operation after the protocol enters into force. After documenting the progress in implementing the Kyoto mechanisms, features common to two or more of them are discussed. Then each mechanism is described. The paper concludes with an overview of the key features of the three mechanisms.

*Keywords:* Kyoto mechanisms, International emissions trading, Joint implementation, Clean Development Mechanism.

## 1. Introduction

The Kyoto Protocol, if it enters into force, will limit the greenhouse gas emissions (GHG) of Annex B parties for the period 2008 to 2012.<sup>1</sup> Each party's commitment is expressed as a percentage of its base period, usually 1990, emissions. The commitment is called the party's "assigned amount" and the party receives assigned amount units (AAUs) of one metric ton (tonne) of carbon dioxide equivalent (tCO<sub>2</sub>e) equal to its assigned amount.<sup>2</sup>

To meet its commitment an Annex B party can reduce its emissions, enhance its eligible sinks, and trade Kyoto units (AAUs, CERs, ERUs, and RMUs).<sup>3</sup> Each Annex B party must prepare an annual inventory of its GHG emissions and changes in the carbon stocks of eligible sinks. To comply with its commitment, an Annex B party must retire Kyoto units equal to its actual net emissions (emissions less the net increase in the carbon stocks of eligible sinks) during the 2008–2012 period.

The protocol establishes three mechanisms for the creation and transfer of Kyoto units:

- Joint implementation (JI), Article 6, governs the issuance of emission reduction units (ERUs) for emission reduction and sink enhancement projects in Annex B parties.

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a. President, Margaree Consultants Inc., Toronto, Canada.

b. Fellow in Environment, Institute of Development Studies, University of Sussex, United Kingdom.

1. Annex B parties are the industrialized countries and the European Community that ratify the Kyoto Protocol.

2. Where the CO<sub>2</sub> equivalence of other GHGs is determined by their 100-year global warming potential (GWP) values.

3. A sink is a process that removes a GHG from the atmosphere. Human actions, such as planting trees, can enhance natural sinks and so increase the amount of carbon stored. Carbon can also be released to the atmosphere by sinks (e.g., if trees burn or decay), so the carbon removed from the atmosphere is measured as the net change in the carbon stock during a given period.

- The Clean Development Mechanism (CDM), Article 12, governs the issuance of certified emission reductions (CERs) for emissions reduction, afforestation, and reforestation projects in non-Annex B parties.<sup>4</sup>
- International emissions trading (IET), Article 17, governs the transfer of AAUs and acquired ERUs, CERs, and removal units (RMUs) from one Annex B party to another.<sup>5</sup>

Parties may allow their legal entities to participate in these mechanisms.

Articles 6, 12, and 17 of the Kyoto Protocol provide only a basic skeleton outline of the respective mechanisms. The rules, institutions, and procedures governing the Kyoto mechanisms are set out in a series of decisions adopted by the Conference of the Parties at COP 7 in 2001 as part of the Marrakesh Accords.<sup>6</sup> Matters related to afforestation and reforestation projects in the CDM were agreed at COP 9 in 2003. As a result the rules, institutions, and procedures governing the Kyoto mechanisms are spread among the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and more than a dozen COP decisions (see table 1).

The Kyoto mechanisms are forms of emissions trading. They are a means of facilitating compliance with a party's commitment and do not change the commitment.<sup>7</sup> Kyoto units are a means of tracking compliance with emission limitation commitments, not a property right.<sup>8</sup> Use of the mechanisms is intended to be supplemental to domestic actions in meeting Annex B party commitments.<sup>9</sup> Each of the Kyoto units is equivalent for compliance purposes.<sup>10</sup>

4. The CERs issued for afforestation and reforestation projects under the CDM are subject to special provisions to deal with the non-permanence of the sink enhancements and are called tCERs or ICERs (defined later). Unless stated otherwise, CERs include tCERs and ICERs.

5. RMUs are issued for sink enhancements achieved by Annex B parties.

6. The decision-making body for the United Nations Framework Convention on Climate Change is the Conference of the Parties (COP). When the Kyoto Protocol enters into force, its decision-making body will be the Conference of the Parties serving as the Meeting of the Parties to the protocol (COP/MOP). The rules relating to the Kyoto mechanisms must be adopted by the COP/MOP, but since that body does not exist yet the rules have been adopted by the COP as recommended draft decisions forwarded to the first meeting of the COP/MOP for formal adoption. The Marrakesh Accords are a 245-page compilation of rules and procedures agreed by the Parties to the UNFCCC COP 7 in October/November 2001 in Marrakesh. These rules and procedures provided sufficient clarity on implementation of the Kyoto Protocol to enable its ratification by many countries.

7. The Marrakesh Accords state that purchases or sales of Kyoto units do not change a party's assigned amount for the commitment period, its emissions limitation commitment. For additional clarity the Marrakesh Accords provide that additions and subtractions of Kyoto units to a party's assigned amount do not alter its emissions limitation commitment. Articles 3.10, 3.11, and 3.12 of the protocol discuss additions to and subtractions from an Annex B party's assigned amount. The Marrakesh Accords state that Kyoto units are not "added to" a party's assigned amount until it designates those units to be used for purposes of meeting its commitment, which will be done after the end of the commitment period. Prior to that time all units are simply held in national registries and can be transferred subject to the relevant rules.

8. The Marrakesh Accords state that the "Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex I."

9. Whether an Annex B party has met this supplementarity condition will be assessed qualitatively. Each Annex B party submits information on its use of the mechanisms and its domestic action as part of its national communications. This information is reviewed by an independent expert review team. The Facilitative Branch of the Compliance Committee will address questions raised by the supplementarity assessment. The Marrakesh Accords also provide that Annex B parties "shall implement domestic action in accordance with national circumstances and with a view to reducing emissions in a manner conducive to narrowing per capita differences between developed and developing country Parties." The Secretariat will prepare a report on the implications for per capita emissions each time the review process relating to Annex B parties' national communications is completed.

10. Each of the Kyoto units is equal to one tonne of carbon dioxide equivalent calculated using agreed GWP values. The rules governing banking vary for the different units. RMUs, tCERs, and ICERs cannot be banked, and banking of CERs and ERUs is limited to 2.5 percent of a party's assigned amount. There are no restrictions on banking of AAUs. Retiring RMUs, tCERs, ICERs, CERs, and ERUs first and banking any surplus AAUs limits the potential adverse impact of the banking restrictions on the fungibility of the units.

**Table 1.** Articles and decisions relating to the Kyoto mechanisms

Issue	UNFCCC/KP <sup>a</sup> Article	COP Decision <sup>b</sup>
Accounting of assigned amounts	KP: 7.4; 3.7; 3.10-12	8/CP.4; <b>15/CP.7</b> ; <b>19/CP.7</b> ; <b>24/CP.8</b>
Activities implemented jointly (AIJ)	FCCC: 4.2(d)	5/CP.1; 8/CP.2; 10/CP.3; 6/CP.4; 13/CP.5; <b>8/CP.7</b> ; 14/CP.8; 20/CP.8
Carry-over of Kyoto units	KP: 3.13	<b>19/CP.7</b>
CDM	KP: 12, 3.12	7/CP.4; 14/CP.5; <b>15/CP.7</b> ; <b>17/CP.7</b> Guidance to CDM Executive Board (EB): 21/CP.8, 18/CP.9 LULUCF projects: <b>19/CP.9</b>
Compliance	KP: 18	8/CP.4; 15/CP.5; <b>24/CP.7</b>
Emissions trading	KP: 17, 3.10-11	7/CP.4; 14/CP.5; <b>15/CP.7</b> ; <b>18/CP.7</b>
Joint implementation	KP: 6, 3.10-11	1/CP.3; 7/CP.4; 14/CP.5; <b>15/CP.7</b> ; <b>16/CP.7</b>
Land use, land-use change, and forestry (LULUCF)	KP: 3.3, 3.4, 3.7	1/CP.3; 8/CP.4; 9/CP.4; 16/CP.5; <b>11/CP.7</b> ; <b>12/CP.7</b> Croatia: 22/CP.9
Methodologies under the UNFCCC	UNFCCC: 4.1(a), 4.2(c)	4/CP.1; 2/CP.3
Methodologies under the Kyoto Protocol	KP: 5	2/CP.3; 8/CP.4; <b>20/CP.7</b> ; <b>21/CP.7</b> ; <b>20/CP.9</b>
Reporting under the Kyoto Protocol	KP: 7 (Annex B parties only)	8/CP.4 (Annex B) Guidelines (Annex B): <b>22/CP.7</b> ; 22/CP.8
Review of emission inventories under the UNFCCC (Annex B): Procedures/guidelines	UNFCCC Article 12	2/CP.1; 6/CP.3; 6/CP.5; 19/CP.8; 12/CP.9
Review of national communications under UNFCCC (Annex B): Procedures/guidelines	UNFCCC Article 12	2/CP.1; 6/CP.3
Review process under the Kyoto Protocol (Annex B): Guidelines	KP Article 8	8/CP.4; <b>23/CP.7</b> ; <b>22/CP.8</b> ; <b>23/CP.8</b> ; <b>21/CP.9</b>

Source: Yamin 2004, table 1. Adapted from Yamin and Depledge 2004.

<sup>a</sup>Kyoto Protocol.

<sup>b</sup>How to read this column: i.e., 8/CP.4 means Decision 8 by COP 4. Those in bold are the most significant decisions.

## 2. Progress in implementing the Kyoto mechanisms

As of June 2004 only the Clean Development Mechanism is operational. The other mechanisms will begin operation after the Kyoto Protocol enters into force. The Marrakesh Accords initiated a prompt start for the CDM because certified emission reductions during the period 2000 through 2007 can generate CER credits.<sup>11</sup> A CDM Executive Board (EB) was elected in November 2001 to supervise implementation of the CDM.

A CDM project must use an approved methodology, be validated by a designated operational entity (DOE) and be approved by the designated national authorities (DNAs) of the parties involved.<sup>12</sup> As of

11. Article 12.10 of the Kyoto Protocol. Until the protocol enters into force the COP exercises the responsibilities of the Conference of the Parties serving as the Meeting of the Parties to the protocol (COP/MOP).

12. The roles of the EB, DOEs, and DNAs are discussed later together with the requirements for registration of a CDM project.

late June 2004, 64 methodologies had been submitted to the EB. Of these, 13 have been approved, 15 have been rejected or withdrawn, and 36 are still under review. The project categories with the largest number of methodologies approved or under review are energy efficiency, renewable energy, landfill gas recovery, and emissions reduction by industry, biomass, and methane recovery.

Twenty-five entities had applied for accreditation as DOEs by June 2004. One application has been withdrawn and the remaining 24, including four from non-Annex B parties, are still under review. An entity's accreditation covers specific project types (scopes) and functions (validation and/or verification). Four entities have been accredited and provisionally designated for validation of various project types, so most potential projects can now be validated.

Just over half of the countries that have ratified the Kyoto Protocol have established a DNA, making a total of 63 DNAs established by Annex B parties (12), non-Annex B parties in the Asia-Pacific region (24), Latin America and the Caribbean (18), Africa (7), and economies in transition (2).

Thus, enough of the CDM infrastructure is in place to enable the validation of some types of projects located in countries with a DNA. As of June 2004 a total of 27 proposed CDM projects have been made available for public comment as part of the validation process. Thus, the first CDM projects are likely to be registered within months and the number of registered projects is likely to increase rapidly as the infrastructure expands.

### 3. Common features of the Kyoto mechanisms

A number of features—including eligibility requirements, participation of legal entities, stakeholder participation, national authorities, annual inventories, registries, compliance procedures, and review of modalities—apply to two or more of the mechanisms, although the requirements may differ for each of them.

#### 3.1. Eligibility

The decision by a party to participate in a mechanism is voluntary; however, in order to participate a party must meet the requirements for that mechanism. Participation in the JI and IET is limited to Annex B parties.<sup>13</sup> All Parties to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) may participate in CDM projects until the Kyoto Protocol enters into force; thereafter host countries must be a party to the protocol. Other eligibility requirements are discussed below in the context of each mechanism.

#### 3.2. Legal entities

Realization of the full economic benefits of the Kyoto mechanisms requires participation by legal entities. To minimize the cost of meeting the overall emissions limitation commitment of the Annex B parties requires that the cost of reducing or sequestering an incremental tonne of CO<sub>2</sub> equivalent emissions—the marginal abatement cost—be the same for all sources in all countries. This can occur

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13. They must have ratified the Kyoto Protocol. Non-parties, such as the United States and Australia, that establish domestic emissions trading programs can unilaterally decide to allow the use of Kyoto units by participants for compliance with such domestic obligations.

only if individual sources are able to use the Kyoto mechanisms for compliance with their domestic policy obligations.<sup>14</sup>

Each of the mechanisms allows parties to authorize participation by legal entities.<sup>15</sup> A party that authorizes legal entities to participate in the mechanisms remains responsible for fulfillment of its obligations under the protocol and must ensure that participation by its legal entities is consistent with the mechanism's modalities.<sup>16</sup> Legal entities may only transfer and acquire Kyoto units if the parties affected by the transaction meet the participation requirements for the mechanism.

### **3.3. Stakeholder participation**

The modalities for JI and the CDM support participation by stakeholders and require that specified information be made public to facilitate such participation. A stakeholder means the public, including individuals, groups, or communities affected or likely to be affected by the JI or CDM project.

### **3.4. National authorities**

A party that wishes to host a JI or CDM project must have a national authority responsible for such projects. A party involved in a JI project must inform the Climate Change Secretariat of its designated "focal point," while the CDM modalities require all parties to designate a "national authority for the CDM." The functions of these bodies are explained below.

### **3.5. Annual inventories and other information**

Each Annex B party must implement a "national system" for estimating its GHG emissions and removals.<sup>17</sup> The term *national system* refers to the institutional, legal, and procedural arrangements needed to ensure that the party can adequately estimate, report, and archive its GHG inventory data. Guidelines for national systems and review processes to ensure that they are sufficiently robust to meet the needs of the mechanisms have been agreed as part of the Marrakesh Accords.

Each Annex B party must submit a pre-commitment period report that contains all the information needed to calculate its assigned amount.<sup>18</sup> This report is subject to review by an expert review team. Thereafter, each Annex B party must submit a complete and accurate annual inventory of its GHG emissions and removals. Each annual inventory is reviewed by an expert review team, which may propose adjustments for missing or inadequately justified data. When a proposed adjustment is disputed by a party, the matter is decided by the Enforcement Branch of the Compliance Committee.

### **3.6. Registries**

The Kyoto units only exist in electronic form. To track holdings of Kyoto units each Annex B party is required to establish a national registry with specified accounts, including an account for each legal

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14. Haites and Aslam (2000, 24).

15. A legal entity is a company or other body established by the laws of the country in which it is located.

16. The Kyoto Protocol is an international agreement among sovereign nations. It cannot impose obligations on legal entities, so parties remain responsible for meeting their commitments under the protocol.

17. It must be implemented no later than January 1, 2007.

18. This report must also describe the party's national system for estimating GHG emissions and removals and its national registry.

entity authorized to hold Kyoto units. Each account lists the units held by unit type and serial number. The registry for CERs held by governments or entities of non-Annex B parties will be maintained by the Secretariat.

Technical guidelines for registries to ensure that Kyoto units can be transferred internationally without difficulty have been agreed by the COP. International transfers of Kyoto units are subject to checks by an independent transaction log maintained by the Secretariat. The transaction log verifies, *inter alia*, that the parties are eligible to engage in international emissions trading, the units have not been retired or cancelled, the serial numbers are valid, and the selling party is in compliance with its commitment period reserve requirement.

### 3.7. Compliance procedures

The Kyoto mechanisms can reward non-compliance if an Annex B party does not meet its commitment after selling units to other parties.<sup>19</sup> The compliance procedures aim to prevent non-compliance by Annex B parties through an early warning system that leads to deployment of facilitative approaches. When those approaches fail, a quasi-judicial process is used to correct the non-compliance and restore the environment.

The Compliance Committee will be established at COP/MOP 1 after the protocol enters into force. The Committee consists of twenty members, ten each in the Facilitative Branch and the Enforcement Branch.<sup>20</sup>

- The Facilitative Branch acts as an early warning system for potential non-compliance and provides advice and facilitation to parties in implementing the Kyoto Protocol. The Facilitative Branch deals with all compliance matters not expressly assigned to the Enforcement Branch.
- The Enforcement Branch determines whether Annex B parties are in compliance with their quantified emissions limitation commitment, the methodological and reporting requirements, and the eligibility requirements for the mechanisms.<sup>21</sup> It is also responsible for authorizing adjustments to Annex B inventories in the event of a dispute between a party and the expert review team.

Determination by the Enforcement Branch that a party does not meet the eligibility conditions for a mechanism leads automatically to suspension of the party's (and any legal entities authorized by the party) ability to undertake transactions related to that mechanism.<sup>22</sup> Since the effects of being unable to

19. The rules for the mechanisms—eligibility conditions to participate in the mechanisms, the technical guidelines for national registries, and the transaction log—help limit the scope for non-compliance due to lack of administrative capacity. The commitment period reserve limits the scale of potential non-compliance.

20. Each branch consists of ten members with “recognized competence relating to climate change and in relevant fields such as the scientific, technical, socio-economic or legal fields” serving in their “individual capacities” elected by the COP/MOP using the membership formula as the Executive Board of the CDM. The basic procedures of the Compliance Committee are set out in the Marrakesh Accords and include rules concerning a quorum, the adoption of decisions, and frequency of meetings. The committee reports to the COP/MOP on its activities, applies any policy guidance received from the COP/MOP, submits administrative and budgetary matters to the COP/MOP, and develops any further rules of procedure that may be needed. The committee has a bureau consisting of the chair and vice-chair of the two branches. The bureau is likely to focus on organizational and procedural matters, the most important being the allocation of questions of implementation to one of the two branches.

21. The Enforcement Branch has limited discretion to impose consequences. This ensures legal certainty and decreases the chance of political interference. The consequences to be “automatically” applied by the Enforcement Branch are also defined to suit the type of commitment that has not been fulfilled. The consequences applied must aim at the restoration of compliance to ensure environmental integrity and to provide an incentive to comply.

22. An Annex B party that does not meet the eligibility conditions for IET cannot engage in transactions relating to any Kyoto units until eligibility is reinstated.

use the mechanisms could be very significant for some parties, specially expedited procedures were agreed to speed-up the assessment and reinstatement of eligibility by the Enforcement Branch.

### **3.8. Review of the modalities**

The three mechanisms contain virtually identical review provisions, which provide the following:

- Any future revisions of the modalities, rules, and procedures for a mechanism shall be decided in accordance with the rules of procedures of the COP/MOP.
- The first such review will be carried out no later than 2013.
- Further reviews shall be carried out periodically thereafter.

To provide legal certainty for project investors, the modalities for the CDM and JI clearly indicate that changes to the modalities will not be applied retroactively to existing projects.

## **4. The Clean Development Mechanism**

The CDM enables emissions reduction and afforestation/reforestation projects in non-Annex B parties to earn CERs that can be used by an Annex B party to help meet its emissions limitation commitment. The quantity of CERs earned by a project is equal to the difference between its actual emissions (sink enhancement) and the approved baseline scenario of the emissions (sink enhancement) that would have occurred in the absence of the project. The environmental integrity of the mechanism depends upon the credibility of the baseline. A project must use a baseline methodology approved by the EB that has been validated as being appropriate for the project by an accredited “operational entity” and has been subject to public comment.

A CDM project may be financed in a variety of ways. A legal entity in (or the government of) the non-Annex B host country may implement the project and sell the resulting CERs to the government of (or a legal entity in) an Annex B party (unilateral model). An Annex B government or legal entity may invest in a project in return for some or all of the CERs (bilateral model).<sup>23</sup> Or an international financial institution may invest funds contributed by Annex B governments and entities in CDM projects and distribute the CERs to the contributors (multilateral or portfolio model).

### **4.1. The CDM project cycle**

The project cycle for a CDM project consists of five steps. The first two must generally be completed before the project is implemented and the last three occur after the project is operational.

#### **a. Step 1: Project description**

The project participants describe the proposed CDM project using the project design document (PDD) format approved by the EB.<sup>24</sup> The PDD includes a description of the project, the baseline methodology, the duration of the project, the crediting period chosen, the monitoring plan, an illustrative calculation of the emissions reductions together with an estimate of the anticipated reductions, the environmental

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23. The investor also could be the government or an entity in another non-Annex B party or in a country that is not a party to the Kyoto Protocol.

24. A project participant can be a government of or an entity authorized by a party to participate in the project.



impacts of the project, and stakeholder comments. The PDD also contains information on the respective roles of the project participants, including how CERs arising from the project are to be distributed and who is authorized to communicate with the EB and the Secretariat.

The project participants must obtain written approval for the project from the DNA of each party involved, including confirmation by the host party that the project activity assists it in achieving sustainable development. Each host party can establish its own procedures for approving proposed CDM projects.

### **b. Step 2: Validation and registration**

The project participants must retain a DOE accredited by the EB to validate the proposed project. Validation ensures that the proposed project meets the eligibility requirements, has the approval of the host party, appropriately uses baseline and monitoring methodologies approved by the EB, and meets any other requirements established by the EB.

A project that wishes to use a new baseline or monitoring methodology must first submit the new methodology to the EB for approval. Only after the new methodology has been approved by the EB can a project using it be submitted to a DOE for validation. Submission of new methodologies is likely to be more frequent during the early stages of the CDM.<sup>25</sup>

Registration is the formal acceptance by the EB of a validated project as a CDM project. Registration is automatic for any project validated by a DOE unless objections are raised by any of the parties involved or at least three members of the EB.<sup>26</sup>

### **c. Step 3: Monitoring**

As the project becomes operational the project participants must implement the approved monitoring plan. The plan should collect and archive data on actual emissions, what the baseline emissions would have been, leakage, and other information needed to calculate the emissions reduction or sink enhancement achieved by the project.

### **d. Step 4: Verification and certification**

The project participants periodically retain a DOE to review the monitoring data and other relevant information to verify the emissions reduction actually achieved by the project.<sup>27</sup> The DOE must then certify that the project achieved the verified emissions reduction during the specified period.

### **e. Step 5: Issuance of CERs**

A certification report by a DOE constitutes a request to the EB to issue CERs equal to the verified emissions reduction. The EB instructs the CDM registry administrator to issue the specified number of CERs. Enough CERs to cover the share of the proceeds for administrative expenses and adaptation are

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25. The CDM is using a "bottom up" approach to approving baseline and monitoring methodologies. A methodology must be approved before it can be used by a project, but an approved methodology can be used by any project. The EB may revise approved methodologies over time. Revised methodologies apply only to projects registered after the date of the revision, not to previously registered projects.

26. A review is limited to issues associated with the validation requirements and must be finalized no later than the second meeting of the EB following the request.

27. The DOE that validates a project may not verify or certify the emissions reductions achieved except in the case of small-scale projects with the approval of the EB.



transferred to the appropriate accounts, and the remaining CERs are transferred to the registry accounts specified by the project participants.

#### **4.2. The CDM Executive Board**

The CDM Executive Board's (EB) main functions are to accept validated projects as CDM projects, issue CERs, and accredit operational entities pending their designation by the COP/MOP. These functions are carried out using the rules and guidelines agreed as part of the Marrakesh Accords and changes approved by the COP/MOP.<sup>28</sup>

The CDM is supervised by the EB subject to the authority and guidance of the COP/MOP. The COP/MOP provides guidance on strategic issues such as the geographical distribution of projects, while the day-to-day administration of the CDM is the responsibility of the EB. Until the entry into force of the Kyoto Protocol, the COP serves as the COP/MOP.<sup>29</sup> This enables the "prompt start" of the CDM envisaged in the protocol and agreed in the Marrakesh Accords.

The EB is composed of ten members, each representing a specified group of countries. Members are nominated by their groups and elected by the COP/MOP. Each member has an alternate elected in the same manner.<sup>30</sup> Alternates enjoy most of the rights of members, but may vote only if the member is absent. Members and alternates must possess appropriate technical or policy expertise and act in their personal capacities. They must not have a "pecuniary or financial interest" in any CDM project or designated operational entity. And they are forbidden from disclosing any confidential or proprietary information relating to their work even after leaving the board.<sup>31</sup>

The EB must meet at least three times a year, but has met six times per year since its establishment.<sup>32</sup> A meeting requires a quorum of at least two-thirds of the members, including a majority of Annex B and non-Annex B members.<sup>33</sup> The country groups that nominate the members are such that a majority usually will be from non-Annex B parties.<sup>34</sup> Decisions are taken by consensus where possible, but may be taken by a three-fourths majority of members present and voting.<sup>35</sup> Together with the quorum

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28. The EB can recommend changes to its rules of procedure to the COP/MOP. Recommended changes were approved by the COP, fulfilling the responsibilities of the COP/MOP, at COP 8 in New Delhi in 2002.

29. All the decisions taken by the COP, the EB, and designated operational entities will be confirmed and given full retrospective effect by the COP/MOP after the Kyoto Protocol enters into force.

30. Members and alternates are elected for a period of two years and are eligible to serve a maximum of two consecutive terms. Half of the members and alternates are elected each year to ensure continuity. Each year the members elect a chair and vice-chair for a term of one year. The chair must rotate between a member from a developing country and a member from an industrialized country. When the chair is from an industrialized country the vice-chair must be from a developing country and vice versa.

31. All EB members and alternates must take a written oath of service confirming their adherence to these stipulations before assuming their duties. The board may suspend any member and recommend to the COP/MOP that his/her service be terminated, if that member is found to be in breach of the oath or fails to attend two consecutive EB meetings without proper justification.

32. Meetings are broadcast live over the Internet and to a nearby room for a maximum of 50 observers. Observers are not permitted in the room where the EB is meeting except when invited by the chair to make a presentation to the board. The chair and other board members often brief the public after EB meetings.

33. Alternates count toward the quorum only if they are replacing an absent member.

34. The cost of participation by developing country and transition economy members and their alternates are covered by the EB budget.

35. This means the members, and alternates representing an absent member, present at the meeting and casting an affirmative or negative vote. The CDM rules also include procedures for electronic remote voting, if the chair judges that a decision cannot wait until the next meeting.

requirement this means decisions must have the support of a majority of Annex B and non-Annex B members.<sup>36</sup>

The EB may establish any committees, panels, or working groups it deems necessary, and may draw on outside expertise as required.<sup>37</sup> The board has established a Small Scale Project Activities Panel, an Accreditation Panel, and a Methodologies for Baselines and Monitoring Plans Panel. The Small Scale Panel completed its work in 2002, but the others continue to function. Members are appointed after a public call for experts with “demonstrated and recognized technical expertise.” Where the work is particularly technical or time-consuming, panel members are paid fees according to United Nations procedures. Two EB members serve as chair and vice-chair of each panel.<sup>38</sup>

#### **4.3. Designated national authorities**

Each party to the Kyoto Protocol must designate a national authority (DNA) that provides written approval of each project in which it is involved. The host party’s DNA must provide a letter confirming that the project assists the country in achieving sustainable development before the project can be registered with the EB.

#### **4.4. Designated operational entities**

Designated operational entities (DOEs) validate proposed CDM projects by checking to ensure they conform with all of the requirements for a CDM project and verify and certify the emissions reductions achieved by CDM projects.<sup>39</sup> The CDM modalities envisage that the vast majority of validation, verification, and certification decisions taken by DOEs will be final; the EB will examine only “problem” projects. Thus the quality, consistency, and transparency of the work done by DOEs are critical. To ensure the quality and consistency of the work done by DOEs, they must be accredited by the EB before being designated by the COP/MOP.

A DOE is accredited only for specified project types and must be re-accredited every three years. The work of DOEs is subject to spot-checks. The EB may suspend a DOE immediately if information reveals that it no longer meets the accreditation standard. A project validated, verified, or certified by a DOE that is subsequently suspended is not affected unless “significant deficiencies” in the DOE’s work relating to the project were found.<sup>40</sup>

To avoid potential conflicts of interest, the DOE that has validated a project may not verify and certify the emissions reductions for that project.<sup>41</sup>

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36. The rules also ensure that members cannot delay the work of the board by failing to turn up. If a member is not present the alternate counts toward the quorum and may vote. A member or alternate that misses two consecutive meetings may be terminated. Vacancies can be filled by the chair in consultation with representatives of the relevant country group.

37. The board is required to consider regional balance when appointing members of such a group.

38. The persons serving as chair and vice chair are from an Annex B and a non-Annex B party, respectively.

39. A DOE must ensure that it complies with applicable host country laws when carrying out its functions, demonstrate it has no real or potential conflict of interest in the CDM project, maintain a publicly available list of all CDM projects in which it is involved, submit annual activity reports to the EB, and make non-confidential information from CDM projects publicly available, as required by the EB.

40. In such cases, the EB can decide to appoint a different DOE to review the project. If this review finds that excess CERs have been issued, the original DOE must transfer the equivalent amount of CERs to the CDM Registry within 30 days of the end of the review.

41. The EB may allow exceptions to this rule in the case of small-scale projects.

#### 4.5. Small-scale projects

Parties realized that the cost of validating a project might be so high as to render small projects uneconomic. The EB was asked to develop simplified modalities and procedures for small-scale projects; projects that meet one of the following criteria:

- renewable energy projects with a maximum output capacity of 15 megawatts (MW) or appropriate equivalent;
- energy-efficiency projects that reduce energy consumption on the supply and/or demand side by up to the equivalent of 15 gigawatt-hours (GWh) per year; and
- other projects that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of CO<sub>2</sub> equivalent annually.

COP 8 in New Delhi in 2002 adopted the simplified modalities and procedures for small-scale projects recommended by the EB. The project boundaries, a baseline methodology, leakage, and monitoring plan have been specified for over a dozen categories of small-scale projects.<sup>42</sup> This should simplify preparation of PDDs and validation of project and hence reduce the costs incurred by small-scale projects.

#### 4.6. Afforestation/reforestation projects

The modalities for afforestation and reforestation projects under the CDM were adopted at COP 9.<sup>43</sup> They are identical to those for emissions reduction projects with a few exceptions.<sup>44</sup> An afforestation/reforestation project must be implemented on land that was not forested on January 1, 1990. Projects may specify which of the carbon pools are to be included in the project.<sup>45</sup> GHG emissions from activities on the land prior to afforestation/reforestation are not included in the baseline, but leakage must be deducted from the increase in carbon stocks.<sup>46</sup> Afforestation/reforestation projects have longer crediting periods and must consider the socioeconomic and environmental impacts of the proposed project in accordance with the procedures required by the host party.<sup>47</sup> For the first commitment period, use of CERs from afforestation/reforestation projects by an Annex B party is capped at 1 percent of its base-year emissions multiplied by five.

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42. The EB indicated that project participants may propose new categories of small-scale projects and amendments to the modalities and procedures for small-scale projects, which will be reviewed at least once a year.

43. Only afforestation and reforestation projects are eligible under the CDM for the first commitment period. The eligibility of other sinks projects will be decided during the negotiations for subsequent periods.

44. Simplified rules for small-scale afforestation and reforestation projects are to be developed for adoption at COP 10 in December 2004. Small-scale afforestation and reforestation projects have expected net removals by sinks of less than 8 kilotonnes of CO<sub>2</sub> per year and are developed or implemented by low-income communities and individuals as determined by the host party.

45. The carbon pools are: above-ground biomass, below-ground biomass, litter, dead wood, and soil organic carbon. A pool may be excluded if the project participants provide transparent and verifiable information that the exclusion will not increase the quantity of reductions claimed. Thus if a pool is a sink, it need not be measured, but if a pool is a net source it must be measured.

46. For example, if the land was used for cattle grazing before being reforested, the emissions associated with the cattle cannot be part of the baseline. Cattle grazing and the associated emissions would no longer occur on the land after it has been reforested. If those emissions were part of the baseline, the project would get credit for eliminating those emissions. In practice it is likely that cattle grazing emissions elsewhere increased. Excluding the emissions from the baseline is equivalent to assuming the emissions increased by an equal amount elsewhere. Leakage is an increase in emissions outside the project boundary.

47. Project participants can choose a single crediting period of 30 years or a renewable crediting period of 20 years, with up to two renewals for a total of 60 years for sinks projects as compared with a single 10-year period or a 7-year period renewable twice for emissions reduction projects.

Since the carbon stored by the trees and soil can be released again by disease, fire, harvesting, or other events, the project proponents must choose one of the following two options to address non-permanence:

1. The temporary CER approach issues “tCERs” equal to the certified net increase in the carbon stocks since the inception of the project after each verification, but the tCERs can only be used for the period in which they are issued.<sup>48</sup>
2. The long-term CER approach issues “ICERs” equal to the certified net increase in the carbon stocks since the previous verification of the project after each verification, and requires an appropriate share of the outstanding ICERs to be replaced if there has been a net release of carbon.<sup>49</sup>

#### **4.7. Funding issues**

Public funding for CDM projects from Annex B parties is not to result in the diversion of official development assistance and is to be separate from and not counted towards the financial obligations of Annex B parties under the UNFCCC and the Kyoto Protocol.

Private investment gravitates primarily toward a handful of the larger developing countries. For this reason the COP/MOP is required to review the regional distribution of CDM projects with a view to identifying barriers to their equitable distribution and take appropriate decisions, including assistance in arranging funding for CDM projects.

Article 12.8 of the protocol states that a “share of the proceeds” of CDM projects is to be used to cover the CDM’s administrative costs and to fund the adaptation needs of developing country parties vulnerable to the adverse effects of climate change. The Marrakesh Accords specify the share of the proceeds for adaptation as 2 percent of the CERs issued for a project.<sup>50</sup> The share of proceeds to cover administrative expenses will be established by the COP/MOP based on a recommendation from the EB.<sup>51</sup>

The EB has established fees for accreditation of operational entities and for registration of projects. Organizations applying for accreditation as operational entities must pay a fee of US\$15,000.<sup>52</sup> Projects are required to pay a registration fee ranging from \$5,000 to \$30,000, depending on the size of the project, as a down payment until a share of the proceeds for administrative expenses is determined.

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48. No new tCERs can be issued after the end of the project’s crediting period.

49. The ICERs must be replaced by AAUs, CERs, ERUs, RMUs, or ICERs from the same project. If a verification report is not received when due, all of the ICERs for that project must be replaced. The ICERs for a project expire and must be replaced at the end of the project’s crediting period.

50. CDM projects hosted by least developed countries are exempt from the share of the proceeds related to adaptation. The CERs for adaptation are collected by the EB at the time the CERs are issued and are transferred to the Adaptation Fund established under the Kyoto Protocol. The Adaptation Fund is expected to sell the CERs to generate revenue for adaptation assistance.

51. The EB has stated that it will not make such a recommendation until 2004 when there is more information about CER prices. In the interim, the costs of administering the CDM are funded by voluntary contributions from parties, which they may request to be reimbursed.

52. Applicants from developing countries have the option to pay this fee in two installments.

## 5. Joint implementation

Annex B parties can jointly implement emissions reduction or sink enhancement projects, and to issue emission reduction units (ERUs) for the emissions reductions achieved.<sup>53</sup> The project helps the host party meet its emissions limitation commitment. To avoid double-crediting for the reductions, the appropriate number of AAUs is converted into ERUs.<sup>54</sup> JI projects starting as of 2000 are eligible, but they cannot earn ERUs for reductions achieved prior to 2008.

The Marrakesh Accords created two “tracks” for JI projects. Track 1 is self-regulation of JI projects by the host Annex B party. Track 2 involves international oversight of the project by the Article 6 Supervisory Committee (A6SC), whose functions are similar to those of the EB. The requirements of the two tracks are summarized in table 2.

**Table 2.** Requirements of Track1 and Track 2

	JI Track 1	JI Track 2
Participation requirement to be met by the host country	<ol style="list-style-type: none"> <li>1. Party to the Kyoto Protocol</li> <li>2. Has submitted a report for determining its initial assigned amounts (AAUs)</li> <li>3. Has a national system of evaluation of GHG emissions from sources and storage by eligible sinks</li> <li>4. Has a computerized national registry compliant with international requirements</li> <li>5. Annually submits a current inventory fully compliant with the Kyoto Protocol requirements</li> </ol>	<ol style="list-style-type: none"> <li>1. Party to the Kyoto Protocol</li> <li>2. Has submitted a report for determining their initial assigned amounts (AAUs)</li> <li>3. Has a computerized national registry compliant with international requirements</li> </ol>
Validation, registration	Host country validates and accepts proposed projects. An independent entity may be used for validation.	An independent entity validates a proposed project prior to registration by the A6SC.
Verification	Host country verifies the emissions reductions or sink enhancement achieved; may use an independent entity.	An independent entity performs the verification.
Transfer of ERUs	The host country transfers the agreed amount of ERUs.	The host country can transfer ERUs only after verification by an independent entity.

Source: Wollansky and Freidrich 2003.

The Marrakesh Accords say little about Track 1 except listing conditions that the host party must meet to use this option.<sup>55</sup> These eligibility conditions require the host party to be current in terms of its annual

53. Like the CDM, it was originally anticipated that each JI project would involve the entities or governments of two Annex B parties (bilateral model). Projects can be implemented unilaterally or with funding from a group of investors.

54. The host party has an emissions limitation commitment and receives AAUs equal to its commitment. Assume that its actual emissions were just equal to its commitment without the JI project. The reductions achieved by the project would leave the government with surplus AAUs equal to those reductions. If ERUs were also issued for the reductions, they would be credited twice. Converting AAUs into ERUs ensures the integrity of the compliance accounting.

55. A party that meets these conditions may still decide to require JI projects to use Track 2 to provide added credibility, to reduce the risk associated with possible loss of Track 1 eligibility in the future, or simply to reduce the administrative burden for the government.

emissions inventories and have the appropriate national systems in place. Under these conditions the host party should be able to assess the effect a proposed project would have on its national emissions, its holding of Kyoto units, and hence its compliance with its emissions limitation commitment. The host party may then regulate JI projects however it chooses.<sup>56</sup> If it awards ERUs in excess of the reductions achieved, then compliance with its emissions limitation commitment will be more difficult.

If the host Annex B party fails to meet its reporting and review eligibility requirements, it can only participate in JI projects under Track 2.<sup>57</sup> This involves international oversight of JI projects by the A6SC, whose functions, powers, and rules of procedures are very similar to those of the EB. The JI project cycle under Track 2 is also very similar to the CDM project cycle.

The COP/MOP will provide guidance regarding the implementation of Article 6 and exercise authority over the A6SC. The A6SC will be composed of ten members (and ten alternates), including three members from the Annex B economies in transition, three from other Annex B parties, three from non-Annex B parties, and one member from the small island developing states. The functions and rules of procedure of the A6SC will be essentially the same as those of the EB.

Proposed Track 2 projects will be validated by accredited independent entities (IEs) prior to registration by the A6SC.<sup>58</sup> The emissions reductions or sink enhancements achieved by projects will also be verified by IEs, which will be accredited by the A6SC, but they do not require designation by the COP/MOP. The accreditation provisions are essentially identical to those for DOEs and it is expected that many DOEs will also be IEs.<sup>59</sup>

Article 6 does not have a “share of the proceeds” provision to fund administrative costs. The Marrakesh Accords state that administrative costs shall be borne by both the parties included in Annex B and the project participants according to specifications set out in a decision by the COP/MOP at its first session.

## 6. Emissions trading

International emissions trading (IET) allows an Annex B party to transfer Kyoto units to another Annex B party. Although they may allow legal entities to participate in emissions trading, it is the national governments that have the compliance obligation under the protocol. As with the other mechanisms, the Marrakesh Accords provide that IET must be undertaken in accordance with modalities agreed by the COP that will be endorsed by the COP/MOP.

The eligibility requirements are the same as those for Track 1 of JI, as listed in table 2. These conditions require the host party to be current in terms of its annual emissions inventories and have the appropriate national systems in place. As well, an Annex B party may impose restrictions on trade under

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56. Although Article 6 provides that JI projects must generate ERUs additional to any that would otherwise occur, the fact that the host party must convert AAUs to ERUs means additionality is not critical for the environmental integrity of JI if the host party is meeting its reporting and review commitments.

57. Since the host party must convert AAUs to ERUs and transfer them internationally, the eligibility conditions for Track 2 are identical to those for international emissions trading.

58. The IE functions are not spelled out in a specific section as for the CDM but have to be gleaned from the Article 6 guidelines and the requirement of the A6SC to give consideration to relevant work of the EB as appropriate.

59. The provisions for withdrawal of accreditation of an IE are the same as those for DOEs.



Article 17; and a party may refuse to accept certain types of units, refuse units from some countries, or limit the quantity of units accepted to meet its supplementarity objective.<sup>60</sup>

Each Annex B party must maintain a commitment period reserve (CPR), a minimum quantity of Kyoto units, in its national registry. The reserve requirement is the lower of 90 percent of its assigned amount and 100 percent of five times its most recently reviewed inventory.<sup>61</sup> The former provision will generally be lower for countries that are net buyers of Kyoto units, while the latter will generally be lower for net sellers.<sup>62</sup> The CPR limits the scope for calculated or inadvertent over-selling of Kyoto units, potentially rewarding non-compliance if the penalties for failure to meet national emissions limitation commitments are weak or poorly enforced.<sup>63</sup>

The computerized transaction log maintained by the Secretariat will check all proposed transfers of Kyoto units between national registries. The transaction log will verify that a proposed transaction conforms with the CPR and other rules. If a proposed transaction violates any of the rules, the log will notify the national registry concerned, which is legally obliged to stop the transaction. Any units transferred in breach of CPR limits will be deemed invalid for compliance purposes until the CPR is re-established.

Many Annex B parties will establish national emissions trading programs as a domestic policy. Such trading programs will need to address if and how participants can use Kyoto units for compliance with their domestic obligations. The domestic program may use AAUs as the allowances or it may allow the exchange of Kyoto units for domestic allowances, and vice versa, under specified conditions.

## 7. Activities implemented jointly

COP 1 (in Berlin, 1995) established a pilot phase for activities implemented jointly (AIJ) under the UNFCCC. Parties could agree to implement voluntary projects to reduce emissions or enhance sinks. AIJ projects could not receive credits for the emissions reductions or sink enhancements achieved. At COP 7 it was decided that AIJ projects could qualify as CDM or JI projects and so earn Kyoto units.

An AIJ project that meets the requirements of the CDM may apply for registration as a CDM project before December 31, 2005. If accepted, the crediting period for the project may start any time after January 1, 2000. The project can then earn CERs for the emissions reductions from the start of the crediting period. An AIJ project that meets the requirements for JI projects may apply for registration as a JI project. If accepted, ERUs can be issued for emission reductions or sink enhancements achieved after January 1, 2008.

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60. Restraints on transfers of Kyoto units do not violate international trade law, because they represent exchanges of sovereign commitments rather than traditional goods and services. *Supplementarity* is the principle that the use of flexible mechanisms (emissions trading, CDM, joint implementation) is to be supplementary to domestic policies and measures, implemented by industrialized countries to meet their Kyoto targets. This principle was agreed at COP 6, Part 2 (Bonn, July 2001).

61. The CPR does not apply to transfers of ERUs for Track 2 JI projects since these ERUs are issued under international supervision in a host country that may not meet the eligibility requirements for IET.

62. See Missfeldt and Haites (2002).

63. Any party that allows its CPR to fall below required limits without taking prompt corrective measures risks finding itself before the Enforcement Branch and in the meantime not being able to transfer Kyoto units.



## 8. Overview of the Kyoto mechanisms

The three Kyoto mechanisms enable Annex B parties to the Kyoto Protocol to meet their emissions limitation commitments for 2008 to 2012 at lower cost. Projects under the CDM also contribute to the sustainable development of the non-Annex B host parties. At present only the CDM is operational; joint implementation and international emissions trading will begin operation after the protocol enters into force. Table 3 provides an overview of the Kyoto mechanisms.

**Table 3.** Overview of the Kyoto mechanisms

	Project mechanisms		Non-project mechanisms
	Joint implementation	Clean Development Mechanism	Emissions trading
Parties (subject to eligibility criteria)	Annex B–Annex B	Non-Annex B–Annex B	Annex B–Annex B
Authorized legal entities (dependent on party eligibility)	Yes	Yes	Yes
Kyoto unit	Emission reduction units (ERUs)	Certified emission reductions (CERs) Temporary CER (tCER) and long-term CER (lCER) from afforestation and reforestation projects	All Kyoto units including (AAUs), (RMUs), ERUs, CERs, tCERs, and lCERs.
Unit fungibility	Yes	Yes	Yes
Unit use restrictions	Refrain from using ERUs from nuclear facilities	CERs from afforestation and reforestation not to exceed 1 percent of Annex B users' assigned amount. Annex B parties are to refrain from using CERs from nuclear facilities	No restrictions
Unit carry over	Yes, up to 2.5 percent of a party's assigned amount	Yes, up to 2.5 percent of a party's assigned amount	Yes, without restriction
Unit availability	From 2008 to 2012	From 2000	From 2008 to 2012
Coverage of activities	All Kyoto eligible sources and LULUCF <sup>a</sup> activities	All Kyoto eligible sources. Sinks limited to afforestation/reforestation	Not applicable
Responsible institutions	COP/MOP, Article 6 Supervisory Committee, accredited independent entities	COP and COP/MOP, CDM Executive Board, designated operational entities	COP/MOP, national registries, transaction log
Administrative support	Climate Change Secretariat	Climate Change Secretariat	Climate Change Secretariat
Administrative costs	Borne by the participants	Borne by the participants	No specific provisions

Source: Adapted from Wollansky and Freidrich 2003.

<sup>a</sup>Land use, land-use change, and forestry in reference to net removal by sinks under Article 3.3 and 3.4 of the Kyoto Protocol.

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