

## *New Partnerships in Global Environmental Policy: The Clean Development Mechanism*

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*Today's fragmented world demands creative institutional arrangements to allow governments, international organizations, and civil society actors to join forces in addressing global environmental problems. This article discusses the Clean Development Mechanism (CDM) as foreseen under Article 12 of the Kyoto Protocol in the context of new models of governance. To do so, it depicts CDM's history, institutional setting and participatory elements. The CDM serves as a concrete example of how new collaborative networks consisting of nation states and nonstate actors can help in implementing international treaties. The article traces the history of the United Nations Framework Convention on Climate Change process to provide a sufficient background for a more detailed discussion of the CDM. On that basis, it provides an analysis of the CDM, and depicts the Prototype Carbon Fund, administered by the World Bank, as an example for an innovative model of cooperation between the private and the public sectors.*

**Keywords:** *Clean Development Mechanism; Kyoto Protocol; policy network; partnership; Prototype Carbon Fund*

**U**nder the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), industrialized countries have assumed binding greenhouse gas (GHG) emissions targets. The 39 states included in Annex I of the Kyoto Protocol have agreed to cut their GHG emissions by an agreed percentage below their 1990 levels in the period between 2008 and 2012.<sup>1</sup> To do so, they have to rely mainly on domestic

1. Annex B of the Kyoto Protocol lists the quantified emission limitation and reduction commitments of 39 states and the European Community. The emissions targets aim for an 8% reduction from 1990 emissions levels for member states of the European Community but allow an increase of 10% in Iceland.

action.<sup>2</sup> However, recognizing the importance of institutional flexibility and private sector involvement, the Kyoto Protocol introduced three mechanisms that may be used to supplement domestic action. Because GHGs mix uniformly in the atmosphere, it is equivalent from an environmental standpoint to reduce emissions domestically or abroad. Through the so-called Kyoto or flexible mechanisms, the Kyoto Protocol foresees the creation of markets for GHG emission reductions through project-based emission crediting or emission trading. Two of these mechanisms are available only to countries with qualified targets: (a) joint implementation (JI), set forth in Article 6, and (b) international emission trading, set forth in Article 17 of the Kyoto Protocol. In addition, the Kyoto mechanisms also define in Article 12 a Clean Development Mechanism (CDM), which aims to enhance cooperation among industrialized and developing countries to achieve sustainable development and reduce emissions. The flexible mechanisms in general, and the CDM in particular, are among the most innovative aspects of the emerging climate change regime. They address the problem of global warming on an international level and through mechanisms based on the principle of trading emission reduction offsets. The CDM provides the parties to the Kyoto Protocol with an instrument of mutual benefit for industrialized and developing parties while supporting project activities that create win-win situation for project participants.

The Kyoto mechanisms build a bridge between industrialized and developing countries while establishing a platform for a coordinated approach for public and private entities to implement the treaty. They provide a framework under which new collaborative network structures consisting of nation states and nonstate actors can evolve. Such cross-sectoral partnerships have been described as "global public policy networks" (Messner, 1997; Reinicke, 1998a,

2. In the preamble of the Marrakesh Accords, the parties to the UNFCCC confirm that

the use of the [flexible] mechanism shall be supplemental to domestic action and that domestic action shall thus constitute a significant element in the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction commitments included under Article 3, paragraph 1.

See Decision 15/CP.7/CMP.1, Principles, Nature and Scope of the Mechanisms Pursuant to Articles 6, 12, and 17 of the Kyoto Protocol, Recital 7, Document FCCC/CP/2001/13/Add.2.) (see United Nations Framework on Climate Change Control [UNFCCC], 2001). All decisions of the Conference of the Parties (CoP) to the UNFCCC are available at the UNFCCC Web site (<http://www.unfccc.int>).

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1998b; Reinicke, 1999/2000; Reinicke et al., 2000; Thatcher, 1998; see also [www.globalpublicpolicy.net](http://www.globalpublicpolicy.net)).<sup>3</sup> that go beyond traditional concepts of special interest politics, giving nonstate actors a variety of voluntary, semiformal, and formal roles in formulating policy responses and implementing international agreements. Partnerships between state and nonstate actors have emerged over the past 2 decades in response to the growing pressure to find practical solutions to complex problems that cannot be efficiently addressed by governments, and much less one single government, alone (Witte, Streck, & Benner, 2003). Although partnerships can fulfill a number of different roles and functions in global governance,<sup>4</sup> they are of particular relevance when it comes to translating international commitments forged in a treaty into local action. The widening implementation gap in international environmental policy indicates that traditional intergovernmental cooperation faces its limits when it comes to implementing solutions for increasingly multilayered international problems. Governments not only often lack the resources (and political will) to implement the vision and the consensus reached in international agreements, but they are simply not in the position to achieve sustainable development on their own. The times where the state had few rivals in determining international policy have obviously come to an end. Today, in our increasingly interdependent and globalized world, governments are competing with private entities for power, influence, and representation, aptly described and explained by various observers (Reinicke, 1998a; Strange, 1996, 1997). As a consequence of this changing environment, modern governance structures need to be adaptive to a permanently changing environment and open to new actors. Modern global governance models will have to rely for success not only on state action but on a public sector that delegates some aspects of public policy to nonstate actors. Governments are also advised to delegate policy processes to the governance level at which policy solutions can most effectively be formulated and implemented. Despite the importance of all efforts on the international and national levels, to make a policy really effective, people and institutions on the local level need to build the same ownership toward the results of any activity as policy makers on higher levels. If implementation mechanisms draw on skills and resources of a diverse set of peoples and institutions at international, regional, national, and local levels, they can complement government action and partnerships between private and public actors and can help to address the implementation deficit on the national, regional, or international level. They can be formed with the

3. The author of this article also participated as a case study author in the Global Public Policy Network (GPPN) Project, led by Wolfgang Reinicke and Francis Deng. The project took place in 1999 and 2000 and was sponsored by the United Nations Foundation. The results of the GPPN Project are captured in Reinicke et al.'s *Critical Choices* (2000).

4. For a more detailed analysis, see Reinicke et al.'s *Critical Choices* (2000).

specific purpose of translating the results of intergovernmental negotiations into concrete action and improving the willingness and capacity for compliance of different stakeholders. What is true for environmental problems in general is of particular relevance for the area of global warming: The intrinsic nature of climate change requires international cooperation because it is impossible to tackle global warming nationally. However, international action will rely on the implementation of national policy and measures by governments, and for its ultimate success, government will have to secure cooperation from all stakeholders to formulate solutions that curb GHG emissions.

The CDM is an example of an internationally defined mechanism that provides for a platform for the creation of a wide array of partnerships. In its involvement of private entities in the compliance mechanisms under the Kyoto Protocol, the mechanism breaks new ground in international environmental law. This article will describe and analyze the background and operational principles of the CDM. On that basis, the article will present the World Bank's Prototype Carbon Fund (PCF) as an example of an implementation network for CDM projects and an innovative model of cooperation between the private and the public sector under the forthcoming framework of the Kyoto Protocol.

### ***Background: UNFCCC and the Kyoto Protocol***

On May 9, 1992, international negotiators agreed with the UNFCCC (or Convention)<sup>5</sup> the first treaty to tackle the phenomenon that became known as *global warming*. The Convention was opened for signature at the Earth Summit in Rio de Janeiro in June 1992 and entered into force 3 months after the 50th ratification document had been submitted, on March 21, 1994. The ultimate objective of the Convention is the "stabilization of greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system" (Article 2 of the UNFCCC). With the adoption of the Kyoto Protocol 3 years later, at the third session of the Conference of the Parties (CoP) to the UNFCCC, another landmark agreement was reached. In contrast to the UNFCCC, the Kyoto Protocol provides for specific quantified emission targets to be met by the countries listed in UNFCCC Annex I (industrialized countries and economies in transition together, or so-called Annex I countries) over the first commitment period, beginning in 2008 and ending in 2012. The Kyoto Protocol recognizes that economic and social development and poverty reduction are the overriding priorities for

5. See 31 I.L.M. 849 (1992), May 29, 1992 (UNFCCC, 1992).

non-Annex I countries and that their emissions will, by necessity, grow as their material welfare improves (Freestone, 2001). At the same time, many of the effects of global warming are likely to have very damaging effects on poorer countries. The Kyoto Protocol defines three flexible mechanisms to allow for achievement of compliance with a country's emission limits through activities that are implemented outside of its national territory and rely on the transfer of emission rights. The CDM is the only of these mechanisms that involves developing countries in the efforts to limit GHG emissions.

However, the Kyoto Protocol is general in its language and misses operational details that would give sufficient guidance to implement the treaty provisions. Adopted under the UNFCCC, it is by itself more a framework than a treaty ready for immediate implementation. Subsequent to Kyoto, parties still needed to agree on details on how to administer, use, and implement the flexible mechanisms; on how to develop the compliance system outlined in the protocol; on methodologies for estimating emissions and removals; and on reporting obligations.

On November 14, 1998, the fourth Session of the Conference of the Parties to the UNFCCC (CoP4) adopted the Buenos Aires Plan of Action to strengthen the implementation of the Convention and prepare for the protocol's entry into force. In this plan of action, CoP6 was set as the deadline for adopting decisions on most of the outstanding issues. Despite all efforts, CoP6, which was held in The Hague, the Netherlands, from November 13 to November 25, 2000, did not have a tangible result because of the complexity of and lack of agreement on a range of issues. The parties decided not to close the conference but to suspend the meeting with the aim to resolve the remaining politically contentious issues. After the failure of the first part of CoP6, bilateral discussions began. In March 2001, the United States, the single biggest emitter of GHG, pulled out of the process, and the future for the protocol seemed bleaker than ever before. After some months of frantic negotiations by mostly European negotiators and diplomats who tried to rescue the process, the parties reconvened to a second session of CoP6 in Bonn, Germany, where the parties adopted, after 2 days of continuous negotiations at the ministerial level, on Monday, July 23, 2001, a political agreement on the core elements of the Buenos Aires Plan of Action. The successful outcome of CoP7, which was held from October 29 through November 9, 2001, in Marrakesh, Morocco, resulted in the adoption of the final text required to make the CDM operational (the Marrakesh Accords).<sup>6</sup>

To date, the Kyoto Protocol has yet to enter into force. The rules governing the entry into force of the protocol require 55 parties to the UNFCCC to ratify the protocol, including industrialized country parties

6. See Decisions 15-19/CP.7/CMP.1, Document FCCC/CP/2001/13/Add.2 (UNFCCC 2001).

accounting for 55% of Annex I party's GHG emissions in 1990.<sup>7</sup> As of April 15, 2004, 122 countries had ratified the Kyoto Protocol (see <http://unfccc.int/resource/kpstats.pdf>), accounting for 44.2% of GHG emissions from Annex I parties. Because the United States has signaled that it is not willing to submit the Kyoto Protocol for ratification, the entry into force of the protocol depends on the ratification by the Russian Federation.

### *The CDM*

#### HISTORY

The CDM was negotiated without much history and prior consultations in the last days of CoP3 and has been described as the "Kyoto surprise" (Werksman, 1998). Up until Kyoto, the discussions on emission offsets from projects had been limited to JI. Experiences were available from projects implemented under the Activities Implemented Jointly (AIJ) Program under the UNFCCC.<sup>8</sup> Although the industrialized countries showed significant interest in including the concept in the treaty, there were major differences as to when and how to include non-Annex I parties as well as to the rules that would govern the inclusion of a JI mechanism in the context of the protocol. Developing countries generally opposed any participation in JI, their concerns reaching from a feared "neocolonialism" to concerns that Annex I countries would be let "off the hook" to the incomplete evaluation and analysis of the AIJ program (Oberthür & Ott, 1999, p. 158). At the same time, however, developing countries had significant interest in channeling resources to their

7. See Article 25 of the Kyoto Protocol (UNFCCC, 1997). The Kyoto Protocol has been issued as part of the CoP3 report, Document FCCC/CP/1997/7/Add.1. It has not yet entered into force.

8. Between 1997 and 2001, the Subsidiary Body for the Scientific and Technological Advice and the Subsidiary Body for Implementation prepared synthesis reports evaluating the experience gained with the Activities Implemented Jointly (AIJ) Program and submitted it for consideration to the CoP of the UNFCCC. These reports showed that the bulk of AIJ took place between Annex I parties, with host countries being economies in transition (EITs). Eighty-five out of 152 activities were carried out among Annex I parties; see the AIJ Program's Fifth Synthesis Report, FCCC/SBSTA/2001/7, paragraph 6 (UNFCCC, 2001). In analyzing the different types of projects, it should be kept in mind that out of all the projects in EITs, 55 were small activities of a similar type implemented by Latvia, Estonia, and Sweden. The percentage of non-Annex I parties that participated in AIJ Program significantly increased over time. In 1997, only three non-Annex I parties had AIJ, of which one country in the Latin American and Caribbean regions (Costa Rica) hosted 8 of 10 activities of non-Annex I parties; see the AIJ Program's Synthesis Report, FCCC/SBSTA/1997/12, paragraph 6[a] (UNFCCC, 1997). Four years later, the majority of all host countries were non-Annex I countries; see the AIJ Program's Fifth Synthesis Report, FCCC/SBSTA/2001/7, Annex (UNFCCC, 2001).

countries, a process that would allow them to implement adaptation and, to a lesser extent, mitigation measures. Shortly before the Kyoto CoP, Brazil tabled a proposal that foresaw the establishment of a Clean Development Fund financed by contributions from noncompliant Annex I countries.<sup>9</sup> The United States welcomed the Brazilian proposal, as it saw the opportunity to both link the proposal with an increased flexibility in meeting the emission limitation targets and involve developing countries in the mitigation measures under the protocol. It had argued for geographic flexibility in meeting the commitments to avoid broader international economic measures such as a carbon tax, which it saw as causing unacceptable damage to its economy (Grubb, Vrolijk, & Brack, 1999; Kolk & Pinkse, 2004). After a week of discussions characterized by the lack of time to assess all options and implications, the parties reached consensus on the CDM in its final form, as it will be described in more detail below. The CDM was a remarkable achievement of Kyoto, which was “the result of an unlikely combination of motivations and interests, which produced a dynamism that even the strongest opponents to the participation of developing countries in JI ultimately could not resist” (Oberthür & Ott, 1999, p. 168). With the CDM, developing countries succeeded in tapping a new source of funding that would include an international fee for adaptation measures, although they had to give up the idea of the establishment of a special fund. The negotiation group around the United States, on the other hand, booked major success for including a key flexibility mechanism that would pave the way to more meaningful developing country commitments (Oberthür & Ott, 1999).

In Article 12.7, the Kyoto Protocol foresees the elaboration of modalities and procedures for the CDM by the first meeting of the parties of the Kyoto Protocol. However, parties to the UNFCCC deviated from this article when they agreed at CoP4 to reach consensus on the implementation of the CDM independently from the entry into force of the Kyoto Protocol. The reason for this can be found in Article 12.10 of the Kyoto Protocol, which foresees the generation of emission reduction credits from CDM project activities starting with the year 2000. The parties to the UNFCCC, through the Marrakesh Accords, agreed to facilitate this so-called prompt start of the CDM. Included in the Marrakesh Accords are the modalities and procedures for the CDM.<sup>10</sup> The accords also establish the CDM Executive Board, the body governing the implementation of the CDM. Once the Kyoto Protocol has entered into force, the ultimate authority over the CDM lies with the governing body over the Kyoto Protocol, the conference of the parties to the UNFCCC serving as the

9. See 16 FCCC/AGBM/1997/MISC.1/Add.3: 3-57 (UNFCCC, 1997). For more detail, see Oberthür and Ott's *The Kyoto Protocol: International Climate Policy for the 21st Century* (1999, pp. 165-168).

10. See Decision 17/CP.7, Modalities and Procedures for a Clean Development Mechanism Annex, Document FCCC/CP/2001/13/Add.2 (UNFCCC, 2001).

meeting of the parties to the Kyoto Protocol (CoP/MoP), constituted by the parties that have ratified the protocol. However, to implement the prompt start of the CDM, the UNFCCC CoP assumes the responsibilities of the CoP/MoP before the entry into force of the protocol.<sup>11</sup> The CDM, therefore, has started operating and is not depending on the entry into force of the Kyoto Protocol.

#### THE IDEA

The CDM is based on cooperation between industrialized (Annex I) and developing country (non-Annex I) parties and project participants. It is designed to allow countries with emission reduction obligations under the Kyoto Protocol to achieve emission reductions credits from projects in developing countries. The objective of the CDM as defined in Article 12 of the Kyoto Protocol is twofold:

- to assist developing country parties to the Kyoto Protocol in achieving sustainable development, thereby contributing to the ultimate objective of the Convention; and
- to assist developed country parties to the Kyoto Protocol in achieving compliance with part of their quantified emission limitation and reduction commitments under Article 3 of the Protocol.

The CDM captures some of the most innovative aspects of the emerging climate change regime. It provides the parties to the Kyoto Protocol with an instrument of mutual benefit for industrialized and developing parties through supporting project activities that create a win-win situation for project participants. The mechanism does as follows:

- builds a bridge between industrialized and developing countries;
- creates a platform for a coordinated approach for public and private entities to implement the treaty; and
- reduces costs of treaty implementation.

By taking developing countries' concerns into account, the CDM establishes a scheme of JI between Annex I and non-Annex I parties. As the participation in the CDM requires ratification and compliance of the protocol<sup>12</sup> from all participating parties, the CDM also provides an initiative to ratify and tool for ensuring compliance with the protocol.

11. See paragraph 2 of Decision 17/CP.7, Document FCCC/CP/2001/13/Add.2 (UNFCCC, 2001).

12. The participation requirements for industrialized countries (Annex I countries) are far more onerous than are the participation requirements for developing countries (non-Annex I countries). See Decision 17/CP.7/CMP.1, Modalities and Procedures for a Clean Development Mechanism Annex, §29-33, Document FCCC/CP/2001/13/Add.2 (UNFCCC, 2001).

Process/Step	Description	Key Institutions
1. Project Development, Design, and Financing	<ul style="list-style-type: none"> <li>Identify and formulate project</li> <li>Conduct feasibility and baseline studies</li> <li>Arrange for necessary financing</li> <li>Seek government approval and assurance that project meets sustainable development goals of host</li> </ul>	Governments, Project Developers, NGOs, Development Banks, Other Investors
2. Validation and Registration of the Project	<ul style="list-style-type: none"> <li>Approve project baseline/additionality</li> <li>Ensure adequate monitoring provisions</li> <li>Ensure public comment</li> <li>Register projects with CDM Executive Board</li> </ul>	DOEs, CDM Executive Board
3. Project Monitoring	<ul style="list-style-type: none"> <li>Track performance during operation</li> <li>Collect data and keep records to ensure transparency</li> </ul>	Project Operators
4. Verification, Certification, and Issuance of Credits	<ul style="list-style-type: none"> <li>Independently assess to determine quantity of emission reductions achieved</li> <li>Certify and issue CERs, based on verified emission reductions</li> </ul>	DOEs, CDM Executive Board

**Figure 1: CDM Project Cycle**

Source: Adapted from Baumert, Kete, and Figueres (2000).

Note: CDM = Clean Development Mechanism; CERs = Certified Emission Reductions; DOEs = Designated Operational Entities.

**THE MECHANISM**

CDM projects are expected to generate emission reductions that, once they have been certified by an independent verifier and issued by the Executive Board of the CDM, become Certified Emission Reductions (CERs), provided that the project leads to real, measurable, and long-term benefits related to the mitigation of climate change and results in emission reductions that are additional to any that would occur in the absence of the project. Industrialized Annex I countries may add CERs to their assigned amounts and thereby use CERs to offset domestic GHG emissions.

CDM projects pass through a common project cycle, summarized in Figure 1, beginning with the initial project idea, followed by project development and registration, then flowing through implementation, and ending with periodic verification and certification of emission reductions. The maximum project duration of a CDM project is 21 years, during which the project participants need to ensure ongoing monitoring and verification of emission reductions. The CDM project cycle involves the project participants as well as four different institutional players. The CoP/MoP has principle authority over the CDM. The Exec-

utive Board is responsible for and supervises the day-to-day activities of the CDM. The board consists of 10 members representing different United Nations regions. Members are nominated by their constituencies and elected by the CoP/MoP.<sup>13</sup> It issues the CERs in a number that equals the verified emission reductions stated in an independent verification and confirmed in a certification report. It also accredits the Designated Operational Entities (DOEs) that are responsible for assessing projects for validation, for verifying that emission reductions occurred, and finally, for giving certification of these reductions to the Executive Board. DOEs fulfill the role of validating CDM projects and verify or certify emission reductions generated by registered CDM projects. Designated national authorities of the participating countries are responsible for issuing letters of approval on behalf of the participating parties.

With the decision to integrate the CDM in the Kyoto Protocol, negotiators have opened the system of assigned amounts to emission reduction offsets, which are achieved through project implementation outside of Annex I country territories. Each CER imported into the Annex I registries represents an increase in the overall emissions of Annex I countries under the Kyoto Protocol cap. Central for the success and the credibility of the CDM is therefore the establishment of a system that ensures that the emission reductions achieved are additional, real, and measurable. Emission reductions must be additional to what would occur in the absence of the CDM activity.<sup>14</sup> The generating of emission reductions is therefore measured against a counterfactual scenario that describes the baseline and defines the most likely course of action without the project. Emission reductions are typically calculated as the difference between emissions in the baseline and project scenarios. The Executive Board approves methodologies that help establish the baseline and the monitoring of emission reductions. The Marrakesh Accords set the framework for approval of methodologies for CDM projects that is based on a bottom-up approach. This means that project sponsors or their consultants are invited to develop new baseline and monitoring methodologies and to submit these methodologies, along with a demonstration project, for review and approval by the Executive Board. An approved methodology can then be used for similar CDM projects that meet the stated conditions for use of the methodologies.

13. See Decision 17/CP.7/CMP.1, Modalities and Procedures for a Clean Development Mechanism Annex, Document FCCC/CP/2001/13/Add.2, paragraphs 7 and 8 (UNFCCC, 2001).

14. See Decision 17/CP.7/CMP.1, Modalities and Procedures for a Clean Development Mechanism Annex, Document FCCC/CP/2001/13/Add.2, paragraphs 44 and 45 (UNFCCC, 2001).

**Table 1**  
**Submitted Methodologies (as of June 4, 2004)**

<i>All Submissions</i>	
Approved methodologies (A-rated methodologies)	11
Published and approved methodologies	5
B-rated methodologies	3
C-rated methodologies	10
Other methodologies in process	31
Total	55

The Executive Board occupies a central role in the implementation of the CDM as it is responsible for supervising the CDM, which includes not only approving baseline methodologies but also accrediting, suspending, and provisionally designating operational entities; registering CDM projects; and establishing and maintaining the CDM registry.<sup>15</sup> The Executive Board interprets the Marrakesh Accords and issues guidance on various aspects related to the CDM.

Despite enormous efforts by its members, the Executive Board faces significant challenges. To date, it has published only five approved methodologies (see Table 1). Concerns therefore persist with respect to the capacity and resources in the CDM regulatory system, concerns that have reduced confidence in the CDM. In particular, doubts continue to exist as to whether the Executive Board, in its current form and under current procedures, would be able to cope with the workload commensurate with a significant contribution of the CDM to Kyoto Protocol implementation. This situation is particularly troublesome as, because of the project development times in the CDM, and in the absence of an agreement on a commitment period beyond 2012, the window of opportunity for preparation of CDM projects is closing fast. To make the CDM a success, the equipment of the Executive Board with financial and staff resources should be a priority.<sup>16</sup>

#### THE CREATION OF A CARBON MARKET

As an economic mechanism, the CDM relies on market forces for its successful implementation. Wherever command and control regula-

15. For a more complete list of the Executive Board's responsibilities, including those unrelated to the project cycle, see Decision 17/CP.7/CMP.1, Modalities and Procedures for a Clean Development Mechanism Annex, Part C, Executive Board (UNFCCC, 2001).

16. For more information on the progress in approving Clean Development Mechanism methodologies, see <http://cdm.unfccc.int/>. Background is also available at <http://carbonfinance.org/router.cfm?Page=methodology#2>.

tions are unable to internalize the external costs of the environment, economic instruments may help by distributing and prizing a formerly common good. Markets thus create scarcity and place limits on the use of resources to avoid further degradation of that resource.

Following this logic, the Kyoto Protocol sets ceilings for Annex I emissions and allows the transfer of Assigned Amount Units (i.e., international emissions trading) under Article 17 of the protocol. Because it is irrelevant where GHGs are reduced, the CDM opens the door for offset projects outside of Annex I countries. Applying market principles, actors are turning to cost-efficient emission reductions beyond national borders. The CDM creates a market for emission rights (CERs). The market in emission rights is based on the definition of a homogenous Emission Reduction Unit that is standard in its effect on global warming and certified in its quality. These units are generally denominated in tonnes of carbon dioxide equivalents and allow for an accounting of emission rights. CERs are fungible with the other units defined under the Kyoto Protocol, such as Assigned Amount Units and Emission Reduction Units. They gain legal relevance outside of the Kyoto Protocol when they are accepted as compliance units under a different legal regime, such as under the European Emissions Trading Scheme ([EPC], 2002).<sup>17</sup> Associated with this market, which is based on the achievement of emission reductions and the trade of emission rights and has become known as the *carbon market*, are supporting, secondary markets that facilitate investments and risk management (Larson, 2001).<sup>18</sup>

The global carbon market currently has a volume of 300 million tonnes of CO<sub>2</sub> equivalent (mtCO<sub>2</sub>e) emission reductions or emission rights traded in the period between 1998 and 2004, with an upward trend. In the first six months of 2004, 60mtCO<sub>2</sub>e have been traded, which represents almost a 100% increase compared to the same period in 2003. The vast majority of this volume is from project-based transactions intended for compliance with the Kyoto Protocol (Lecocq, 2004).<sup>19</sup>

The CDM thus creates a global market in emission rights. Hailed by many, the mechanism has also given rise to criticism. It has been claimed that the CDM deviates funds and attention from domestic emission

17. See "Directive 2003/87/EC of the European Parliament and of the Council of October 12, 2003, establishing a scheme for greenhouse gas emission allowance trading within the Community." See also the amending "Council Directive 96/61/EC," published in the *Official Journal of the European Union* on October 25 (2003; L 275, p. 0032-0046). See also the European Commission Proposal of July 23, 2003, for a directive of the European Parliament and of the Council amending the directive establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect to the Kyoto Protocol's project mechanisms, COM (2003) 403 (Proposal for a Linking Directive). For further information, see European Parliament and Council (EPC; <http://europea.eu.int/eur-lex/en/>).

18. See [www.prototypecarbonfund.org](http://www.prototypecarbonfund.org).

19. See [www.prototypecarbonfund.org](http://www.prototypecarbonfund.org).

reduction and attracts only resources for cheap mitigation options (the so-called low-hanging fruit), leaving developing countries to undertake the more expensive options themselves (Agarwal & Narain, 1999). Additionally, there is some concern that the CDM will channel investment into projects of marginal social utility (Agarwal & Narain, 1999) or that the gains will not be shared fairly (Parikh, 1992, 1994, 1995). On the other hand, the CDM plays an important role in providing additional financial resources to projects that mitigate GHGs face in developing countries (Beg et al., 2002). Investors are often not willing to take the significant risks that are associated with investments in renewables, energy efficiency, and afforestation projects in developing countries. The mechanism allows developing countries to initiate and implement GHG mitigation projects and in return sell the CERs to Annex I countries or entities. These benefits outweigh many of the political concerns expressed with regard to the CDM.

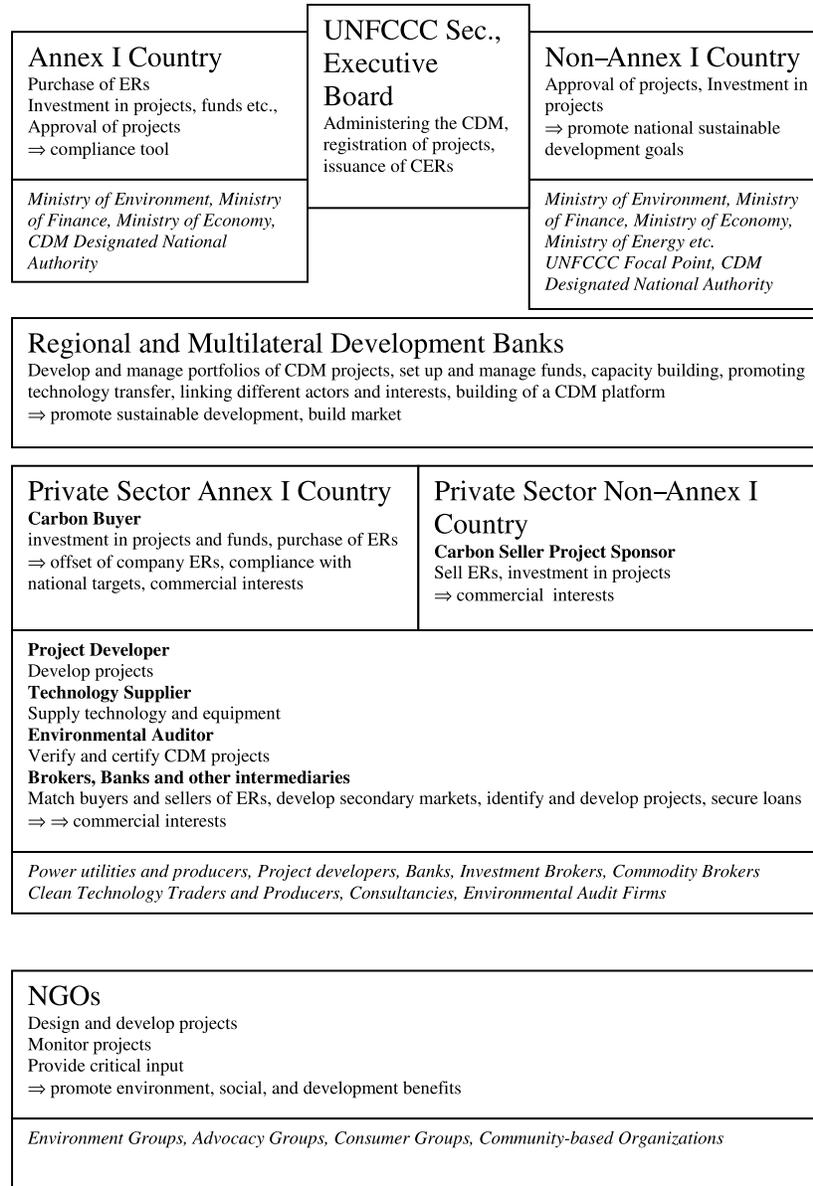
#### ACTORS INVOLVED IN THE IMPLEMENTATION OF CDM PROJECTS

Sustainable CDM projects can only be executed if legal and policy regulations make it possible that the skills and resources of a diversity of people and institutions at many levels contribute to the success of the project. The design of the CDM recommends a broad variety of actors participating in the mechanism (see Figure 2 for the roles and functions of the different actors). Unusual for an international treaty, the Kyoto Protocol foresees the active involvement of private entities in the implementation of the mechanism.<sup>20</sup> Together with governments from Annex I and non-Annex I countries and supervised by the CoP/MoP and the Executive Board, they are expected to be the driver behind the international carbon market.

##### *Governments Involved in the CDM*

National governments of Annex I countries will figure mostly as investors in projects or buyers of CERs. Today, a number of European countries, Canada, and Japan already have gained experience with CDM projects. The commitment of the member states of the European Union to meet their Kyoto target interdependently of the entry into force of the Kyoto Protocol as well as the European Emissions Trading System

20. Project participants need governmental authorization to participate in the Clean Development Mechanism (CDM). The Executive Board has defined project participant as "parties or private and/or public entities that take decisions on the allocation of CERs [Certified Emission Reductions] from the project activity under consideration" (UNFCCC, 2003). A glossary of the terms used in the CDM project design document (Executive Board, 2003, 7th meeting of the EB, January 20-21, 2003, Annex 4 to the Meeting Report) is available at <http://cdm.unfccc.int/EB/Meetings>.



**Figure 2: Participants in CDM Projects**

Note: CDM = Clean Development Mechanism; UNFCCC Sec. = Secretariat of the United Nations Framework Convention on Climate Change; ERs = emission reductions.

**Table 2**  
**Participation Requirements of the CDM**  
**According to the Marrakesh Accords**

In accordance with the modalities and procedures for a CDM (Annex Decision 17/CP.7):

28. Participation in a CDM project activity is voluntary.
29. Parties participating in the CDM shall designate a national authority for the CDM.
30. A Party not included in Annex I may participate in a CDM project activity if it is a Party to the Kyoto Protocol.
31. Subject to the provisions of paragraph 32 below, a Party included in Annex I with a commitment inscribed in Annex B is eligible to use CERs, issued in accordance with the relevant provisions, to contribute to compliance with part of its commitment under Article 3, paragraph 1, if it is in compliance with the following eligibility requirements:
  - (a) It is a Party to the Kyoto Protocol;
  - (b) Its assigned amount pursuant to Article 3, paragraphs 7 and 8, has been calculated and recorded in accordance with decision –/CMP.1 (Modalities for the accounting of assigned amounts);
  - (c) It has in place a national system for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, in accordance with Article 5, paragraph 1, and the requirements in the guidelines decided thereunder;
  - (d) It has in place a national registry in accordance with Article 7, paragraph 4, and the requirements in the guidelines decided thereunder;
  - (e) It has submitted annually the most recent required inventory, in accordance with Article 5, paragraph 2, and Article 7, paragraph 1, and the requirements in the guidelines decided thereunder, including the national inventory report and the common reporting format. For the first commitment period, the quality assessment needed for the purpose of determining eligibility to use the mechanisms shall be limited to the parts of the inventory pertaining to emissions of greenhouse gases from sources/sector categories from Annex A to the Kyoto Protocol and the submission of the annual inventory on sinks;
  - (f) It submits the supplementary information on assigned amount in accordance with Article 7, paragraph 1, and the requirements in the guidelines decided thereunder and makes any additions to, and subtractions from, assigned amount pursuant to Article 3, paragraphs 7 and 8, including for the activities under Article 3, paragraphs 3 and 4, in accordance with Article 7, paragraph 4, and the requirements in the guidelines decided thereunder.
32. [—]
33. A Party that authorizes private and/or public entities to participate in Article 12 project activities shall remain responsible for the fulfilment of its obligations under the Kyoto Protocol and shall ensure that such participation is consistent with the present annex. Private and/or public entities may only transfer and acquire CERs if the authorizing Party is eligible to do so at that time.

Source: <http://cdm.unfccc.int/pac/rules/modproced.html#FPART> (UNFCCC, 2002).

Note: CDM = Clean Development Mechanism; CERs = Certified Emission Reductions.

are expected to further accelerating Annex I country involvement in the CDM.<sup>21</sup>

Another important role of industrialized country governments is to approve projects and authorize private sector entities of their countries to participate in CDM projects and to give national private sector entities all necessary assistance to meet whatever requirements the Executive Board of the CDM may develop (see Table 2 for the participation requirements of the CDM). When and how private sector entities can receive and use CERs will depend on national implementation rules and on the authorization they have received from their governments.

CDM host countries need to support individual CDM projects through project approval.<sup>22</sup> Article 12 of the Kyoto Protocol and the Marrakesh Accords establish the criteria for such approval. The host country must be a party to the Kyoto Protocol, and its participation in the project must be voluntary. It must also confirm that the project assists in achieving sustainable development in its country. Additionally, the non-Annex I country will also authorize local private sector entities participating in CDM project activities. Other than that, a host country can also actively be part of a CDM project as seller of emission reductions and as project sponsor. Which role the host country assumes depends largely on its access to international finances and markets, its legislative framework, and the features of the individual project.

#### *Private Parties Involved in the CDM*

From the private sector side, the CDM has attracted the interest of the private sector in industrialized and developing countries alike. There are two basic reasons why the private sector is motivated to participate in activities related to the CDM: First, in order to achieve their emission reductions commitments under the Kyoto Protocol, national governments will need to allocate rights to emit GHGs among the current and future sources of emissions in their own countries, most of which will be in the private sector. As a consequence, the private sector will be

21. In the process of developing their National Allocation Plans under the European Emissions Trading Scheme, EU member states have to take into account their Kyoto target (under the European Union burden sharing agreement). In the process of obtaining approval of the allocation plans from the European Commission, they have also to substantiate their declarations to use the flexible mechanisms established under the Kyoto Protocol to meet their targets.

22. The designated national authority of each party involved in a CDM project activity is required to submit to the project participants "written approval of voluntary participation;" see Decision 17/CP.7/CMP.1, Modalities and Procedures for a Clean Development Mechanism Annex, paragraph 40 (UNFCCC, 2002). Thus, the letter of approval from each participating party must state that participation by the parties is voluntary. In addition, the letter of approval from host countries must also state that the project meets the countries' sustainable development criteria.

required to achieve reductions and if allowed to do so, may choose to meet some of its obligations by carrying out clean development projects. The European Emissions Trading Scheme is just one of such a policy measure through which Annex I countries translate their commitments into targets of a group of private sector actors. Of particular relevance is a recent amendment to the trading scheme which establishes a link between the scheme and the Kyoto Protocol when it allows the use of credits generated by CDM and JI for compliance use under the European Emissions Trading Scheme (EPC, 2003).<sup>23</sup>

Second, private sector entities may be motivated to participate in project activities to make profit, if they are engaged in lines of business that are related to these emission reduction activities, such as technology development, power generation, contract negotiations, broker, and trader (Campbell, 1998). Most prominently in this group are the DOEs, which guarantee through their verification and certification services the environmental credibility of the projects and the emission reductions.

Although private sector entities from industrialized countries focus on using the CDM as compliance tool, acting as broker in the trade with CERs, or setting up and managing investment funds, private sector entities from non-Annex I countries most likely see the possibility of generating and selling GHG emission reductions under the CDM as a means of making a difference in the internal rate of return of their projects and of pushing marginal projects into the realm of economic viability. The CERs arising from a CDM project will have cash value that will make a project viable from the sponsor's point of view. A forward carbon sale represents a cash-flow or equity contribution that can be valuable to the project.

#### *NGO Participation in the CDM*

When it comes to project implementation, participation of NGOs is critical in helping to ensure that (a) the dual objectives of achieving sustainable development in non-Annex I countries and additional emission reductions are achieved and (b) non-Annex I countries have the capacity to request technology and projects that help them achieve their sustainable development goals. Through roots in the local community, NGOs can mobilize stakeholders' participation: They can gather information on the basis of initial surveys of the present situation, predict trends related to climate change issues, and create favorable conditions

23. Parliament approval of the Linking Directive from April 21, 2004 (based on an agreed text from April 7, 2004). The final directive is expected to be published in fall 2004. For an earlier draft, see "Proposal for a Directive of the European Parliament and of the Council, amending the Directive establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms" COM(2003) 403 final (EPC, 2003).

among those for project implementation through dialogue and awareness creation. They also have specific knowledge that helps to prioritize CDM mitigation options, capacity building activities, and policy measures. It also helps to minimize the negative impacts of projects when citizens and NGOs with expertise in different project types have opportunities to influence project design and sustainability. NGOs tap local knowledge and enhance benefits flowing to local communities by enabling project developers to better recognize community needs. In the end, an effective and active involvement of local NGOs and stakeholders in project design and implementation reduces the financial risks of a project by achieving local public support and avoiding costly political opposition, legal action, and local unrest.

The interests NGOs represent in the CDM are conceptually not always in harmony with private sector interests. There is still a deeply rooted mistrust from a group of international NGOs with respect to the type of projects that may attract funding and with respect to methodologies and procedures to establish baseline methodologies.<sup>24</sup> These concerns are countered by private sector representatives who find the procedures too complicated (and far too costly) and methodologies too restrictive.

The Climate Action Network, an umbrella for a group of international NGOs working on climate change issues,<sup>25</sup> argues that certain projects should be excluded from CDM<sup>26</sup> and that stakeholder participation should be increased (Climate Action Network [CAN], 2000, point 4). The costs of any additional procedures should be reflected in the overall cost of the project and funded by the project developer and sponsor. Private project sponsors, however, already complain about the high transaction costs of engaging in CDM projects. They would like to restrict costs to a minimum and have an interest in CDM projects only if such projects are not overloaded with additional requirements that could add to the total costs of the project. Quite naturally, the investor wishes to minimize expenditure and maximize income while achieving a maximum number of emission reduction credits. The project sponsor is not so much concerned with the delivery of sustainable development, provided the project delivers enough emission credits to legitimize the contract. The private sector also has a clear interest to interpret confidentiality broadly,

24. See [www.cdmwatch.org](http://www.cdmwatch.org).

25. Since the first CoP of the UNFCCC in Berlin in 1995, when NGOs from the North and South came together under a coalition called the Climate Action Network (CAN), NGOs have tried to coordinate efforts and to build a consolidated NGO opinion.

26. The WWF (formerly known as World Wildlife Fund) has developed a gold standard for CDM projects, which defines additional criteria for the CDM. (see [http://www.panda.org/about\\_wwf/what\\_we\\_do/climate\\_change/what\\_we\\_do/business\\_industry/gold\\_standard.cfm](http://www.panda.org/about_wwf/what_we_do/climate_change/what_we_do/business_industry/gold_standard.cfm)).

where NGOs want to make sure that the public has access to all relevant social and environmental information and thus can have a meaningful impact into decision making.<sup>27</sup>

NGO claims often add to the complexity of the CDM project cycle. Experience shows that a too complex project cycle can seriously hamper participation in projects. It is therefore the responsibility of the governments represented in the CoP/MoP and of the experts sitting on the Executive Board to strike the right balance between transparency and participation and effectiveness and financial viability.

### *CDM as Platform for Implementation Networks*

Through Article 12 of the Kyoto Protocol, the parties to the UNFCCC have established a platform on which public-private networks can operate and execute projects. Such networks can become active in developing, executing, financing, and supervising CDM project activities. The design of the mechanism and the fact that participation in the different stages of the CDM project cycle involves a broad range of actors, including those from developed and developing countries and international development and finance institutions, provides a framework for emerging international implementation networks. The CDM provides a legal framework for project activities that need to build on the support of different sectors and levels of the society and therefore provides a framework under which multisectoral implementation networks can emerge.

The World Bank's Prototype Carbon Fund (PCF), as described below, will serve as an example for one of the early implementation networks that has emerged under the CDM framework. The PCF tries to bring interested parties from developing and industrialized countries together to implement projects that obey the rules set forth under the Kyoto Protocol and the modalities and rules adopted thereunder. Although in the years to come, other similar—or different—networks are likely to emerge in this area, the PCF has in its 4 years of operation gained experiences and knowledge that is worth sharing.

27. CAN claims, for example, that members of the public that have a sufficient interest in the impacts of a project or who's rights are violated as a result of a project should have access to a project appeal procedure before a court of law and/or other independent and impartial body established by the Protocol. According to CAN, the Executive Board should have a standing panel serving as the independent body. The general public should have the right to appeal decisions regarding project registration, project certification and issuance of credits, and accreditation of operational entities (CAN, 2000, points 17 and 18).

*Case Study:  
The PCF as Example for  
Trisectoral Cooperation Under the CDM*

**OBJECTIVES AND OPERATIONS OF THE PCF**

The PCF was created on July 20, 1999, by a resolution of the executive directors of the World Bank as a trust fund, with the International Bank on Reconstruction and Development (IBRD) acting as trustee of the fund.<sup>28</sup> At its second closing on October 31, 2000, the governments of Canada, Finland, Japan, the Netherlands, Norway, and Sweden, as well as 17 private sector entities,<sup>29</sup> had approved their participation in the PCF. Public sector participants contributed U.S. \$10 million and private sector participants U.S. \$5 million to the fund, bringing the size of the fund together to U.S. \$145 million. In 2002, the participants increased their participation to the overall limit established by the IBRD of U.S. \$180 million. The contributions from both companies and governments are used to purchase GHG emission reductions fully consistent with the Kyoto Protocol and the emerging framework for JI and CDM. The PCF provides financial resources for projects that are intended to generate GHG emission reductions in return for the right to have transferred to PCF contributors, or so-called participants in the PCF, a pro rata share of the emission reductions, verified and certified in accordance with the Emission Reductions Purchase Agreement with the respective project sponsor.

The PCF is a multidonor trust fund set up by the World Bank working in partnership with public and private sectors to mobilize new and additional resources to address climate change and promote sustainable development (for more detail, see Freestone, 2001). It is a response to the need to understand and test the processes and procedures for creating a market in project-based emissions reductions under Articles 6 and 12 of the Kyoto Protocol. The objective of the fund is (a) to provide its participants with an opportunity to learn about CDM and JI projects before the protocol has entered into force, even before the guidelines and modalities on how to implement such projects had been agreed on; and (b) to help create a market for project-based carbon offsets under the Kyoto

28. Resolution 99-1, authorizing the establishment of the Prototype Carbon Fund, was approved by the Executive Directors of the International Bank for Reconstruction and Development (IBRD).

29. These include the Japanese electric power companies of Tokyo, Chubu, Chugoku, Kyushu, Shikoku, and Tohoku; the trading house Mitsubishi and Mitsui; BP Amoco from the United Kingdom; Deutsche Bank and RWE from Germany; Electrabel from Belgium; Gaz de France from France; and Norsk Hydro and Statoil from Norway; Fortum of Finland; and Rabobank (through Gilde Strategic Situations BV) from the Netherlands.

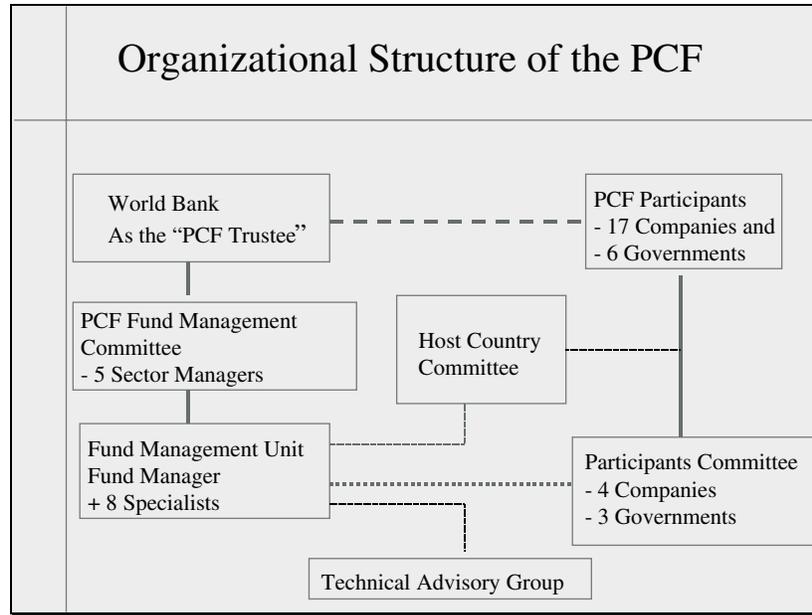
Protocol by demonstrating how CDM and JI can contribute to sustainable development. Through the implementation of CDM and JI projects, the fund aims to demonstrate that investments under the project-based mechanisms of the Kyoto Protocol can earn export revenue for developing countries and countries with economies in transition (EITs) and increase the profitability of cleaner, more efficient technology in energy, industry, and transport sectors.

In the 4 years of its operations, the PCF team has reviewed more than 450 project proposals, submitted in the form of project idea notes of potential projects; it has obtained clearance from PCF participants to prepare 30 Emission Reductions Purchase Agreements and has prepared 20 projects for validation, including projects in Costa Rica, Brazil, Chile, Colombia, Uganda, South Africa, Moldova, Indonesia, India, Romania, Bulgaria, and the Czech Republic, and has signed 14 Emission Reductions Purchase Agreements. The PCF has developed a project portfolio designed to serve the learning-by-doing objective of the PCF while reducing project risk through portfolio diversity. The PCF team tries to achieve this through a balance of projects between JI and CDM projects, geographic regions, and a mix of different technologies. A well-managed project portfolio helps to mitigate project- and country-related risks for PCF participants and to maximize the learning asset for PCF participants, non-Annex I countries, and all interested parties. Experience and knowledge gathered through the funding of a diversity of projects maybe the PCF highest value product than can, if distilled and disseminated efficiently, catalyze market development for emission reductions and help governments meet the wider objectives of the Kyoto Protocol (Prototype Carbon Fund, 2001).

#### PCF GOVERNANCE

The detailed design features of the fund are set out in the instrument establishing the PCF (see Figure 3).<sup>30</sup> Subject to general guidance from the participants and agreed on project selection criteria, the World Bank, as the trustee of the PCF, is responsible for managing the day-to-day operations of the fund. It does so through the Fund Management Unit headed by the fund manager and the Fund Management Committee, which consists of representatives of the World Bank's management. PCF participants meet annually at the participants' meeting, where they review and approve the annual budget of the fund and elect members of the participants' committee. This committee consists of seven members. It provides general advice on issues regarding the operations of the fund, advises the trustees on the extent to which the project agreements

30. The Prototype Carbon Fund (PCF) instrument was approved as an annex to the IBRD Board Resolution of July 20, 1999.



**Figure 3: PCF Governance Structure**  
 Note: PCF = Prototype Carbon Fund.

negotiated are in accordance with the project selection criteria, and reviews each project. Countries hosting PCF projects receive technical assistance in preparing to participate in CDM and JI and are represented in the Host Country Committee, which provides advice to the PCF management unit from the perspective of the hosts of PCF projects. Although NGOs are not formally represented in the management structure and decision-making arrangements of the PCF, the fund places a premium on continued consultation with external nongovernmental experts. A group of those experts formed the PCF Technical Advisory Group, which advised the World Bank in the design phase of the PCF.<sup>31</sup> Members were selected by the PCF fund manager from a list of candidates put forward by the Climate Action Network, representing both NGOs from the South and the North. Additionally, the PCF tries to engage a wide

31. CAN had taken a critical stand toward the PCF when it was launched because it saw the PCF as an attempt by the World Bank to influence an ongoing international negotiations process. Four years later, NGOs are judging the PCF and its operations generally very positively. They acknowledge the quality of the projects, and they benefit from the experience of executing projects in the early market. They are participating in an active dialogue with the PCF fund management unit and exchange views and experiences.

range of NGO and research institutions in the process of review and feedback designed to enhance the quality of fund operations throughout the implementation phase. PCF participants, host country beneficiaries, and NGOs may also designate representatives that spend weeks to months with the fund management unit, participating in its work and contributing their particular knowledge and perspective while learning about the day-to-day business of the PCF (Prototype Carbon Fund, 2001).

#### ANALYSIS

The establishment of the PCF was triggered by the desire of public and private actors to gain experience in the emerging a carbon market. The World Bank took the lead in setting up a fund that would benefit its developing countries and EITs by creating a new source of income. It is this combination of common interests that made the mobilization of the necessary funds and the establishment of the PCF possible.

The PCF represents the World Bank's attempt to operationalize the CDM (and JI) into an international carbon market that facilitates the transfer of emission reductions. The PCF combines an institutionalized yet dynamic learning experience with a model on how to implement CDM projects. The broad range of actors that cooperate and play an active role in the success of the operations of the fund, ranging from public and private participants to country officials, private entities in non-Annex I as well as Annex I countries, private verifiers, and NGOs, are crucial for the PCF's success. Only because all these actors play an integral role in making the PCF work, in applying and revising its rules, and in broadening its impact, can the PCF design and implement successful projects. The fund shows how insights and experience from both the public and the private sectors can be pooled to address global environmental concerns through the marketplace.

Public sector participants in the PCF are involved in the fund to benefit from an opportunity to learn by doing from PCF projects as they themselves continue to deliberate on the rules, regulations, and procedures that will govern CDM projects under the framework of the UNFCCC and Kyoto Protocol. At the same time, governments are interested in the emission reductions generated by the projects to comply with their obligations under the Kyoto Protocol.

The interest of the public sector in participating in the PCF seems more obvious than the interest of such an engagement by the private sector. Although countries agreed to cut their emissions and are bound under international law to meet these targets, the private sector is not directly bound by any obligation set forth by the Kyoto Protocol. A significant part of the private sector, however, has accepted scientific evidence supporting the global warming hypothesis. Managers have

realized that industrial countries are slowly—but inexorably—moving toward substantial policies to reduce overall GHG emissions. International obligations entered into by governments, as well as national emission reduction targets, can be met only if such obligations are translated into national policies that ultimately imply an eventual reallocation of assets. Because the allocation of national emission reduction targets will impact internal investment decision making and external valuation, developing and projecting an efficient greenhouse gas response will become an issue of strategic competitiveness. Private sector participants that decided to contribute to the PCF are seeking strategic positioning in the very early market. They have benefited from being early movers and have learned about carbon transactions while national policies are still under development. Participation in the fund helps them meet their obligations to reduce their GHG emissions. Alternatively, they become engaged as players in the trade and service industry emerging in response to the flexibility mechanisms under Articles 6 and 12 of the Kyoto Protocol. Finally, the engagement in the PCF or other carbon funds<sup>32</sup> can be used as a marketing instrument to green the public image of companies that are perceived to harm rather than protect the environment.

For many public and private entities, the purchase of emission reductions through a carbon fund can reduce risks as such a fund spreads the risk to gain credible emission reductions among a group of buyers and a well-balanced project portfolio. In the case of a large company with international presence and experience, such a company may decide that bilateral transactions would be the most appropriate and cost-effective way to gain emission reductions from project-related activities. Such transactions, however, require expertise and knowledge and expose a single company without a widespread project portfolio to considerable risks of failure. Carbon finance is inherently risky. It involves contracting to purchase an asset created by documenting the absence of invisible gases and generated by projects located in emerging markets over a period of years where the host country must consent to transfer the asset to the buyer. Therefore, purchasing emission reductions through a buyers club is an alternative, especially for smaller companies or for companies that seek to gain knowledge in the early market.

32. Since the establishment of the PCF, the World Bank has agreed to administer other carbon funds. It is purchasing emission reductions for the Dutch government under the IBRD-Netherlands CDM Facility (established 2002), the Community Development Carbon Fund (established 2003), the Italian Carbon Fund (established 2004), and the BioCarbon Fund (established in 2004); additionally, in 2002 and 2003, carbon funds have been established with a number of other institutions, including the International Finance Cooperation, the Cooperacion Andina de Fomento, the European Bank for Reconstruction and Development, and RaboBank. Of these funds, however, as of 2004, only the Community Development Carbon Fund and the BioCarbon Fund are multiparticipant funds.

For non-Annex I country beneficiaries, both governments and the local private sector, knowledge gained in completing the first sale of emissions reductions sheds light on the export revenue opportunities and the gaps in local laws, rules, and administrative capacity to implement the protocol and facilitate CDM transactions. Mobilizing financial resources from carbon transactions can have an impact on project viability by providing an additional stream of cash flows, which may improve the access to both public and private financing.

Last but not least, the PCF experience so far demonstrates that the development of an effective emission reductions market depends crucially on capacity building. Country officials as well as the private sector need to understand Kyoto requirements and have the capacity to identify and execute carbon projects. On one hand, the PCF tries to address this problem through workshops and its fellowship program, and on the other hand, NGOs have proven to be very important partners in raising general awareness and in providing a platform for knowledge dissemination. Local NGOs often cooperate with the PCF in implementing projects, and they often provide on-the-ground knowledge to the management unit. In countries with a strong and active civil society, local NGOs even take the lead over the private sector and develop and put forward their own projects.<sup>33</sup>

The creation of the PCF might also serve as an example of how international organizations can play an important role in bringing different actors together and to make participation in sustainable development accessible to private companies. In a world of globalization and interdependence, increased demand from civil society groups, and the rise of influence of corporations and international markets, international organizations have to redefine their roles in promoting sustainable development. In the emerging carbon market, international organizations can serve as a broker or facilitator between buyers and sellers of emission reductions, assist developing countries in CDM project development, and aid potential buyers in identifying projects and groups of projects of interest to them.

As a learning network, the PCF is created for a limited life span only; the fund wraps up its business in 2012. By then, an evaluation of the experience can make an adaptation of the model to the situation possible. The PCF is created to remain flexible and to be able to learn. It is governed by an instrument that sets basic rules for governance and operations. Instrument and project agreements still leave the room for a flexible approach crucial for operations in a changing environment.

33. Individual PCF projects also have faced strong opposition from NGOs. See [www.cdmwatch.org](http://www.cdmwatch.org).

### *Summary and Outlook*

This article analyzed the CDM, as established under Article 12 of the Kyoto Protocol, and described it as an innovative mechanism that can help industrialized countries meet their obligations under the Kyoto Protocol in a cost-efficient manner while promoting sustainable development in non-Annex I countries. As an economic mechanism, the CDM seeks to draw on markets to provide the economic incentives and financial structures to promote sustainable development. The CDM helps industrialized countries comply with their obligations by offering a mechanism that bundles the different interests of all stakeholders. What makes the CDM so appealing is that participation in the mechanism is driven by pecuniary self-interest. The CDM offers actors from countries where emission reductions are relatively expensive a cost-effective way to meet international—in the case of countries—and national—in case of private sector entities—obligations. Where governments are unable to solve problems through traditional command and control approaches, market mechanisms such as the CDM promote a shift in responsibilities by involving all actors in problem-solving activities.

Even in its very premature status, the CDM shows a promising path for new forms of cooperation among public and private entities. Only if Annex I and non-Annex I countries, project sponsors, and local NGOs work together can CDM projects be successfully implemented and credible emission reductions generated; emission reductions that, once they are certified and issued, can be credited against national targets and are a tradable commodity under the Kyoto Protocol.

The CDM aims to involve not just governments but a wide array of actors, including individuals, companies, and agencies whose behavior does not change simply because governments have made international commitments. On the other hand, it not only benefits the non-Annex I country and its sustainable development, but it provides an array of opportunities for private sector companies either in bringing costs down to comply with obligations to reduce GHG emissions under national law or in opening new business opportunities for suppliers of renewable energy and technology, certifier and verifier, and trader, broker, and fund managers. At the same time, NGOs assume an important role in the CDM. Only if projects and emission reductions generated by projects are environmentally sound and credible can the mechanism live up to expectations (Goldberg, 1998). Civil society groups contribute through expertise and local knowledge to the integrity of CDM projects.

As an international mechanism relying on market forces, the CDM creates a platform for emerging implementation networks. Each actor brings different and important resources to the table; each actor has its

own interest in the success of the fund and its operations. Instead of pulling on only their own resources and policy means, the different entities cooperate to achieve the common goal—to the benefit of the global environment.

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