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The Kyoto Protocol and Developing Countries—the Clean Development Mechanism

Anita M. Halvorsen*

ABSTRACT

Many developing countries have become Parties to the Kyoto Protocol in order to promote sustainable development—especially in terms of improved energy services—as well as to mitigate the impacts of climate change. Dr. Halvorsen's article focuses on the Clean Development Mechanism (CDM) of the Kyoto Protocol and its importance in providing a market-based mechanism for industrialized states to meet their emission reduction commitments, while at the same time facilitating the switch to clean technology and energy efficiency in developing countries. The CDM aims to help developing countries achieve sustainable development and mitigate climate change by enabling industrialized countries to acquire credits against their Kyoto targets in exchange for investing in emission reduction projects in developing countries. The benefits accruing to developing countries include climate change mitigating technology, new investments, and assistance with capacity-building. As a result, the CDM constitutes a new approach in regard to global environmental problem-solving. Dr. Halvorsen's article concludes with an assessment of the CDM, focusing on the balance between the integrity of the CDM as a mechanism to reduce GHG emissions and promote sustainable development in developing countries on the one hand, and the attractive investment potential for investors in industrialized countries on the other.

I. INTRODUCTION

Of the 148 Parties to the Kyoto Protocol,¹ more than 100 are developing countries. These developing countries ratified the Kyoto Protocol to the United Framework Convention on Climate Change (UNFCCC)² for varying reasons. For example, the small island developing states of Palau and the Marshall Islands are Parties to the Kyoto Protocol because they want to mitigate the impacts of climate change as soon as possible for national security reasons.³ Within the next hundred years, several of these islands will no longer exist due to rising sea levels that result from global warming.⁴ Other developing countries have become Parties to promote sustainable development—especially in terms of improved energy services—in addition to mitigating the impacts of climate change.

The Clean Development Mechanism (CDM), the only flexible mechanism in the Kyoto Protocol that developing countries can use, addresses all these issues.⁵ The CDM links sustainable development directly with greenhouse gas (GHG)⁶ emission reduction,⁷ thus

* Dr. Anita M. Halvorssen is the Director of Global Legal Solutions, LLC. Dr. Halvorssen teaches International Law at the Political Science Department of the University of Colorado and teaches Sustainable Development and Trade at the University of Denver College of Law. The author would like to thank Mr. Georg Børsting, Vice-Chair, Executive Board, of the Clean Development Mechanism, for his helpful advice.

1. *Kyoto Protocol to the Framework Convention on Climate Change*, 3d Sess., Agenda Item 5, U.N. Doc. FCCC/CP/1997/L.7/Add.1, 37 I.L.M. 32 (1997) [hereinafter *Kyoto Protocol*]. As of February 2, 2005, 84 states had signed and 141 states and the EU had ratified the Kyoto Protocol. See UNFCCC, *Kyoto Protocol: Status of Ratification* (Feb. 2, 2005), available at http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf.

2. United Nations Framework Convention on Climate Change, June 12, 1992, S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC]. As of May 24, 2004, 166 states had signed and 189 states had ratified the UNFCCC. See UNFCCC, *United Nations Framework Convention on Climate Change: Status of Ratification* (May 24, 2004), available at <http://unfccc.int/resource/conv/ratlist.pdf>.

3. Kalinga Seneviratne, *South Pacific: Rising Sea Levels Already Hurting Islands*, THIRD WORLD NETWORK, Feb. 15, 2001, at <http://www.twinside.org.sg/title/levels.htm>. See also Press Release, United Nations, *Climate Impacts Already Felt by Small Islands; Governments Seek Resources to Adapt 2* (Nov. 2004), available at <http://www.un.org/smallislands2005/pressrelease5.pdf>.

4. Charles J. Hanley, *Climate Change Rises on Global Agenda*, USA TODAY, May 15, 2004, available at http://www.usatoday.com/life/2004-05-25-climate_x.htm.

5. *Kyoto Protocol*, *supra* note 1, art. 12, 37 I.L.M. at 38.

6. Greenhouse gases (GHGs) are the bi-products emitted from the burning of fossil fuels. The GHGs dealt with in the Kyoto Protocol are listed in Annex A of the Protocol. They include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons,

implementing the UNFCCC's principle to promote sustainable development.⁸ The CDM aims to help developing countries achieve sustainable development and mitigate climate change by enabling industrialized countries to acquire credits against their Kyoto targets in exchange for investing in emission reduction projects in developing countries.⁹ The benefits accruing to developing countries include climate change mitigating technology, new investments, and assistance with capacity-building.

This article focuses on the Clean Development Mechanism of the Kyoto Protocol and its importance in providing a market-based mechanism for industrialized states to meet their emission reduction commitments, while at the same time promoting sustainable development and climate change mitigation in developing countries. The CDM, being a market-based mechanism, constitutes a new approach in regard to global environmental problem-solving.¹⁰ If operated efficiently, the CDM will be an effective tool for increasing developing countries' national capacity to mitigate climate change by facilitating their switch to clean technologies and energy efficiency. Through this mechanism, developing states will increase their participation in efforts to address climate change, while simultaneously taking important steps to promote sustainable development.

Part II of this article begins with an overview of the science behind the climate change regime and a discussion of the UNFCCC. The discussion in this paper is based on the assumption that the Intergovernmental Panel on Climate Change (IPCC) is correct in its evaluation of the anthropogenic interference on the climate system.¹¹ Part III surveys those aspects of the Kyoto Protocol that are directly relevant to the CDM. Against this backdrop, Part IV outlines the nature and

perfluorocarbons, and sulphur hexafluoride. *Id.*, Annex A, 37 I.L.M. at 42.

7. Patricia Nelson, *An African Dimension to the Clean Development Mechanism: Finding a Path to Sustainable Development in the Energy Sector*, 32 DENV. J. INT'L L. & POL'Y 615, 619 (2004).

8. UNFCCC, *supra* note 2, art. 3(4).

9. *Kyoto Protocol*, *supra* note 1, art. 12(2), 37 I.L.M. at 38. See also U.N. DEVELOPMENT PROGRAMME, THE CLEAN DEVELOPMENT MECHANISM: A USER'S GUIDE 70 (2003), available at <http://www.undp.org/energy/docs/cdmchapter6.pdf>.

10. See Jutta Brunnée, *The Kyoto Protocol: Testing Ground for Compliance Theories?*, 63 HEIDELBERG J. INT'L L. 255, 256 (2003).

11. In this report, the IPCC's third assessment report, the Intergovernmental Panel on Climate Change stated in that "[t]he balance of evidence suggests a discernible human influence on global climate." INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: SYNTHESIS REPORT 188-92 (Robert T. Watson ed., 2001) [hereinafter "IPCC REPORT"].

procedures of the CDM and its links to sustainable development. This part also examines the project cycle used to attain credits from the CDM. Part V addresses the Kyoto Protocol's compliance mechanism as it relates to the CDM. Part VI concludes with an assessment of the CDM, focusing on the balance between the integrity of the CDM—a mechanism to reduce GHG emissions and its ability to promote sustainable development in developing countries—while at the same time remaining attractive to investors in industrialized countries.

II. BACKGROUND

A. The Science

The evidence of global warming is now clear.¹² Most scientists believe anthropogenic activity has influenced this trend—especially in regards to the burning of fossil fuels—which has resulted in an increase of greenhouse gases in the atmosphere.¹³

The atmosphere works as a greenhouse. Incoming solar rays are reflected, but also penetrate the atmosphere. If there had been no global warming, the planet would not have been habitable; it would have been too cold. However, since the Industrial Revolution, the concentration of various greenhouse gases has increased due to fossil fuel use, increasing the temperature on the earth beyond normal variations.¹⁴ The impact is projected to increase both the level and frequency of severe weather. Already the icecaps are melting at an alarming rate and the glaciers are receding. The Arctic shows the greatest evidence of global warming; scientists predict that polar ice in this region will melt away completely during the summer months by 2070.¹⁵ Temperatures, in general, are projected to increase by 1.4°C to 5.8°C by 2100;¹⁶ and the sea level is projected to rise anywhere from 0.09m to 0.88m within the same time period.¹⁷

12. *Signs from Earth*, NAT'L GEOGRAPHIC, Sept. 2004, at 14.

13. *Id.*

14. IPCC REPORT, *supra* note 11, at 5.

15. *Warming May Claim the Ice (and Seals) These Bears Need*, N.Y. TIMES, Nov. 9, 2004, at F1, available at

<http://query.nytimes.com/gst/fullpage.html?res=9A0CE0D7133CF93AA35752C1A9629C8B63>. See INT'L ARCTIC SCI. COMM., IMPACTS OF A WARMING ARCTIC: ARCTIC CLIMATE IMPACT ASSESSMENT (ACIA) (2004), available at <http://www.amap.no/acia/index.html>.

16. IPCC REPORT, *supra* note 11, at 160.

17. *Id.* at 162.

Unfortunately, the nations that are most vulnerable to climate change and least equipped to deal with this new situation are developing countries. Hurricane Jeanne took the lives of 3,000 Haitians in September of 2004.¹⁸ Considering that sixty percent of the world's population lives within forty miles of the coastline,¹⁹ such tragic events are projected to increase in number. As a result, the pattern of severe weather linked to climate change will have consequences for the whole international community because the demands for assistance from environmental refugees will increase in number.

B. UNFCCC—Setting the Stage

In order to address the climate change issue, the international community took multilateral action by adopting the UNFCCC in 1992.²⁰ The objective of the UNFCCC is to “achieve stabilization of atmospheric concentrations of GHGs at a level that would prevent dangerous anthropogenic interferences with the climate system”²¹ Today, 189 states—which translates into ninety-seven percent of the international community—have become parties to the UNFCCC and have therefore agreed to take action with regard to climate change.²²

The UNFCCC, adopted at the United Nations Conference on Environment and Development (also referred to as the Rio Conference),²³ included the following principles in its provisions: the precautionary approach, the principle of common but differentiated responsibilities, and the right to sustainable development.²⁴ At the Rio Conference, all of these principles were also included in general terms in the Rio Declaration.²⁵

18. Wikipedia, *Hurricane Jeanne*, at http://en.wikipedia.org/wiki/Hurricane_Jeanne (last modified Jan. 31, 2005).

19. Kieran Mulvaney, *A Sea of Troubles: In the International Year of the Ocean, Are We Reaching the Limits?*, EMAGAZINE.COM, Jan./Feb. 1998, at <http://www.emagazine.com/view/?36>.

20. UNFCCC, *supra* note 2.

21. *Id.* at Art.2.

22. The United Nations has 191 Member States. United Nations, *List of Member States*, at <http://www.un.org/Overview/unmember.html> (last updated Apr. 24, 2003). The states not Parties to the UNFCCC are Andorra, Brunei Darussalam, Iraq, and Somalia. See UNFCCC, *supra* note 2.

23. *Report on the United Nations Conference on Environment and Development*, U.N. GAOR, Annex II, U.N. Doc. A/CONF.151/26 (1992), available at <http://www.un.org/documents/ga/conf151/aconf15126-1.htm>.

24. UNFCCC, *supra* note 2, arts. 3(1), 3(3), 3(4).

25. *Rio Declaration on Environment and Development*, U.N. Conference on

Using the Brundtland definition, sustainable development is most often defined as development “that meets the needs of the present without compromising the needs of future generations.”²⁶ Given the limits of the global environment’s capacity to accommodate ever-increasing resource use, the concept of sustainable development would replace the “business as usual” approach to economic development. By merging environmental protection with economic development, all nations would be conserving the capacity to produce material progress for the long term.

The World Summit on Sustainable Development (WSSD), which took place in Johannesburg in 2002, gave a new impetus to the principle of sustainable development. The Johannesburg Plan of Implementation (JPOI), adopted at the WSSD, refers to “the integration of the three pillars of sustainable development—economic development, social development, and environmental protection—as interdependent and mutually reinforcing pillars.”²⁷ This approach indicated that the WSSD placed a much higher emphasis on social issues than did the Rio Conference. For instance, the JPOI defined the overarching objective and requirements for sustainable development as “poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development.”²⁸ The JPOI also emphasized that states needed to take joint action to improve access to reliable, affordable, socially acceptable, and environmentally sound energy services for sustainable development, because access to energy facilitates the eradication of poverty.²⁹

The other principles found in the UNFCCC, the precautionary approach and common but differentiated responsibilities principle, can be interpreted as underlying components of sustainable development.³⁰ The precautionary approach emphasizes the importance of taking cost-

Environment and Development, Prins. 15, 7, 3, U.N. Doc. A/Conf.151/26/Rev.1 (Vol.1) (1992), available at

<http://www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163>.

26. WORLD COMM'N ON ENV'T AND DEV., OUR COMMON FUTURE ES-7 (1987).

27. *Plan of Implementation of the World Summit on Sustainable Development*, U.N. World Summit on Sustainable Development, ¶ 2, U.N. Doc. A/Conf./199/L.2 (2002), available at http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf.

28. *Id.*

29. *Id.* ¶ 9.

30. Graham Mayeda, *Where Should Johannesburg Take Us? Ethical and Legal Approaches to Sustainable Development in the Context of International Environmental Law*, 15 COLO. J. INT'L ENVTL. & POL'Y 29, 30–33 (2004).

effective action to prevent the causes of climate change when there are threats of serious or irreversible damage, even when lacking full scientific certainty, rather than taking a wait-and-see approach.³¹

The principle of common but differential responsibilities is at the core of the UNFCCC and Kyoto Protocol.³² Clearly, climate change is a global issue that needs to be tackled by all nations. Yet, taking into account the previous actions by industrialized states—having industrialized without internalizing the environmental costs, an action that has led to global degradation—the principle of common but differentiate responsibilities, accordingly, stipulates that they are the ones which should take the lead in combating climate change.³³ Using the principle of equity, special considerations or “differential treatment” should be given to developing countries to promote their participation in the climate change treaties.³⁴ This is not to say that they will not have binding commitments to limit their emissions in the future, but rather that industrialized states should, on account of their greater historic contribution to climate change, take the first steps. Allowing for differential treatment in the name of fairness and reasonableness may also be looked upon as essential for real equality when taking into account the disparities in resources and capabilities among nations.³⁵ With their advanced technologies and financial resources, industrialized nations are more capable of mitigating climate change and adapting to it than are developing countries.

The UNFCCC “urged” the Annex I Parties (industrialized countries)³⁶ to reduce their GHG emissions to 1990 levels by the year 2000.³⁷ However, this was not a binding commitment, only a goal. The Parties to the UNFCCC agreed at the outset that the developed countries,

31. UNFCCC, *supra* note 2, art. 3(3).

32. *Id.* art. 3(1).

33. *Id.*

34. See ANITA MARGRETHE HALVORSSSEN, EQUALITY AMONG UNEQUALS IN INTERNATIONAL ENVIRONMENTAL LAW: DIFFERENTIAL TREATMENT FOR DEVELOPING COUNTRIES 4 (1999).

35. OSCAR SCHACHTER, SHARING THE WORLD'S RESOURCES 7 (1977).

36. Annex I Parties include members of the Organization of Economic Cooperation and Development (OECD) and economies in transition (EIT) (such as East European states). See OECD, *Annex I Expert Group on the UNFCCC*, available at http://www.oecd.org/document/44/0,2340,en_2649_37459_1904108_1_1_1_37459,00.html (last visited Apr. 9, 2005).

37. UNFCCC, *supra* note 2, art. 4(2); see also U.N. Framework Convention on Climate Change, *Feeling the Heat*, at http://unfccc.int/essential_background/feeling_the_heat/items/2914txt.php (last visited Apr. 9, 2005).

having historically contributed the most to the climate change problem had to "take the lead" to deal with the problem by reducing their emissions in accordance with the principle of common but differentiated responsibilities.³⁸ Accordingly, the industrialized nations were to bear a greater burden than the developing countries. However, the UNFCCC required all Parties to develop inventories of anthropogenic emissions and measures to mitigate climate change.³⁹ Furthermore, the UNFCCC also obligated all Parties to produce a report on the action they have taken to implement the UNFCCC, called "national communications."⁴⁰ To fulfill their reporting obligations, Annex I Parties were given six months from the entry into force of the UNFCCC to submit their reports, while non-Annex I Parties (developing countries) were given three years and the least developed States were not given a deadline.⁴¹

The UNFCCC has several institutions. The supreme body of the UNFCCC is the Conference of the Parties (COP), which has representatives from all State Parties.⁴² The Conference of the Parties meets annually to review the implementation of the UNFCCC.⁴³ The UNFCCC also has a secretariat and two subsidiary bodies, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation.⁴⁴

Finally, the UNFCCC also defined a financial mechanism for the provision of financial resources, including the transfer of technology for developing countries.⁴⁵ Annex II Parties, the richest of the industrialized states, are to provide funding to enable the developing countries to fulfill their obligations under the UNFCCC.⁴⁶ The Global Environment Facility (GEF) is the international entity entrusted with the operation of this mechanism.⁴⁷ GEF, established in 1990, is the main financial entity sponsoring programs to help developing countries address global

38. UNFCCC, *supra* note 2, art. 3(1).

39. *Id.* art. 4(1).

40. *Id.* art. 12(1).

41. *Id.* art. 12(5).

42. *Id.* art. 7(2).

43. *Id.* art. 7(4). The COPs are numbered by each yearly session. The first session of the Conference of the Parties is abbreviated as COP-1, the second COP-2, etc. The tenth session of the Conference of the Parties (COP-10) is meeting in Buenos Aires from December 6-17, 2004. UNFCCC, Tenth Session of the Conference of Parties (COP 10), at http://unfccc.int/meetings/cop_10/items/2944.php (last visited Apr. 9, 2005).

44. UNFCCC, *supra* note 2, arts. 8, 9, 10.

45. *Id.* art. 11.

46. *Id.* art. 4(3). Annex II Parties include the members of the Organization of Economic Cooperation and Development (OECD) as of 1992.

47. *Id.* art. 21.

environmental issues—specifically biodiversity, climate change, international waters, land degradation, depletion of the stratospheric ozone layer, and persistent organic pollutants (POPs).⁴⁸ GEF is managed jointly by the World Bank, the United Nations Environment Program (UNEP), and the United Nations Development Program (UNDP).⁴⁹ In regards to UNFCCC, GEF functions under the guidance of, and is accountable to, the COP.⁵⁰

III. THE KYOTO PROTOCOL—FINALLY, A REALITY

When the COP of the UNFCCC realized at their first meeting (COP-1) in 1995 that more stringent, binding measures were needed, they adopted the Berlin Mandate, which specifically assigned the greatest burden in dealing with climate change to the industrialized nations. To achieve this goal, the Berlin Mandate deliberately did not assign any emission reduction commitments to the developing countries.⁵¹ Furthermore, it reiterated the principle of common but differentiated responsibilities pronounced in the UNFCCC and specifically restated that the developed country Parties should *take the lead* in combating climate change and the adverse effects thereof.⁵²

Two years later at COP-3, the Parties adopted the Kyoto Protocol. The Kyoto Protocol's core commitment is that Annex I Parties shall reduce their GHG emissions by at least five percent below 1990 levels in the first commitment period, 2008-2012.⁵³ Annex B of the Kyoto Protocol stipulates the specific quantified emission reduction and limitation commitments for the Annex I Parties. The Parties must also consider commitments for subsequent periods beginning in 2005.⁵⁴ The Kyoto Protocol represents the first step in addressing climate change on a global level using binding commitments. With its modest emission

48. GEF, *What is the GEF?*, at http://www.gefweb.org/What_is_the_GEF/what_is_the_gef.html (last visited Apr. 9, 2005).

49. *Id.*

50. UNFCCC, *supra* note 2, art. 11.

51. *The Berlin Mandate: Reviewing of the adequacy of Article 4, paragraph 2 (a) and (b), of the Convention, including proposals related to a protocol and decisions on follow-up*, 1st Sess., 9th plen. mtg. U.N. Doc. 1/CP.1 (1995), available at <http://www.mofa.go.jp/policy/environment/warm/cop/cop1report2.html>.

52. *Id.* ¶ 1(a).

53. *Kyoto Protocol*, *supra* note 1, art. 3(1), 37 I.L.M. at 33.

54. *Id.* art. 3(9), 37 I.L.M. at 34.

reduction targets stipulated for the first commitment period,⁵⁵ even if the Protocol is implemented by all Parties, the Protocol will not result in any significant slowing down of climate change. Yet, the idea is to increase the emission reduction targets in the future commitment periods.

Clearly however, the United States, which generates twenty-five percent of the world's CO₂ emissions, needs to ratify the Kyoto Protocol if the U.S. is to comply with its commitment under the UNFCCC—the commitment from industrialized countries to take the lead in addressing climate change.⁵⁶ Furthermore, at least some of the developing countries will need to take on the binding emission limitation targets in the near future, since some of them, such as China and India, are quickly closing the gap on industrialized countries with regard to GHG emissions.

In addition to binding GHG reduction commitments, the Kyoto Protocol also specifies the rules regarding Annex I Parties' use of "sinks" as a way to remove or offset GHGs (by sequestering CO₂) in order to meet their emission reduction commitments.⁵⁷ Industrialized countries can use "sinks" resulting from direct human-induced land-use change and forestry activities. For instance, trees absorb CO₂, a GHG, so the planting of trees leads to a net reduction of GHGs. However, only certain "sinks" activities can be used, and specific rules govern the extent to which sinks can be used to help meet emission commitments.⁵⁸

The entry into force requirements of the Kyoto Protocol specify that fifty-five Parties to the UNFCCC must ratify it, which in turn must account for fifty-five percent of the emissions of the Annex I Parties.⁵⁹ After the Bush administration withdrew in 2001, the Kyoto Protocol needed Russia's ratification to fulfill its entry into force requirements or it would not overcome the fifty-five percent threshold. Russia did finally ratify the Kyoto Protocol,⁶⁰ which means the Protocol entered into force on February 16, 2005, ninety days after the UNFCCC Secretariat

55. See text accompanying note 53.

56. U.S. ENERGY INFO. ADMIN., GREENHOUSE GASES, CLIMATE CHANGE, AND ENERGY, at <http://www.eia.doe.gov/oiaf/1605/ggccebro/chapter1.html> (last modified Apr. 2, 2004); UNFCCC, *supra* note 2, art. 4(2).

57. *Kyoto Protocol*, *supra* note 1, art. 3(3), 37 I.L.M. at 33.

58. See *Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001*, U.N. Framework Convention on Climate Change, 7th Sess., Addendum, Vol. I, Decision 12/CP.7, at 64, U.N. Doc. FCCC/CP/2001/13/Add.1 (2002) [hereinafter *Marrakesh Accords* Vol. I], available at <http://unfccc.int/resource/docs/cop7/13a01.pdf>.

59. *Kyoto Protocol*, *supra* note 1, art. 25, 37 I.L.M. at 42.

60. Daniel Wallis, *Russia Ratifies Kyoto, Starts on Feb. 16*, REUTERS NEWS SERVICE, Nov. 19, 2004, at <http://www.planetark.com/dailynewsstory.cfm/newsid/28198/story.htm>.

received Russia's instrument of ratification.⁶¹

The plenary body of the Kyoto Protocol is the Conference of the Parties to the UNFCCC, serving as the meeting of the Parties, which is referred to as COP/MOP.⁶² The Parties to the UNFCCC that are not Parties to the Kyoto Protocol may only participate as observers at the COP/MOP meetings and do not take part in any decision-making.⁶³ The secretariat and subsidiary bodies of the UNFCCC also serve as the secretariat and subsidiary bodies of the Kyoto Protocol.⁶⁴

IV. THE CLEAN DEVELOPMENT MECHANISM

The Kyoto Protocol introduced three market-based, flexible mechanisms that enable Annex I Parties to meet part of their emission reduction commitments in a more cost effective manner. These mechanisms, also referred to as Kyoto Mechanisms, include emissions trading, joint implementation, and the earlier-discussed clean development mechanism (CDM).⁶⁵ The idea behind these mechanisms is that the cost of limiting emissions will differ from one region to another, yet the benefit for the atmosphere is the same, regardless of where the action is taken.⁶⁶

The emissions trading mechanism, once it gets underway, will work like a commodities exchange, where you buy and sell allowances to "pollute" GHGs. The mechanism provides an incentive for companies located in Annex I Parties to invest in clean technologies and improve energy efficiency. The companies can then sell surplus assigned amount units (AAUs), if they go beyond their Annex I Party's emission reduction limits, to companies who struggle to reach their targets in other industrialized countries.⁶⁷ Only Annex I Parties, which have binding GHG emission reduction commitments, can use the emissions trading mechanism. Russia and other countries with economies in transition are expected to make a large profit on this mechanism, since they had such "dirty" industries that collapsed with the fall of the Soviet Union. This resulted in Russia, for instance, having less GHG emissions compared to

61. *Kyoto Protocol*, *supra* note 1, art. 25, 37 I.L.M. at 42.

62. *Id.* art. 13, 37 I.L.M. at 38-39.

63. *Id.* art. 13(2), 37 I.L.M. at 38.

64. *Id.* art. 14, 15, 37 I.L.M. at 39-40.

65. *Kyoto Protocol*, *supra* note 1, arts. 6, 12, 16 bis, 37 I.L.M. at 35, 38, 40.

66. See UNFCCC, *The Mechanisms under the Kyoto Protocol: Joint Implementation, the Clean Development Mechanism and Emissions Trading*, at http://unfccc.int/kyoto_mechanisms/items/1673.php (last visited Apr. 9, 2005).

67. *Id.* art. 16 bis, 37 I.L.M. at 40.

its 1990 levels, hence giving it surplus AAUs that it can sell under the emissions trading mechanism.

Joint implementation is another market mechanism that only takes place between Annex I Parties. Joint implementation is based on projects set up by one industrialized country within the territory of another Annex I Party that reduce GHG emission from the baseline scenario.⁶⁸ These projects result in emission reduction units (ERUs), which can also be used against the former industrialized country's GHG reduction commitments. For example, a joint implementation project might entail replacing a coal-fired power plant with a natural gas-power plant.

Finally, the only Kyoto Mechanism that involves developing countries is the clean development mechanism (CDM). The CDM has three purposes: to provide industrialized states with a mechanism to help fulfill their treaty obligations, to help non-Annex I Parties (developing countries) achieve sustainable development, and to contribute to the ultimate objective of the UNFCCC.⁶⁹ Similar to the joint implementation mechanism, the CDM is also based on projects, but these projects are to be carried out within developing countries.⁷⁰ The CDM therefore promotes the use of cleaner and more energy efficient technology in developing countries. Thus, the CDM in turn promotes sustainable development by aiding developing countries in capacity-building and in making the transition to environmentally sound technology.⁷¹ Participating Annex I Parties, for their part, are issued Certified Emission Reductions (CERs) to use against their emission limitation commitments in the Kyoto Protocol.⁷²

A. Marrakesh Accords—A Prompt Start for the CDM

COP-7, held in Marrakesh, Morocco in 2001, operationalized the Kyoto Protocol. The decisions the Parties to the UNFCCC adopted at COP-7 are referred to as the Marrakesh Accords. Decision 15/CP.7, entitled "Principles, nature and scope of the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol," stipulates that the Parties

68. *Id.* art. 6, 37 I.L.M. at 35.

69. *Id.* art. 12(2), 37 I.L.M. at 38

70. *Id.* art. 12(3)(a), 37 I.L.M. at 38.

71. *Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001*, U.N. Framework Convention on Climate Change, 7th Sess., 8th plen. Mtg. Addendum, Vol. II, Decision 17/CP.7, at 23, U.N. Doc. FCCC/CP/2001/13/Add.2 (2002) [hereinafter *Marrakesh Accords Vol. II*], available at <http://unfccc.int/resource/docs/cop7/13a02.pdf>.

72. *Id.*

recognize 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.” This decision sets the stage in the sense that Annex I Parties can no longer act as if they have a right to use the traditional fossil-fuel path of economic development if they are to take sustainable development goals seriously.⁷³ If equity principles are considered, then the Annex I Parties’ overuse of the atmosphere’s limited capacity to absorb the waste gases of industrialization must be taken into account.⁷⁴ Indeed, industrialized countries’ disproportionate use of the atmosphere’s capacity may have eliminated the opportunity for developing countries “to use the traditional fossil-fuel path of economic development.”⁷⁵

Another principle that is emphasized in Decision 15/CP.7 is that the use of mechanisms “shall be supplemental to domestic action.”⁷⁶ Domestic action is to constitute a significant element of the effort made by Annex I Parties. This issue was heavily debated early on in the negotiations leading up to Marrakesh. Environmental groups feared for the integrity of the Convention’s goal because Annex I Parties could simply buy up emission credits elsewhere, thereby severely weakening the climate change regime by failing to take any domestic action. However, how much domestic action constitutes a “significant element” has not yet been specified. It will be up to each Party to make such a determination.

Specific to the CDM is the Marrakesh Accords’ Decision 17/CP.7, entitled “Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol.”⁷⁷ This decision, which serves as the blueprint for action for the CDM, includes the principles specific to the CDM and its institutions and procedures—thus, enabling a prompt start to this mechanism.

One of the innovations of the CDM, in addition to being a market mechanism, is that it involves not just governments, but also private entities.⁷⁸ With Official Development Assistance (ODA) having waned, the CDM will likely attract new private investment in developing countries and promote the transfer of environmentally sound technologies. Annex I Parties will want to use the CDM mechanism to fulfill their GHG emissions reduction commitments by investing in GHG-reducing projects in developing countries, and Annex I Parties can

73. See Nelson, *supra* note 7, at 618.

74. See *id.*

75. *Id.*

76. *Marrakesh Accords* Vol. II (Decision 15/CP.7), *supra* note 71, at 2.

77. *Id.* (Decision 17/CP.7) at 20.

78. *Kyoto Protocol*, *supra* note 1, art. 12(9), 37 I.L.M. at 38.

use private entities to invest in these projects. This is important, but it also has its drawbacks. Private investment in developing countries will likely only go where the risks are the least and the possibilities for profit-making are the greatest, including the larger developing countries with existing private investment and some former colonies.⁷⁹ The CDM does not have any actual geographic distribution requirements. Rather, it only specifies the need to promote “an equitable geographic distribution.”⁸⁰ Some scholars are worried that the lack of clear obligations with regard to geographic distribution will have a negative effect, especially on African nations, with the exception of South Africa.⁸¹ However, there is an opening for change. COP/MOP is required to make appropriate decisions—in the context of the equitable distribution of projects—based on its review of the CDM projects in order to identify systematic or systemic barriers to their equitable distribution.⁸²

The Kyoto Protocol specifies that the reductions in emissions due to projects under the clean development mechanism are to be “*additional* to any that would occur in the absence of the proposed project activity.”⁸³ To make this calculation, the Parties agreed to establish baselines on a project-specific basis using approved or new methodologies according to specific rules.⁸⁴

A hotly disputed issue was whether the CDM projects could take advantage of “sinks” as a method for Annex I Parties to meet their emission targets.⁸⁵ After much debate, the Conference of the Parties agreed to allow Annex I Parties to use reforestation and afforestation under the CDM mechanism.⁸⁶ However, for the first commitment period such projects cannot exceed one percent of the base year emission for that Party—this requirement is applicable to each of the five years of the commitment period.⁸⁷

79. See Nelson, *supra* note 7, at 633.

80. *Marrakesh Accords* Vol. II (Decision 17/CP.7), *supra* note 71, at 20.

81. See Nelson, *supra* note 7, at 633.

82. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 27.

83. *Id.* at 34 (emphasis added).

84. *Id.* at 36-37.

85. See text accompanying note 57.

86. “Reforestation is the human-induced conversion of non-forested land to forested land . . . that was forested but that has been converted to non-forested land.” *Marrakesh Accords* Vol. I (Decision 12/CP.7, Annex), *supra* note 58, at 58. “Afforestation is the human-induced conversion of land that has not been forested for a period of at least 50 years.” *Id.*

87. *Marrakesh Accords* Vol. II (Decision 17/CP.7), *supra* note 71, at 22.

B. Sustainable Development and CDM Projects

As mentioned above, the idea behind the introduction of CDM as a Kyoto Mechanism, aside from assisting the Annex I Parties in fulfilling their Kyoto commitments, was to promote sustainable development by assisting developing countries in making the transition to environmentally sound technology through technology transfer and capacity-building. Yet, the concept of sustainable development is not defined in the Kyoto Protocol or the Marrakesh Accords. It is up to the Party hosting the CDM (in other words, the developing countries at the receiving end) to use their own interpretations of what sustainable development requires.⁸⁸ Decision 17/CP.7 of the Marrakesh Accords stipulates “it is the host Party’s prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development.”⁸⁹ Indeed, the only condition stipulated in the Marrakesh Accords regarding CDM projects is that nuclear facilities are not to be used.⁹⁰

The purpose of allowing developing countries to decide what constitutes sustainable development is based on non-Annex I Parties wanting to protect their sovereignty.⁹¹ However, this prerogative has been criticized as tipping the balance over to the GHG emission reduction side of the equation, as opposed to fulfilling the sustainable development requirement of the CDM.⁹²

For example, one can picture the use of forest plantations as sinks as one type of CDM project that removes GHG emissions, yet it has a negative impact on biodiversity. Another example would be the use of a large-scale hydro project as a CDM project. This type of project would not emit any GHGs, yet often such dams have massive environmental and social impacts—such as displacement and impoverishment of people, and destruction of ecosystems and fishery resources—a situation clearly not consistent with sustainable development.⁹³ On the other hand, the recent United Nations Symposium on Hydropower and Sustainable Development is evidence that sustainable development is getting more

88. *Id.* at 27-28.

89. *Id.* (Decision 17/CP.7) at 20.

90. *Id.*

91. Meinhard Doelle, *From Kyoto to Marrakesh; a Long Walk through the Desert: Mirage or Oasis?*, 25 DALHOUSIE L.J. 113, 126 (2002).

92. *Id.*

93. WORLD COMM’N ON DAMS, DAMS & DEVELOPMENT: A NEW FRAMEWORK FOR DECISION-MAKING 6 (2000), available at http://www.dams.org/docs/overview/wcd_overview.pdf.

attention in the context of hydropower in the international community.⁹⁴ Hydropower is one way to contribute to sustainable development, providing access to energy, especially for the poor, while at the same time mitigating GHG emissions.⁹⁵ Yet it has to be done in a socially acceptable and environmentally sound manner.⁹⁶

Especially with regard to the interpretation of sustainable development, no two developing countries are the same. A small country, such as Papua New Guinea, may not have the choice to turn down a project that could generate income in the short term, but that would not be sustainable in the long term. Brazil, on the other hand, may be able to apply its own sustainable development requirements to a potential project, without fearing that investors might lose interest in the project.

Voluntary guidelines or best practices on what should be required to ensure that a project actually does promote sustainable development could be a first step toward solving this problem.⁹⁷ Once enough countries use the guidelines, the project developers would feel more compelled to accept them and they could become part of the CDM verification process.

The World Wildlife Fund (WWF) has initiated the Gold Standard, introducing additional steps to be taken by the CDM project developers in order to make sure the projects promote sustainable development.⁹⁸ These requirements were then reviewed by an independent Standards Advisory Board (SAB), which represented academics, NGOs, and project developers. The SAB, in turn, produced 'The Gold Standard Project Design Document' for use in the development and implementation of high quality CDM and joint implementation projects.⁹⁹ The down side of these guidelines or standards is that if they

94. See U.N. Dep't of Econ. and Social Affairs, United Nations Symposium on Hydropower and Sustainable Development 27-29 October 2004, at <http://www.un.org/esa/sustdev/sdissues/energy/op/hydrosymposium.htm> (last modified Dec. 8, 2004).

95. U.N. Symposium on Hydropower and Sustainable Development, *Beijing Declaration on Hydropower and Sustainable Development* ¶ 6 (2004), available at http://www.un.org/esa/sustdev/sdissues/energy/hydropower_sd_beijingdeclaration.pdf.

96. *Id.* ¶ 3.

97. Sebastian Foot, *An Evaluation of the Present Clean Development Mechanism*, 16 ENVTL. L. & MGMT. 125 (2004).

98. WWF, *The Gold Standard: Quality Assurance for CDM and JI Projects*, available at http://www.panda.org/about_wwf/what_we_do/climate_change/our_solutions/business_industry/finance_investment/gold_standard.cfm (last updated Mar. 10, 2005).

99. *Id.*

were to become mandatory they would increase the cost of the CDM verification process, making such projects less attractive to investors.¹⁰⁰ However, if sustainable development is deemed a priority—as it should be—a special fund could be designated to alleviate the additional costs.

C. *The Road to Certified Emission Reductions*

In order to understand how the Annex I Parties will receive their certified emission reductions (CERs), which they will use toward their GHG reduction obligations, it is necessary to examine the project cycle of a CDM project.¹⁰¹

Only Annex I Parties and non-Annex I Parties that have ratified the Kyoto Protocol can participate in a CDM project. Furthermore, Annex I Parties have additional eligibility requirements; namely, their emission reduction commitments have to be calculated and recorded and they must comply with inventory and reporting commitments under the Protocol.¹⁰²

The COP/MOP “shall have authority over and provide guidance to the CDM.”¹⁰³ An executive board, the CDM’s institutional core, will supervise the CDM “under the authority and guidance of COP/MOP and be fully accountable to the COP/MOP.”¹⁰⁴ The Conference of the Parties elected its first executive board at its seventh session (COP-7) in 2001.¹⁰⁵

The executive board has ten members.¹⁰⁶ Since the Kyoto Protocol entered into force on February 16, 2005, some of the members of the executive board will be replaced to represent only Parties that have ratified the Kyoto Protocol.¹⁰⁷ The new members, to be elected at the first session of COP/MOP in December 2005, will replace the Parties that have not ratified the Kyoto Protocol.¹⁰⁸ The membership will consist of the five UN regional groups, in addition to two members from the Annex I Parties, two from non-Annex I Parties, and one representative from the

100. During the Marrakesh negotiations suggestions to include requirements for meaningful environmental assessments were not adopted because most Parties believed that the cost of complying with such requirements would outweigh the incentive provided by the credits. *See Doelle, supra* note 91, at 128.

101. *Kyoto Protocol, supra* note 1, art. 12(3)(b), 37 I.L.M. at 38.

102. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 32-33. *See Kyoto Protocol, supra* note 1, arts. 3(7), 5, 7, 37 I.L.M. at 35-36.

103. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 26. *See Kyoto Protocol, supra* note 1, art. 12(4), 37 I.L.M. at 38.

104. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 27.

105. *Id.* (Decision 17/CP.7) at 21.

106. *Id.* (Decision 17/CP.7, Annex) at 28.

107. *Kyoto Protocol, supra* note 1, art. 25, 37 I.L.M. at 42.

108. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 21.

small island developing States.¹⁰⁹ They are to be nominated by the same constituencies and then elected by the COP/MOP for a period of two years, with a maximum of two terms.¹¹⁰

The executive board members are to act independently.¹¹¹ Furthermore, the members are to have no monetary interest in any of the CDM projects or operational entities.¹¹² Decisions in the executive board are to be made by consensus, whenever possible, or otherwise by three-fourths majority.¹¹³

One of the main functions of the executive board is to accredit the designated operational entities (DOE) and recommend the designation of operational entities to the COP/MOP.¹¹⁴ The DOEs shall validate proposed CDM projects and verify and certify reductions in anthropogenic emissions by sources of GHG.¹¹⁵ A national authority has to be designated by the Parties participating in the CDM, referred to as Designated National Authority (DNA).¹¹⁶ To date, seventy-six DNAs have been established by Annex I and non-Annex I Parties.¹¹⁷ The DNA has to submit written approval to the DOE that the project participants are participating on a voluntary basis.¹¹⁸ That approval also has to include confirmation by the host Party (the developing country) that the project assists it in achieving sustainable development.¹¹⁹

Validation by the DOE takes place when it makes an independent evaluation of a project activity—comparing it against the requirements of the CDM in the Marrakesh Accords on the basis of the project design document (PDD).¹²⁰ Several requirements have to be met by the project participants in order for the validation to be made; among them, the participants must invite comments on the project activity from the stakeholders (i.e. the public affected or likely to be affected by the project¹²¹) and they must also submit a report to the DOE after giving

109. *Id.* (Decision 17/CP.7, Annex) at 28.

110. *Id.* at 29.

111. *Id.*

112. *Id.*

113. *Id.* at 30.

114. *Id.*

115. *Id.* at 31.

116. *Id.* at 29.

117. UNFCCC, Clean Development Mechanism, *Designated National Authorities (DNA)*, at <http://cdm.unfccc.int/DNA> (last visited Apr. 9, 2005).

118. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 40(a).

119. *Id.*

120. *Id.* at 34.

121. *Id.* at 26.

due consideration to these comments.¹²² Also, the project participants must document environmental impacts of the project activity, and if considered significant, an environmental impact assessment needs to be undertaken according to procedures required by the host Party.¹²³ Furthermore, baseline and monitoring methodologies need to comply with specific rules to make sure that the CDM project results in additional reductions to any that would have occurred in the absence of the project, as mentioned above.¹²⁴

Before the DOE submits the validation report to the executive board, it must make the PDD public and receive comments on the validation requirements from Parties, stakeholders, and UNFCCC accredited non-governmental organizations (NGOs) within thirty days.¹²⁵ Those comments then, in turn, must be made available to the public.¹²⁶ After the deadline for receipt of comments has expired, the DOE must make a determination as to whether the project should be validated, taking into account the comments and any other information provided.¹²⁷ Finally, registration occurs when the executive board formally accepts a validated project as a CDM project activity.¹²⁸

The executive board registered the very first CDM project activity on November 18, 2004.¹²⁹ It is called the Brazil NovaGerar Landfill Gas to Energy Project.¹³⁰ The project involves using a gas collection system and generators to combust methane from landfills to produce electricity for export to the grid.¹³¹ The combustion will lead to a reduction of 14.072 million tonnes of CO₂ emission over the next twenty-one years.¹³²

CDM project participants may choose a crediting period of seven years (two renewal options) or ten years (no renewal option).¹³³ The project participants are responsible for providing a monitoring plan as part of their project design document. At the end of the crediting period,

122. *Id.* at 34.

123. *Id.*

124. *Id.* See text accompanying note 83.

125. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 40(c).

126. *Id.*

127. *Id.* at 40(d).

128. *Id.* at 36.

129. UNFCCC, Clean Development Mechanism, *Project Activities: Registered*, at <http://cdm.unfccc.int/Projects/registered.html> (last visited Apr. 9, 2005).

130. *Id.*

131. ECOSECURITIES LTD., NOVA GERAR LANDFILL GAS TO ENERGY PROJECT: PROJECT DESIGN DOCUMENT 3 (2004), available at http://cdm.unfccc.int/UserManagement/FileStorage/FS_609234123.

132. *Id.*

133. *Marrakesh Accords* Vol. II (Decision 17/CP.7, Annex), *supra* note 71, at 37.

the DOE carries out an independent review and *ex post* determination of the project called "verification".¹³⁴ The verification by the DOE determines whether reductions of GHG emissions have occurred as a result of the CDM project. If the project activity achieved the reductions in GHG emissions as verified, then the designated operational entity gives a written assurance called "certification."¹³⁵ Finally, on the basis of the certification report, the executive board issues certified emission reductions (CER).¹³⁶

CERs can be generated from projects starting in the year 2000 and prior to COP-7, if submitted for registration before December 31, 2005, thus allowing a prompt start of the CDM mechanism. CERs are otherwise only issued "for a crediting period starting after the date of registration of a CDM project activity."¹³⁷ COP-7 decided that two percent of CER proceeds shall be used to assist non-Annex I Parties "that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation."¹³⁸ The least developed countries are exempt from the two percent contribution.¹³⁹

In order to promote small-scale CDM projects, the Marrakesh Accords established simplified modalities and procedures for those renewable energy projects with a maximum output capacity of less than 15MW, energy improvement project activities, or other projects that both reduce emissions and emit less than fifteen kilotonnes of carbon dioxide equivalent annually.¹⁴⁰ These simplified modalities and procedures are meant to reduce the transaction costs associated with preparing and implementing a small-scale CDM project activity.¹⁴¹

V. COMPLIANCE

The Marrakesh Accords operationalized the non-compliance

134. *Id.* at 39.

135. *Id.*

136. *Id.* at 40.

137. *Id.* (Decision 17/CP.7) at 23.

138. *Id.* See *Kyoto Protocol*, *supra* note 1, art. 12(8), 37 I.L.M. at 38.

139. *Marrakesh Accords* Vol. II (Decision 17/CP.7), *supra* note 71, at 23

140. *Id.* at 21.

141. *Report of the Conference of the Parties on its Eighth Session, Held at New Delhi from 23 October to 1 November 2002*, U.N. Framework Convention on Climate Change, 8th Sess., 7th plen. mtg. Addendum, Decision 21/CP.8, Annex II, at 20, U.N. Doc. FCCC/CP/2002/7/Add.3 (2003), available at <http://cdm.unfccc.int/Reference/Documents/AnnexII/English/annexII.pdf>.

procedure introduced in Kyoto Protocol Article 18.¹⁴² Decision 24/CP.7, entitled “Procedures and mechanisms on compliance under the Kyoto Protocol,” goes beyond facilitation used in other international environmental agreements and introduces enforcement as a non-compliance mechanism.¹⁴³ However, it only addresses Annex I Parties’ emission reduction commitments.¹⁴⁴ This includes their commitments under Kyoto Protocol Article 3(1), inventory and reporting commitments under Articles 5 and 7, and eligibility requirements under the Kyoto Mechanisms.¹⁴⁵ In the context of the CDM, Annex I Parties’ eligibility to use the CDM mechanism shall be suspended if they do not meet one or more of the eligibility requirements of the CDM as mentioned above.¹⁴⁶ At the request of the Party concerned, eligibility may be reinstated using an expedited procedure.¹⁴⁷

A Party that authorizes private or public entities to participate in CDM projects shall ensure that such participation is consistent with the Annex to Decision 17/CP.7.¹⁴⁸ This puts the onus on the Annex I Parties to ensure that the private or public entities participating in CDM projects follow the rules.

“A Party involved in the project activity or at least three members of the executive board may request a review of the proposed issuance of CERs.”¹⁴⁹ Fraud, malfeasance, or incompetence on the part of the designated operational entity would be the only focus of such a review.¹⁵⁰ The executive board may recommend to COP/MOP to suspend or withdraw the designation of an operational entity if it no longer meets the accreditation standards.¹⁵¹ If a DOE has its accreditation withdrawn or suspended after it has issued excess CERs, then the DOE must acquire and transfer an amount of reduced tonnes of carbon dioxide equivalent to

142. See *Kyoto Protocol*, *supra* note 1, art. 18, 37 I.L.M. at 40.

143. *Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001*, U.N. Framework Convention on Climate Change, 7th Sess., 8th plen. mtg. Addendum, Vol. III, Decision 24/CP.7, at 64, U.N. Doc. FCCC/CP/2001/13/Add.3 (2002) [hereinafter *Marrakesh Accords Vol. III*], available at <http://unfccc.int/resource/docs/cop7/13a03.pdf>.

144. See Brunnée, *supra* note 10, at 274.

145. *Marrakesh Accords Vol. III* (Decision 24/CP.7, Annex), *supra* note 143, at 75-76.

146. See text accompanying note 102. *Marrakesh Accords Vol. III* (Decision 24/CP.7, Annex), *supra* note 143, at 76.

147. *Id.*

148. *Marrakesh Accords Vol. II* (Decision 17/CP.7, Annex), *supra* note 71, at 33.

149. *Id.* at 40.

150. *Id.*

151. *Id.* at 31.

the excess CERs issued to a cancellation account maintained in the CDM registry by the executive board.¹⁵²

VI. CONCLUSION

The CDM will be an effective tool for increasing developing countries' national capacity to mitigate climate change by facilitating their switch to clean technologies and energy efficiency. However, major questions remain as to whether the CDM will succeed as "credible" mechanisms that can offer adequate environmental safeguards in issuing CERs, while also remaining attractive to investors.¹⁵³ To help guarantee the credibility of the CER, the executive board initially set a high standard for the procedures and modalities of the CDM.¹⁵⁴

Domestic preparations, systems and procedures for hosting or investing in CDM project activities are still underway. Currently, there is a huge need for Annex I Parties to assist in capacity-building, especially to promote the establishment of designated national authorities (DNAs) in developing countries. Furthermore, only five operational entities have been accredited to date. The CDM registry was expected to be operational by end of 2004.

With regard to project developers, incentives are demand driven. The first project developers will undoubtedly be more susceptible to the financial risks inherent in this new system, yet they can take advantage of the opportunities that will not be available at a later stage in the game.¹⁵⁵ With the recent registration of the Brazilian NovaGerar Landfill Gas to Energy Project, one can begin to calculate when the first CERs will be issued.

CERs generated by the CDM will compete with other Kyoto Mechanisms. An interesting question remains as to how the CDM will fit in with future international actions on climate change (after the end of the first commitment period in 2012). If non-Annex I Parties take on binding reduction commitments, will they still be eligible for CDM projects? Most likely adjustments to the CDM mechanism can be expected beyond 2012, and additional mechanisms may show up to allow for new methods of cooperation between Annex I and non-Annex I

152. *Id.*

153. Personal communication with Georg Børsting, Vice-Chair, Executive Board, CDM (Oct. 15, 2004).

154. *See* Foot, *supra* note 97, at 131.

155. *See id.* at 125.

Parties that build on the CDM experience.¹⁵⁶

In summary, assuming all the CDM verification procedures are ironed out, and host nation systems and procedures are put into place, the CDM looks to be a promising tool for assisting industrialized countries in fulfilling their Kyoto Protocol commitments, while assisting developing countries achieve sustainable development. The CDM will provide developing countries with an opportunity to move toward a sustainable energy development path, while offering public and private investors opportunities to develop profitable climate change mitigating technologies.

156. *Id.*

