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Carbon Trading Under the Kyoto Protocol: Risks and Opportunities for Investors

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CARBON TRADING UNDER THE KYOTO PROTOCOL: RISKS AND OPPORTUNITIES FOR INVESTORS

*Jennifer P. Morgan**

“The atmosphere is to the earth what peach fuzz is to the peach.”¹

I. INTRODUCTION

The earth’s atmosphere is suffering an accumulation of greenhouse gases² (GHG) as a result of anthropogenic processes which is causing both air and ocean temperatures to rise.³

Climate change is a growing international problem; no country will be spared its implications, and the developing world will be hit the hardest due to its relative lack of ability to adapt. Likely effects will include rising sea-levels, causing coastal communities to face increased erosion and storms, precipitation changes impacting communities with limited water supplies, and threats to human health

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1. Paula DiPerna, Executive Vice President, Chi. Climate Exch., Address at the Japan Society Corporate Conference: Risks and Opportunities in the Emerging Emissions Trading Market (Feb. 14, 2006).

2. GHG include not only carbon dioxide (CO₂), but also methane, nitrous oxide, fluorocarbons (including hydrofluorocarbons and perfluorocarbons), tropospheric ozone (precursors of which include nitrogen oxides, non-methane hydrocarbons, and carbon monoxide), and sulphur hexafluoride. CO₂ accounts for the bulk of aggregate warming potential. Scott Barrett, *Political Economy of the Kyoto Protocol*, OXFORD REV. OF ECON. POL’Y, Winter 1998, at 24.

3. The growing scientific consensus is that this warming is largely the result of emissions of GHG from human activities including industrial processes, fossil fuel combustion, and changes in land use, such as deforestation. Pew Center on Global Climate Change, http://www.pewclimate.org/global-warming-basics/basic_science/ (last visited Mar. 18, 2006).

due to heat waves and an increase in vector-borne diseases due to humidity and rising temperatures.⁴ The international community took a first step toward solving this problem collectively with the United Nations Framework Convention for Climate Change, followed by the Kyoto Protocol. The Kyoto Protocol allows private entities to participate in the climate change mitigation effort through the Clean Development Mechanism (CDM).⁵

The potential effect of the CDM on the project finance market is significant. This mechanism offers an alternative source of financing as project developers earn an additional return on projects that reduce emissions of GHG or enhance sinks through the generation of certified emission reduction (CER) credits.⁶ Wind power, biomass, energy efficiency, landfill gas utilization, and forestry are some of the sectors that are benefiting from the availability of carbon finance through the CDM.⁷ The CDM incentivizes Western capital markets to invest in emerging markets, and developing countries receive 'clean technology' for simply signing off on a project.⁸ This alternative financing will be attractive to countries with stringent Kyoto requirements; projects will go forth in places that otherwise would not attract foreign direct investment and with more expensive and environmentally responsible technology than would otherwise be used.⁹ While this is an exciting opportunity, a way to link global

4. CENTER FOR INTERNATIONAL EARTH SCIENCE INFORMATION NETWORK [CIESIN], POSSIBLE DIRECT AND INDIRECT EFFECTS OF CLIMATE CHANGE ON SPECIFIC VECTOR-BORNE DISEASES, <http://www.ciesin.org/TG/HH/veclev3d.html> (last visited Apr. 14, 2006).

5. Kyoto Protocol to the Framework Convention on Climate Change, art. XII, Dec. 10, 1997, 37 I.L.M. 22, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf> [hereinafter Kyoto Protocol].

6. *Id.*

7. Climate Change Capital, Carbon Markets, <http://www.climatechangecapital.com/pages/carbon.asp> (last visited Mar. 18, 2006).

8. The host Party must first ratify the Kyoto Protocol and establish a Designated National Authority, requirements which are more fully explained below.

9. An example of the growing market is the birth of funds to buy emissions and finance projects. Thirty-five Japanese companies, led by JBIC, DBJ and several trading companies, have co-established a \$137 million fund through which they will invest in large CDM projects and then claim future emission credits in proportion to their contributions. See Minoru Ota & Yoshitoshi Imoto, *Emissions Trading*, INTERNATIONAL FINANCIAL LAW REVIEW (2005), available at <http://www.iflr.com/?Page=17&ISS=16156&SID=508249> (last visited Mar. 18, 2006). London based Climate Change Capital has launched the Climate Change Capital Carbon Fund which has over \$100 million earmarked for emission reduction projects. See Climate Change Capital, *supra* note 7. The World Bank has

environmental interests with the market, it does not come without risks. This Note explores the CDM process and analyzes the risks any potential CDM project developer should understand and account for.

II. THE LAW

A. Background to Kyoto

1. Intergovernmental Panel on Climate Change

Recognizing the need to address climate change as a growing international threat, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC) in 1988.¹⁰ The IPCC published its first assessment report in 1990 and concluded that “emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases . . . [and] will enhance the greenhouse effect, resulting on average in an additional warming of the Earth’s surface.”¹¹ The report calculated that “the long-lived gases [including CO₂] would require immediate reductions in emissions from human activities of over 60 per cent to stabilize their concentrations at today’s levels,” and predicted that, under the “Business-as-Usual” scenario, global mean temperature would rise by between 0.2°C and 0.5°C, and global mean sea level would rise by between 3 and 10cm per decade

about one billion dollars in various Carbon Funds. The World Bank Carbon Finance Unit, Carbon finance at the World Bank: List of Funds, *available at* <http://carbonfinance.org/Router.cfm?Page=Funds&ItemID=24670> (last visited Mar. 18, 2006).

10. Intergovernmental Panel on Climate Change [hereinafter IPCC], *About IPCC*, <http://www.ipcc.ch/about/about.htm> (last visited Mar. 10, 2006). The IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. *Id.* The IPCC’s assessment is based in most part on peer reviewed and published scientific/technical literature. *Id.* See IPCC, Principles Governing IPCC Work, *available at* <http://www.ipcc.ch/about/princ.pdf>, for a more complete discussion of the procedures of the IPCC.

11. Scott Barrett, *Political Economy of the Kyoto Protocol*, 14 OXFORD REV. OF ECON. POL’Y 20, 24 (1998).

during the next century.¹² The report also gave an ominous warning, noting that “the complexity of the system means that we cannot rule out surprises.”¹³ Thus, the First Assessment Report confirmed that climate change was a threat and called for an international treaty to address the problem.

2. United Nations Framework Convention on Climate Change

Negotiations for an international treaty began in the year 1991; one year later the United Nations Framework Convention on Climate Change (UNFCCC) was produced at the United Nations Conference on Environment and Development (UNCED).¹⁴ The UNFCCC acknowledges that climate change is a “common concern of humankind” which has been caused by the developed world; it also notes that the developing world’s emissions will have to increase to meet its social and development needs.¹⁵ The objective of the treaty is “to achieve stabilization of greenhouse gas concentrations in the atmosphere at a low enough level to prevent dangerous anthropogenic interference with the climate system.”¹⁶ The UNFCCC contains obligations that all parties must comply with; these are “soft commitments” including, but not limited to, reporting the state of GHG and implementing national and regional programs to mitigate climate change.¹⁷ Following the principle of common but differentiated responsibilities, Annex 1 and 2 countries have

12. *Id.*

13. *Id.*

14. U.N. Conference on Environment and Development is commonly referred to as the Earth Summit and was held in Rio De Janerio, Brazil; the treaty entered into force in 1994. *See* U.N. Doc. A/CONF.151/26 (1992), 31 I.L.M. 874 (1992) [hereinafter UNCED].

15. United Nations Framework Convention on Climate Change, preamble, May 9, 1992, 31 I.L.M. 849, available at <http://unfccc.int/resource/docs/convkp/co nveng.pdf>, at 2 [hereinafter UNFCCC]. Any international treaty that affects the interests of the developing world must note the developing nations’ special needs or, as developing nations make up the majority of the membership of the UN, the treaty will not receive the requisite amount of signatures to enter into force. The Preamble also mentions uncertainty, invoking the precautionary principle, which is one of the reasons the United States, which rejects this as a legal principle in international law, will not ratify the Kyoto Protocol. *See supra* note 5.

16. UNFCCC, art. II, *supra* note 15, at 9.

17. UNFCCC, art. IV, *supra* note 15, at 10-11.

more concrete obligations.¹⁸ Annex 1 countries, which are industrialised states and those transitioning to a market economy, are obligated to reduce GHG to the level of the year 1990 by the year 2000;¹⁹ Annex 2 countries, which are Annex 1 without the economies in transition, are committed to making money and technologies available to developing countries in order to help these countries comply with their own UNFCCC obligations.²⁰

Ultimately, this is a framework and insufficient on its own to meet the growing problem of climate change; in the year 1997 negotiations were launched to negotiate a more specific treaty, resulting in the Kyoto Protocol.

B. *The Kyoto Protocol*

The Kyoto Protocol (Kyoto) to the UNFCCC was adopted in December 1997 in Kyoto, Japan. All parties to UNFCCC are able to sign or ratify Kyoto, and it finally entered into force on February 16, 2005.²¹

18. This international legal principle recognizes historical differences in the contributions of developed and developing States to global environmental problems, and differences in their respective economic and technical capacity to solve these problems. There are two elements to the principle: the first is the common responsibility of States for the protection of the environment, or parts of it, at the national, regional and global levels, the second is the need to take into account the different circumstances, particularly each State's contribution to the evolution of a particular problem and its ability to prevent, reduce and control the threat. Center for International Sustainable Development Law (CISDL), *The Principle of Common But Differentiated Responsibilities: Origins and Scope*, LEGAL BRIEF, Aug. 2002, at 1, available at http://www.cisd.org/pdf/brief_common.pdf.

19. While the economies in transition met the obligation, almost no other country did; in fact, most other countries increased emissions. An example of this is our own dismal performance: in 1990, total US GHG emissions were 1,671 million metric tons in carbon equivalents (MMTCE) or 6,128 million metric tons in carbon dioxide equivalents (MMTCO₂E). As of 2000, total US GHG emissions were 14.1 percent above 1990 levels, or 1,907 MMTCE (6,994 MMTCO₂E). *Analysis of President Bush's Climate Change Plan*, available at http://www.pewclimate.org/policy_center/analyses/response_bushpolicy.cfm (last visited Mar. 10, 2006).

20. UNFCCC, art. IV, *supra* note 15, at 13-15. Article 4(7) explicitly states that social development and poverty eradication are the overriding concerns of developing countries and if the developed countries do not contribute financial and technological resources, they will be ineffective at meeting their Article 4(1) commitments. *Id.*

21. Kyoto Protocol, Status of Ratification, available at http://unfccc.int/essential_background/kyoto_protocol/status_of_ratification/items/2613.php.

Kyoto contains clear legal obligations, found in Article 3. Annex 1 countries have an overall commitment to reduce GHG by five percent between the years 2008 and 2012; the specific commitment for each individual Annex 1 country is also listed.²² There is no obligation for developing countries to reduce emissions or cap the growth of emissions.²³

A debate between the United States and the European Union threatened to unravel the Kyoto negotiations. The US argued for the inclusion of market mechanisms as it wanted to ensure it could achieve its commitments in a flexible manner, particularly by utilizing the market and transferring obligations to other countries.²⁴ The US also asked for the possibility of buying GHG reductions outside its domestic territory.²⁵ The EU felt that some flexibility was required, but did not want the market to be the leading source of reductions. It supported strictly domestic reduction, precluding the possibility of other countries doing the job.²⁶ The compromises that resulted from these disputes are the three flexible mechanisms in the Protocol: Joint Implementation (Article 6),²⁷ Clean Development Mechanism (Article 12), and Emissions Trading (Article 17). Coun-

22. Kyoto Protocol, art. III, *supra* note 5.

23. The fact that developing nations (particularly India and China) have no commitments to reduce or cap emissions is one reason the US will not ratify Kyoto. The US argues that nations that represent an ever-increasing proportion of total world emissions should be held to the same standard as countries already polluting. Dan Zinder, *The Kyoto Protocol and the US: International Politics in the National Setting*, available at <http://inside.bard.edu/politicalstudies/student/P-S260Spring03/kyotocol.htm> (last visited Mar. 19, 2006).

24. Environmental Defense, Dispatches from the Climate Summit at Kyoto, <http://www.environmentaldefense.org/article.cfm?contentid=500> (last visited Mar. 10, 2006).

25. *Id.*

26. Julie Hyland, UN climate summit fails amid bitter recriminations between US and Europe, <http://www.wsws.org/articles/2000/dec2000/sum-d01.shtml> (last visited Mar. 10, 2006).

27. Joint Implementation (JI) is outside the scope of this Note. This mechanism functions only between Annex 1 countries (Western countries and economies in transition) and produces Emissions Reductions Units (ERUs). A project can be funded by one Annex 1 country to take place in another Annex 1 country as long as it meets the requirements of additionality (the project must reduce emissions in addition to what would otherwise occur), compliance with Articles 5 & 7 (countries must have system for measuring and reporting their own emissions), and supplementarity (the project must be supplemental to domestic measures; a country cannot only reduce emission outside its borders). Kyoto Protocol, art. VI, *supra* note 5, at 7.

tries can use these three innovative ways to achieve compliance in the most cost-effective manner possible.

1. Clean Development Mechanism – Article 12

The Clean Development Mechanism (CDM) affords an opportunity to reduce emissions through cooperation between developed and developing countries. An Annex 1 country may undertake a project in a developing country which reduces emissions and in turn receive Certified Emissions Reductions (CERs) to be used to meet its own Kyoto reduction commitment or trade on the market; this is the only capacity in which developing countries can participate in reducing GHG under Kyoto.²⁸ The CDM has the potential to mitigate one of the dangers inherent in the principle of common but differentiated responsibility – the countries which have no GHG reduction requirements until 2012 are at risk of falling behind the technology curve and may still be using extremely old, polluting technology while the rest of the world has progressed; the CDM allows developing countries to receive more expensive, “greener” technology at no cost, while also allowing them to progress towards sustainable development. The principal goal of the CDM is sustainable development, with assisting Annex 1 countries in reducing GHG falling to second priority;²⁹ this is an important consideration for any party undertaking a CDM project, particularly when it attempts to meet the requisite standards to bring a project to fruition and ultimately receive CERs.

As elaborated below, a CDM project begins with the Project Design Document (PDD) in which the Annex 1 country and the developing, or host, country design a project, the project then must be validated and finally certified for the amount of CERs it has achieved and to be used by the funding party to comply with Kyoto or trade. The CDM project must satisfy other criteria as well: it must achieve “real, measurable, and long-term benefits related to the mitigation of climate change” and any reductions in GHG achieved must be additional to those which would occur in the absence of the project.³⁰

The CDM was intended to be a flexible partnership between the developed and developing world in which the latter helps the former

28. Kyoto Protocol, art. XII, *supra* note 5.

29. Kyoto Protocol, art. XII(2), *supra* note 5, at 12.

30. Kyoto Protocol, art. XII(5), *supra* note 5, at 12.

deal with a common problem in exchange for technology and infrastructure that it ordinarily would not receive. A setback arose as some Annex 1 governments began simply shifting funds that were already earmarked for developing countries into the CDM, thus removing any additional benefit the host country would receive by allowing a CDM project to occur within its borders. If this practice continues, developing countries will withdraw support for Kyoto and the CDM; this undercuts the principle of common but differentiated responsibility by indirectly asking developing countries to clean up the problem the developed world caused. On the other hand, the CDM is a positive and innovative mechanism in that, for the first time, both industry and developing countries are participating to achieve the goal of global emissions reductions.

2. Emissions Trading – Article 17

Article 17 introduces the idea that countries are able to trade emissions reductions on a global market, and use this to comply with their emissions reductions obligations.³¹ This mechanism will potentially force businesses to think of climate change as a profitable market and could become a powerful incentive for industries to come on board. Emissions trading under Article 17 is subject to the limitation that trading must be supplemental to a country's domestic actions to reduce GHG to meet its Article 3 commitments.³²

III. KEY PLAYERS

As the first commitment period under Kyoto draws closer, the flexible mechanisms of CDM and emissions trading are of great importance to the governments of Annex 1 countries, who will suffer extreme embarrassment if they fail to meet their targets, as well as private corporations within these countries which now have their own stringent reduction requirements imposed by their governments.³³ The use of these flexible mechanisms will prove vital; only

31. Kyoto Protocol, art. XVII, *supra* note 5, at 16.

32. *Id.*

33. An example of private industry GHG reduction obligations exists in the EU. The EU has imposed requirements on its private sector through the National Allocation Plan (NAP) and the EU emissions trading scheme (ETS). Affected industries are required to hold a GHG emissions permit allowing them to emit a certain amount of GHG, determined by the respective member state via an alloca-

eastern European countries, now in decline but flourishing in 1990, are on track to meet their Kyoto targets.³⁴ Not even the EU, despite its continued support of Kyoto and its detailed trading scheme, has implemented climate change provisions near what needs to be done to meet its target. NGOs also have an interest in utilizing the emissions trading market; NGOs can buy emissions credits and retire them, so they can never be used to allow domestic pollution by another purchaser.³⁵

The developing world obviously has a large role to play in the CDM and subsequent emissions trading process. As discussed above, host countries have significant concerns regarding already earmarked funds being transferred to these projects. The Marrakech Accords, which sets out the details of the Protocol, addresses this issue: "public funding for clean development mechanism projects from Parties in Annex I is not to result in the diversion of official development assistance and is to be separate from and not counted towards the financial obligations of Parties included in Annex I."³⁶ Developing countries thus have a legal argument against this practice.³⁷ Host countries stand to gain substantial advantages by im-

tion of emissions allowances in the NAP. Freshfields Bruckhaus Deringer, *EU ETS trading commences*, Jan. 2005, at 1, available at <http://www.freshfields.com/practice/environment/publications/pdfs/10573.pdf>.

34. News, World Wildlife Fund, Europe's plans to meet Kyoto targets not on track, available at http://www.panda.org/news_facts/newsroom/news/index.cfm?-uNewsID=12221 (last visited Mar. 19, 2006); News Release, European Environment Agency, Most of Central and Eastern Europe on Track to Meet Kyoto Targets, available at <http://org.eea.eu.int/documents/newsreleases/ghg-accession-en> (last visited Mar. 19, 2006).

35. The EU ETS has a "national cancellation account; all allowances transferred to this account may not be further transferred or used for compliance purposes. Companies outside the Scheme, or even individuals, could choose to buy and cancel allowances to voluntarily offset GHG emissions elsewhere." An NGO, for example, may open a trading account, purchase emissions allowances in the market and then cancel them. *UK Emissions Trading Scheme*, available at <http://www.defra.gov.uk/environment/climatechange/trading/uk/draft/04.htm> (last visited Mar. 11, 2006).

36. 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, U.N. Doc. FCCC/CP/2001/13/Add.2 (2002), available at <http://unfccc.int/resource/docs/cop7/13a02.pdf>, at 20 [hereinafter Marrakech].

37. The project design document also requires "[i]nformation on sources of public funding for the project activity from Parties included in Annex I which shall provide an affirmation that such funding does not result in a diversion of official

plementing the CDM process; while they are already designated as recipients of technology transfers from the developed world both in the UNFCCC and Kyoto,³⁸ these are relatively soft commitments. The CDM process guarantees immediate technology transfer upon completion of a project.³⁹ While the developing world has made clear its position that it should not be held responsible for the damage developed countries have caused, the CDM process allows for its participation in exchange for valuable technology at no cost.

If the United States were a party to the Protocol, it would have an obligation to reduce emissions by seven percent—this would bolster the emission trading market on a large scale.⁴⁰ The US will not become party to any treaty which imposes no obligations on the developing world; in particular it wants these countries to cap their growth of emissions.⁴¹ On the other hand, China and India in particular see this as a cap on economic growth and will withdraw their critical support if this obligation is imposed.⁴² The US also wants more voluntary obligations, but there is a danger that adding voluntary obligations will render the treaty unenforceable. Another requirement for US support is to measure the carbon intensity of activities, or how much a specific activity produces, rather than overall GHG emissions.⁴³ A problem with this approach is that while overall there is a large amount of emissions because too much energy is consumed, when it is consumed, it is consumed reasonably well com-

development assistance and is separate from and is not counted towards the financial obligations of those Parties.” Marrakech, *supra* note 36, Appendix B, at 44. Project participants risk noncompliance with the PDD and will not receive validation by the DOE if funding is improper.

38. Kyoto Protocol, art. X, *supra* note 5, at 9-11; UNFCCC, *supra* note 15, at 14.

39. “[C]lean development mechanism project activities should lead to the transfer of environmentally safe and sound technology and know-how in addition to that required under Article 4, paragraph 5, of the Convention and Article 10 of the Kyoto Protocol.” Marrakech, *supra* note 36, at 20.

40. Zinder, *supra* note 23.

41. *Id.*

42. Planet Ark, World Environmental News, *China, India not ready to Cut Emissions* (Jul. 18, 2006), available at <http://www.planetark.com/dailynewsstory.cfm/newsid/37315/story.htm> (last visited Oct. 11, 2006).

43. This sentiment was echoed by Toyota; this company is wary of cap and trade regulations as it feels that such regulations will prevent the company from growing. Kevin Butt, Gen. Manager & Chief Env'tl. Officer, Address at the Japan Society Corporate Conference: *Risks and Opportunities in the Emerging Emissions Trading Market* (Feb. 14, 2006).

pared to other countries. This would limit any attempt to make a significant reduction in global GHG. Despite these complications with the US approach, the world is realizing that the US must join for any environmental treaty to work effectively. How this will be accomplished remains to be seen in future negotiations.

IV. IMPLEMENTATION – MARRAKECH ACCORDS

One goal of the flexible mechanisms, such as the CDM, was to afford fairly simple, user-friendly, and innovative solutions to the problems of climate change; unfortunately the CDM has evolved into a tangle of bureaucratic uncertainty. This is not to say it cannot be interpreted and utilized in a manner which will benefit all parties involved, it simply requires that care be taken to fully understand the mechanism's complexities before a project is undertaken. CDM projects are subject to various validation requirements as well as certification and monitoring relating to the issuance of CERs.

Under Marrakech, credits from CDM projects are "bankable" from one commitment period to the next, making this mechanism attractive.⁴⁴ Beginning in the year 2000, companies have been able to invest in projects in order to buy and sell in the future global trading system between Kyoto Parties, to be established in 2008.⁴⁵ Interest in this method has increased since the EU's adoption of the Linking Directive; this allows companies that have generated credits by investing in CDM projects to trade those credits into their member state authority and receive EU ETS allowances in return. These allowances can then be used to cover their own emissions or they can be traded on the EU ETS market like other allowances. Although there are limits as to the total volume of credits that can be ex-

44. Climate Change Projects Office, Dep't of Trade & Indus., *The Linking Directive: Linking The Kyoto Protocol's Market Mechanisms To The EU's Emissions Trading System*, (Apr. 2005), available at <http://www.dti.gov.uk/ccpo/pdfs/ccpo-brochure-linkdirect.pdf>, at 3.

45. "[P]rojects initiated between 2000 and late 2004 will receive retroactive credits if registered with the Executive Board by the end of 2006." *Report on the Eleventh Session of the Conference of the Parties to the UN Framework Convention on Climate Change and First Meeting of the Parties to the Kyoto Protocol*, available at http://www.unep.org/themes/climatechange/PDF/Report_EleventhSessions_UNFCCC_COP.doc, at 4.

changed in this way, companies will be able to use CERs for compliance in the EU ETS from 2005 onwards.⁴⁶

A. Participation Requirements

To participate in a CDM project a country must be a Party to Kyoto and have designated a national authority for the CDM.⁴⁷ An Annex I Party may use this mechanism to meet its Kyoto commitments if it complies with a series of requirements for monitoring and reporting its GHG emissions.⁴⁸

46. Climate Change Projects Office, *The EU emissions trading scheme, available at* http://www.dti.gov.uk/ccpo/eu_emissions.htm.

47. For a complete list of countries with Designated National Authorities (DNAs), see UNFCCC, *Designated National Authorities, available at* <http://cdm.unfccc.int/DNA>.

48. For a complete list and elaboration of these requirements, see Marrakech, Decision 17/CP.7, *supra* note 31, at 32. Eligibility to participate in the mechanisms by a party included in Annex 1 shall be dependent on its compliance with methodological and reporting requirements under Article V, paragraphs 1 and 2 and Article VII, paragraphs 1 and 4, of the Kyoto Protocol. Oversight of this provision will be provided by the enforcement branch of the compliance committee, in accordance with the procedures and mechanisms relating to compliance as contained in decision 24/CP.7, assuming approval of such procedures and mechanisms by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol in decision form in addition to any amendment entailing legally binding consequences, noting that it is the prerogative of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol to decide on the legal form of the procedures and mechanisms relating to compliance. Marrakech, Decision 15/CP.7, *supra* note 36, at 4. This condition, allowing countries to use the CDM mechanism to meet targets through emissions trading and funding climate gas-cutting projects abroad only if they accept the compliance regime, was proposed by the EU. In effect, if a country fails to comply with the protocol's strict monitoring and reporting provisions, or exceeds emissions targets at the end of the first commitment period, it will be ineligible to trade. ECEEE News, *Kyoto Protocol Finally Gets the Green Light, available at* http://www.eceee.org/latest_news/2001/news20011113.lasso (last visited Mar. 19, 2006). On the other hand, Japan achieved a concession that the eligibility to use the mechanisms will never be subject to legally binding sanctions, essentially leaving it up to the conscience of individual countries whether they follow rulings by the protocol's compliance board. The compliance regime has only been agreed to politically, with countries free to ignore it without fear of legal action. *Id.* In Marrakech, the Parties deferred a decision on the legal nature of the compliance regime until the first meeting of Kyoto Parties following the treaty's entry into force; however, when this meeting occurred in Montreal in 2005 the delegates did not vote on an amendment as planned and simply adopted a non-binding 'decision.' Christopher C. Horner,

A party that authorizes private or public entities to participate in Article 12 project activities remains responsible for the fulfillment of its obligations under Kyoto and must ensure that participation is consistent with the above mentioned requirements; private or public entities may only transfer and acquire CERs if the authorizing Party is eligible to do so at that time.⁴⁹ While this would seem to preclude US companies' involvement in the CDM due to US non-participation in Kyoto, Marrakech authorizes developing countries to undertake unilateral CDM projects, i.e. projects that do not involve an Annex I Party, thus US private entities may undertake a project in conjunction with a host country.⁵⁰

B. Basics of the Project Process

To begin a CDM project, an Annex I country, or private party authorized by an Annex I country, must obtain the consent of the developing country which will host the project and confirmation by that host Party that the project activity assists it in achieving sustainable development.⁵¹ The project sponsor must use the methodologies approved by the Executive Board (EB) to establish that the project will contribute to sustainable development, fulfills the criteria of additionality,⁵² and to establish a baseline estimating the future emissions in absence of the registered project. A third party agency, the Designated Operational Entity (DOE), validates that the project meets these criteria.⁵³ Registration is formal acceptance by the EB of the project as a CDM activity and is a prerequisite to the DOE's verification that the project results in real, measurable, and long-term emission reductions.⁵⁴ The DOE must always comply with the laws of the host country when carrying out

Esq., Center for Science & Public Policy, *An Assessment of Montreal COP/MOP1*, Jan. 2006, at 5, available at <http://www.cei.org/pdf/5113.pdf>.

49. Marrakech, Decision 17/CP.7, *supra* note 36, at 33.

50. Pew Center on Global Climate Change, *Implications for U.S. Companies of Kyoto's Entry into Force without the United States*, Jan. 2002, at 6, available at <http://www.pewclimate.org/docUploads/Kyoto-USBusiness.pdf>.

51. Marrakech, Decision 17/CP.7, *supra* note 36, at 35.

52. A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity. Marrakech, Decision 17/CP. 7, *supra* note 36, at 36.

53. *Id.* at 31.

54. UNFCCC, available at <http://cdm.unfccc.int/Projects/pac/howto/CDMProjectActivity/Register> (last visited Mar. 19, 2006).

its functions and can have no conflict of interest with any project participants.⁵⁵ The DOE is reviewed and reaccredited every three years by the EB to verify that it continues to comply with accreditation standards in Appendix A of Marrakech.⁵⁶ Spot-checking can also occur at any time, and the EB decides if it is prudent to conduct the accreditation review based on results from spot-checks.⁵⁷

Implementation of the registered monitoring plan and its revisions is a condition for verification, certification, and issuance of CERs.⁵⁸ After monitoring and reporting the reductions in anthropogenic emissions, CERs resulting from the CDM during a specific period are calculated, applying the registered methodology, by subtracting the actual anthropogenic emissions by sources from baseline emissions and adjusting for leakage.⁵⁹ Upon final approval by the EB, a number of CERs are awarded to the applicant. There are two options for crediting periods: either a maximum of seven years, which can be renewed twice if the DOE determines and informs the EB that the original project baseline is still valid or has been updated taking account of new data where applicable, or a maximum of ten years with no option of renewal.⁶⁰

V. RISKS

While the looming risk that Kyoto would never enter into force disappeared in February 2005, this long-awaited event certainly has not resolved all investment risks associated with the mechanism for those participating in CDM projects. There is a marked absence of clear laws and policies, both on an international and host country level, and the infrastructure of the CDM continually evolves.⁶¹ This lack of clearly defined rules, when coupled with the risks inherent in any international transaction, particularly one involving a developing country, greatly increases the risks that come with undertaking a CDM project. In addition to the risks particular to the CDM, these

55. Marrakech, Decision 17/ CP.7, *supra* note 36, at 32.

56. *Id.* at 30.

57. *Id.*

58. *Id.* at 39.

59. *Id.*

60. *Id.* at 37.

61. Ricardo Nogueira, *Managing Dispute Risks in CDM Transactions*, INT'L ENVTL. L. COMM. NEWSL., Vol. 1, No. 1, June 2005, at 1, available at <http://www.vnf.com/content/articles/rpnabaart0605.pdf>.

projects are subject to risks common to all projects, whether in developing or industrialized countries, as well as host country political risks. These two categories will be briefly explored, with a more in-depth analysis given to the risks exclusive to the CDM.

A. Common Project Risks

Risks common to most project financings⁶² can be divided into two periods: (1) engineering and construction and (2) start-up and operating.⁶³

1. Engineering and Construction

Some common risks associated with this initial stage of a project are cost overruns and delays in completion. No investor should undertake a project without adequate information; a due diligence review can serve to mitigate these risks. The risk of cost overruns can be lessened by structuring the contract as turnkey⁶⁴ rather than cost plus.⁶⁵ In a cost plus contract, when the contractor completes the work, he receives compensation equal to his expenses plus a bonus (either a fixed amount or proportional to the expenses); if the contractor suffers cost overruns, he will still receive full compensation plus the expected profit.⁶⁶ The investor takes a substantial price risk as there is no cap to his payment and there is little

62. What follows is a cursory analysis of common project risks. For a more-in depth analysis see Peter K Nevitt & Frank Fabozzi, *Project Financing* (Euro-money Books 7th ed. 2000) and Scott L. Hoffman, *A Practical Guide to Transactional Project Finance: Basic Concepts, Risk Identification, and Contractual Considerations*, 45 BUS. LAW 181-232. For a comprehensive list of Articles, Notes and Book Chapters on the topic of project finance see Harvard Business School, Project Finance Portal, available at <http://www.people.hbs.edu/besty/projfinportal/articles.htm> (last visited Mar. 19, 2006).

63. Hoffman, *supra* note 62, at 198-99.

64. A fixed-price, schedule-intensive construction contract -- typically used in the construction of single-purpose projects, such as energy plants -- in which the contractor agrees to a wide variety of responsibilities, including the duties to provide for the design, engineering, procurement, and construction of the facility; to prepare start-up procedures; to conduct performance tests; to create operating manuals; and to train people to operate the facility. BLACK'S LAW DICTIONARY 321 (7th ed. 1999).

65. A contract in which payment is based on a fixed fee or a percentage added to the actual cost incurred. *Id.* at 321.

66. Penny Pittman Cobey, *Alternative Project Delivery Methods: Risks And Rewards*, A.L.I. - A.B.A. Continuing Legal Education, Mar. 30, 2000, at 192-93.

or no direct financial incentive to minimize costs, since the contractor will always be fully reimbursed. A turnkey contract can protect the investor as the contractor bears the price risk of increased costs.⁶⁷ The contractor will likely charge more to work under this type of contract in return for his bearing the risks. Cost overrun risk can be mitigated despite a contractor's unwillingness to work under a turnkey contract; contracts can be structured to provide for additional equity from equity participants or standby equity participants, or an escrow or contingency account can be established to complete the project in the case of a cost overrun.⁶⁸

The risk of delays in completion can be mitigated by purchasing business interruption insurance or delayed opening insurance, with coverage ranging from complete loss of income to the additional cost of interest that must be paid, but this can be costly and often difficult to collect.⁶⁹

2. Start-up and Operating

Supplies and utilities necessary for the construction of the project and its operation can pose difficulties due to lack of availability or increased prices. Long-term requirements contracts⁷⁰ can be negotiated with a supplier who has sufficient credit to ensure performance, to mitigate the risk of scarcity or price fluctuations.⁷¹

Any project using new technology faces the risk that it will not function as anticipated; CDM projects are particularly sensitive to this risk. Unlike a standard project which may be able to function, albeit less effectively, despite disappointing performance of the new technology, a CDM project often depends on this new technology to reduce emissions and generate the CERs, which is the project developer's sole objective.⁷² The risk of underperformance or nonper-

67. Kenneth M. Cushman and Joyce K. Hackenbrach, *Construction Project Risk Allocation: The Owner's Perspective*, PRACTICING LAW INSTITUTE, Apr. 2002, at 32-34.

68. Hoffman, *supra* note 62, at 198.

69. *Id.* at 209.

70. A requirements contract is a contract between a supplier (or manufacturer) and a buyer, in which the supplier agrees to sell all the particular products that the buyer needs, and the buyer agrees to purchase the goods exclusively from the supplier. BARRON'S LAW DICTIONARY 104 (4th ed. 1996).

71. Hoffman, *supra* note 62, at 200.

72. While Kyoto cites sustainable development as the primary goal of CDM projects, when the developer is a private entity striving to attain CERs to comply

formance can be mitigated with a guarantee of technological performance from the owner or licensor of the technology, often a supplier or contractor.⁷³

Generally, projects must generate revenue from sales of the product or service supplied. While the existence of a substantial market is less of a concern for a CDM project developer, as the primary source of revenue is in the form of CERs, it remains a consideration. An indirect guarantee such as a long-term take and pay contract, where parties agree to purchase the product or service generated at a predictable price, or a take-or-pay contract, where the obligation of the buyer is unconditional whether or not the goods or services are delivered, can serve to mitigate the risk that does exist for the CDM project by ensuring a revenue stream.⁷⁴

Any project developer must be aware that supervening forces may disallow his completion or continued operation of a project. This risk can be mitigated by including a force majeure clause in all relevant contracts relating to the project. A force majeure clause exonerates a party to a contract from the consequences of a failure to perform his obligations caused by supervening events; force majeure is typically defined as any event, act, fact or circumstance beyond the direct control of the party who is invoking force majeure, and which such party could not have avoided by using reasonable care.⁷⁵ The event cannot be foreseeable, as parties are assumed to have entered into a contract accepting any foreseeable risk.⁷⁶ One particular event often included in a force majeure clause that is especially relevant to a CDM project is a change of law or regulation; as the CDM mechanism and Kyoto in general have been subject to constant evolution, this can protect a project developer from changes in regulations and procedures that would otherwise force a breach of contract.

B. Political Risks

The nature of country risk makes the host country the party best able to mitigate this risk, however it is not always possible to ade-

with its reduction requirements or trade on the market, this Note assumes that obtaining CERs is the private party's prime motivation.

73. Hoffman, *supra* note 62, at 200.

74. *Id.* at 207.

75. Graham Vinter, *Project Finance: A Legal Guide*, 92-93 (Street & Maxwell 2d ed. 1998).

76. *Id.* at 90.

quately shift this risk away from the project developer, particularly if it is political in nature and the host Party is the source.⁷⁷

1. Permits and Licenses

Attaining the necessary permits and licenses to complete a project is a vital process, the difficulty or ease of which largely depends on which particular host country a project developer has chosen. The project developer can protect himself in a number of ways; one is a due diligence review of which permits and licenses will be needed at all stages of the project, which government entities have jurisdiction over the decision to issue them, the likelihood of issuance, and the costs involved. The risk of nonissuance of permits and licenses can be further mitigated by including conditions precedent in any CER purchase contracts so that the inability to go forward with a project for this reason will not trigger a breach of contract and the damages that may follow. A project developer can also attempt to shift the risk of nonissuance to the host Government when first negotiating the details of the project, before the PDD is submitted to the EB for approval with assurances in a concession agreement that the requisite permits will follow and compensation for losses if they do not.

2. Adverse Changes in the Law

Project developers face the risk that the host Party will pass or change laws that have an adverse effect on the ability of the project to function, such as price controls, taxation, or import or export restrictions.⁷⁸ Particular to CDM projects, changes in environmental regulations can render the project non-additional and thus unable to meet the standards required for validation and registration, or the host Party can withdraw from the Kyoto Protocol, making a CDM project within its territory impossible. If the host Party is also an off-taker, the contract can provide for an additional tariff to compensate the project developer for additional costs due to an adverse change in the law.⁷⁹ Another option is to include a buyout clause, an

77. The following discussion is only cursory; for a list of documents which provide a more thorough analysis of these risks, see Harvard Business School, Project Finance Portal, *supra* note 62.

78. John G. Muel, *Common Contractual Risk Allocations in International Power Projects*, COLUM. BUS. REV. 37, 56 (1996).

79. *Id.* at 56.

option for the project developer to require the host Party to purchase the project in the event of costly changes in the law, or in the case of CDM changes which will preclude CER issuance. If the project developer has entered into contracts related to the project with third parties, he must be sure that the buyout complies with any clauses within those third party contracts regarding the right to transfer ownership.⁸⁰ A force majeure clause can also serve to protect a project developer in this case, as explained above.⁸¹

3. Currency Inconvertibility or Nontransferability

A project developer faces a risk of currency inconvertibility if the central bank of the host Party lacks sufficient foreign exchange to convert the local currency or the host Government imposes exchange controls as part of its monetary policy.⁸² Nontransferability is a risk that the host Party will convert the local currency to foreign exchange, but then not allow the foreign exchange to leave the country.⁸³ The project developer can require an assurance from the host Party in the preliminary negotiations of the CDM project that all currency generated will be convertible and transferable. If the host country lacks the requisite foreign exchange to comply, the contract can provide a buyout provision whereby the host will purchase the project from the developer, if, as noted above, this is allowed by other related contracts.

Particular to CDM projects, the project developer must ensure that the host Party recognizes that the transfer of the CERs will be directly from the EB to the developer, or in whichever manner the developer has specified in the relevant contracts. This can be achieved with a clause in the host country letter of approval to the DOE stating that the National Authority “irrevocably accepts the issue of all CERs generated through the CDM project to the Project Entity or its designee . . .” and furthermore, the National Authority “authorizes the Project Entity to communicate with the CDM executive board on

80. For an example of an assignment clause, see IETA’s CDM Emission Reduction Purchase Agreement, Article 15.05, available at <http://www.ieta.org/ieta/www/pages/download.php?docID=450> [hereinafter ERPA].

81. See *supra* Part V.A.ii ¶ 4.

82. Manuel, *supra* note 78, at 57.

83. *Id.*

its behalf on the allocation of CERs as provided for in this Letter of Approval.”⁸⁴

4. Expropriation⁸⁵

The risk of expropriation, or the taking of an investor’s property by the host State, can be the biggest threat to a project developer, and also the most complicated. Expropriation comes in two forms: direct, or a taking achieved in an outright manner as a compulsory transfer, or revocation, of property rights,⁸⁶ or indirect, achieved more subtly through regulatory controls or other such behavior which render the project unviable.⁸⁷

The length of time between the initial investment and the return, and the multi-year nature of Emissions Reduction Purchase Agreement contracts put CDM projects at a high degree of risk of both direct and creeping expropriation. Government actions are difficult to predict, particularly over a long period of time; while the political climate may appear friendly at the start of the project when interests are largely aligned, with the host receiving free technology and, often, infrastructure, and the developer receiving CERs, as time goes on, political sentiment can change drastically.

Expropriation presents a particularly compelling challenge to any CER project due to the inherent ambiguity that surrounds whether title to CERs falls within the ambit of title ownership of project assets. Due to the relative novelty of the CER process, there are no arbitral decisions or legal precedent to provide an adequate barometer for gauging this risk and appropriately anticipating its conse-

84. ERPA, Schedule 5, Example Letter of Approval Host Country, *supra* note 80.

85. Expropriation is a vital topic for any international investor to become familiar with. This Note scarcely scratches the surface of this challenging and complicated issue.

86. *Amoco Int’l Fin. Corp. v. Islamic Republic of Iran*, 15 Iran-U.S. Cl. Trib. Rep. 189, 220 (1987).

87. Examples of state actions that may amount to creeping expropriation are: restricting the investor’s access to necessary facilities and supplies; denying the investor access to funds or profits; pressuring the investor to sell his enterprise at unfairly low rates; and forcing the investor to leave the country and depriving him of effective control of the enterprise. More subtle measures with a similar result include changing the tax rate, restricting repatriation of profits, and imposing local labor or content requirements. George Chifor, *Caveat Emptor: Developing International Disciplines for Deterring Third Party Investment in Unlawfully Expropriated Property*, 33 L. & POL’Y INT’L BUS. 179, 185 (2002).

quences. This ambiguity provides a limited range of options for mitigation techniques.

a. Precautionary Steps

There are several strategies a project developer may employ to prevent his property from being expropriated. One possible mitigation tactic is to structure the project as a build-operate-transfer (BOT) agreement, where the project developer turns over the property to the host Party at a certain date.⁸⁸ This may dissuade the host Party from taking drastic action as it will own the property at some foreseeable date in the future. This structure, coupled with a liquidated damages clause that states the amount to be paid by the host in the event of expropriation, may make any such action financially undesirable. Another technique is to take part in a project where the continued presence of the developer is essential; a project that uses new, complex technology and which may require continued capital input is at less of a risk of expropriation. Expropriations are also less likely when multiple international investors are involved as host countries do not want to risk losing foreign aid, as well as when international institutions, such as the International Finance Corporation or the World Bank, play a role as the host will not want to lose the possibility of future funds.⁸⁹ In the case of a CDM project, an investor can quite easily involve the World Bank with its multiple carbon funds.⁹⁰ In addition, the United Nations is necessarily involved in the process as the CDM is a product of Kyoto, the Protocol to its Framework Convention on Climate Change; it can be speculated that a country would be less likely to expropriate property under the direct watch of the UN.

The project developer can also utilize principles of contract autonomy in the initial phases of the project to protect his assets in the event of a later expropriation. He should negotiate a contract provision that explicitly acknowledges CERs as off-take and as falling within the scope of protection afforded to other project assets desig-

88. Phil Bruner and Patrick J. O'Connor, Jr., *Excerpts From Bruner & O'Connor On Construction Law*, in *HANDLING CONSTRUCTION RISKS 2006: ALLOCATE NOW OR LITIGATE LATER*, at 97 (PLI Real Estate Law Practice, Course Handbook Series, Apr. 2006).

89. Louis T. Wells & Eric S. Gleeson, *Is Foreign Infrastructure Investment Still Risky?*, *HARV. BUS. REV.*, Sept.-Oct. 1995, at 11.

90. See The World Bank Carbon Finance Unit, *Carbon finance at the World Bank: List of Funds*, *supra* note 9.

nated as such and owned by the project company. Furthermore, it is advisable to draft a political risk insurance policy that acknowledges and accounts for the threat of expropriation in the context of the unique nature of CDM project assets.

b. Recourse Following an Expropriation

If a contract lacks the provisions outlined above, a party will have to look to arbitral decisions, treaties, and international custom regarding expropriation of project assets in order to develop a case for protecting his interest in CERs. While international law does provide a range of protection for project assets taken by direct and indirect expropriation, through an interwoven application of contract and property law,⁹¹ the law is unclear regarding CERs, leaving the effect of an expropriation of CDM project assets ambiguous.

The distinction between direct and indirect expropriation is relevant to the extent that international law has clear prohibitions against direct expropriation in agreements such as NAFTA and many Bilateral Investment Treaties.⁹² If direct expropriation can be established, the only burden of proof for project sponsors is to demonstrate that CERs are designated as project assets.

The threshold of protection against indirect expropriation is much more ambiguous. International law recognizes that this form of expropriation is equivalent in its cumulative effects to direct expropriation and acknowledges the need to protect against it,⁹³ however, there is no advanced definition of what falls within its scope, and it remains an inherently ambiguous area of project finance. The burden on an aggrieved party in a CDM project is two-fold: (1) the party must establish that a creeping expropriation has occurred and (2) the party must, as also required in an analysis of direct expropria-

91. The standard for lawful expropriation developed by industrialized countries during the first half of the twentieth century requires that the expropriation is carried out for a public purpose, non-discriminatory in effect, and accompanied by "prompt, adequate, and effective compensation." Chifor, *supra* note 87, at 186.

92. See North American Free Trade Agreement, Article 1110.

93. Indirect expropriation was recognized as a legitimate claim under international law by the Iran - US Claims Tribunal in 1983; in *Starrett Housing Corp. v. Iran* the Tribunal found that measures taken by a state can interfere with property rights to such an extent that these rights are rendered useless and have been expropriated, even though the state does not purport to have expropriated them and the legal titles to the property formally remain with the original owner. *Starrett Housing Corp. v. Iran*, 4 Iran-U.S. Cl. Trib. Rep. 122, 154 (1983).

tion, establish that title to CERs and/or the promise of CERs as project off-take are equivalent in nature to the scope of assets protected from expropriation.

5. Establishing an Ownership Interest in CERs

The precise issue that arises when CERs are effected by expropriation is whether CERs can be defined as a project asset and, if so, at what point does the ownership interest materialize and to which parties.

It would be difficult for an interested party to establish CERs as a tangible property interest; CERs are not a physical asset and, therefore, are not identifiable in the customary form by which project assets are designated and protected. As a further complication, it is difficult to ascertain precisely the value of CERs, particularly those to be issued at a crediting date years in the future. Although the issue of tangibility poses a threat to the possibility of extending the scope of international law's protections against expropriation to CERs, an argument can be made that CERs are, in essence, project off-take. This designation would entitle CERs to the same protections afforded other forms of project off-take that provide an identifiable revenue stream and can be classified as project assets.⁹⁴ By comparison, an expropriated power plant loses the revenue stream generated by the sale of the power it produces; the loss of this revenue stream has the effect of disabling project sponsors from servicing their debt obligations to lenders and deprives them of the profits of their investment. Even though it is often the case that the cost of power fluctuates, the loss of access to this off-take is an expropriation of the project asset essential to generating revenue and, therefore, can provide a fundamental component of an arbitration panel's calculation of damages once the expropriatory act has been proven.

It is important to observe that CERs are not exactly similar to the off-take of power as the asset itself does not directly produce CERs – they are a byproduct of the successful operation of the project according to CDM guidelines. Nevertheless, to the extent that the

94. Asset: The physical project and its associated contracts, rights, and interests of every kind, in the present or future, which can be valued or used to repay debt. Harvard Business School, Project Finance Portal, *available at* <http://www.people.hbs.edu/besty/projfinportal/glossary.htm#A>.

award of CERs is essential to a project sponsor's ability to service the debts of the project, the expectation of their award may establish CERs as critical off-take in which there is an ownership interest regardless of the point at which they are issued.

A second scenario is that following the expropriation, the project continues to operate as planned, and as a matter of course the right to the CERs remains with the project developer, or whoever is designated in the PDD as the recipient. While this scenario seems unlikely, it is a possibility if the contract for the CERs is viewed as something legally distinct from the project itself. For this to occur, however, the EB would have to be able to monitor the project and verify that it is indeed operating as planned; it is highly unlikely the expropriating party will allow this, especially in order to benefit the developer from whom the property was taken.

C. CDM Process Risks

1. Non-approval

As the CDM process includes various stages of approval, the project developer bears the risk that all his preparation and expenditures were in vain if the project ultimately is not registered by the Executive Board.

a. Sustainable Development

One criterion required for registration is that the DOE receives confirmation from the host country that the project assists it in achieving sustainable development.⁹⁵ Thus, once the project developer has received the host country's initial consent and has begun the first stages of the CDM, he is somewhat at the mercy of the host Party; there is a risk that the government will raise the standards that the project must meet or otherwise extract concessions from the developer before it gives its confirmation to the DOE. One possible way to mitigate this risk is to include a clause in the contract between the developer and the host that specifically states that the project as defined will contribute to the sustainable development stan-

95. Marrakech, *supra* note 36, at 35. "It is the host Party's prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development." *Id.* at 20.

dards of the host and that, absent a change in circumstances,⁹⁶ the host will report affirmatively to the DOE.

b. DOE Suspension/Withdrawal

The DOE is the entity required to validate the project prior to EB final registration. It is selected by the project participants and under a contractual arrangement with them. As discussed above, the DOE is subject to monitoring to ensure it continues to comply with Marrakech criteria.⁹⁷ If the DOE fails the spot-checking, the EB may recommend to the Conference of the Parties (COP) to suspend or withdraw the designation of the operational entity. In this case, the DOE receives a hearing, but the suspension takes immediate effect until a final decision by the COP. Registered project activities, and thus project developers, are not affected unless significant deficiencies are identified in the relevant validation, verification, or certification report for which the entity was responsible. In this case, the EB decides whether a different DOE shall be appointed to review and correct deficiencies. If a review reveals that excess CERs were issued then the DOE whose accreditation was been withdrawn or suspended shall acquire or transfer, in 30 days after review, an amount of reduced tons of CO₂ equivalent to the excess CERs issued to a cancellation account⁹⁸ in the CDM registry. All costs of this process are borne by the former DOE.

It would seem that the failure of a particular project's DOE to pass its spot-checking or reaccreditation review does not pose much of a risk for a project developer, however, the implication for *future* crediting periods is unclear. If a project developer maintained ownership of a project with the expectation that a future crediting period would yield a certain number of CERs, deficiencies in the original validation and certification could mean that these CERs will not be issued. Thus, any contracts based on the CERs are at risk of noncompliance and any financial calculations and decisions will have been made

96. A "change in circumstances" must also be clearly defined to preclude abuse of the term by the host Party. If this phrase is left out however, the contract, or at least the clause, runs the risk of being void as against public policy. The host Party must have some option to change its decision regarding sustainable development *if* the project changes.

97. See *supra* Part IV.B.

98. A cancellation account in this case is similar to the cancellation accounts in the EU ETS; the CERs are submitted to this and retired, and thus unable to be further transferred or traded.

with misinformation. Marrakech addresses the affect on the project developer by allowing the adversely affected parties a hearing prior to any suspension or withdrawal of the DOE. However, there is no precedent which sheds light on how effective the hearing will be in protecting the interests of the affected parties; it seems likely that preserving the integrity of the CDM system will be given weight over the interest of a particular project participant.

A potential way to mitigate the risk of a DOE losing accreditation, with the results of the validation and certification placed in jeopardy, is for the project participants to conduct their own investigation and review of each DOE prior to selecting one. This approach will likely be costly, and the effectiveness of a private due diligence report is questionable given the intricacies of the CDM rules.

c. Non-acceptance by Local Stakeholders

Part of the DOE's validation process is to review the project design document (PDD) and verify that comments by local stakeholders have been invited by the project participants and due account was taken of any comments received.⁹⁹ Thus, a project developer bears risks at two stages; the first is that local communities and NGOs will not accept the project and he will be forced to either withdraw or make potentially costly changes, the second is if the developer proceeds in the face of criticism by local stakeholders and the project is halted by the DOE as not complying with the PDD. The phrase "due account . . . taken of any comments received" is ambiguous; the project developer runs the risk of not meeting this standard in the face of what might be unfounded criticism or local hostility.

There are several ways to attempt to lessen this risk. The project developer can work with the host Party and attempt to gauge public opinion of the project before making any significant efforts. The downside to this approach is that it may be time consuming and also unreliable; local stakeholders may favor a project before they actually see the effect on their community, but once there is a foreign presence their opinions may radically change. Public opinion can be fickle, especially with changes in NGO and community leadership, which are factors outside the control of the project participants. Despite this, when a project developer identifies local concerns early, he can, unilaterally or with the participation of the host Party, at-

99. Marrakech, *supra* note 36, at 34.

tempt to fashion a remedy; a possible measure is donating a portion of project revenues, CER or otherwise, to the local community.

Another way to mitigate the risk is through a working relationship with the host Government; if a positive and cooperative relationship exists, the Government can likely coax the community to accept the project and possibly inform them of its benefits; local stakeholders might trust the representations of its government over those of a foreign company.

d. Additionality

The project developer must prove additionality to ensure that CERs are not issued for GHG reductions which would have occurred in the absence of CDM project activity. The baseline is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity; this covers emissions from all relevant gases, sectors and source categories listed within a project boundary.¹⁰⁰ In addition to the simple risk of not meeting the additionality standard and failing to comply with PDD requirements, there is also a policy risk. If a host country changes its domestic energy policy or emissions standards, the project can quickly fail the additionality test.

There seems to be no real way to prevent a sovereign state from enacting internal legislation, regardless of the effect on the project at issue. A similar situation can be found in cases of creeping expropriation when a country changes its tax laws or some other domestic regulations, rendering a project inoperable, but even in these cases environmental regulations can be seen as falling under the police powers exception and may not render a positive finding of expropriation.¹⁰¹

e. New Methodology Non-approval

If the DOE determines that the project activity intends to use a new baseline or monitoring methodology, it will forward the new method

100. *Id.* at 36. The gases, sectors, and source categories are listed in Annex A of Marrakech. Marrakech sets out possible baseline methodologies and details of this procedure. *Id.* at 37.

101. It is widely accepted in international law that an action within a sovereign's police powers is will not be considered expropriation and therefore will not require compensation.

with the draft of the PDD to the EB before it submits the project for registration. The EB has four months to review and approve the new method, and then the DOE can proceed with validation and submit the PDD for registration. The time lag in this process is significant and the project developer risks deviating from his schedule which can lead to contractual difficulties with third parties who will be involved in the project, as well as difficulties regarding financing timelines. Also, there is a risk that the new method will not be approved and the project developer will have to start the process from the beginning.

If the COP requests that an already approved method be revised, no CDM project activity may use the methodology. Thus a project developer must stay abreast of these changes when constructing the PDD. Marrakech provides some protection for project participants in that revisions of methodologies are only applicable to project activities registered after the revision and will not affect existing registered activities during crediting periods.¹⁰²

2. Automatic Loss of Profits

Kyoto's Article 12 requires that "a share of the proceeds from certified project activities is used . . . to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation."¹⁰³ Marrakech adds substance to this by setting the share of proceeds that must be given to developing country Parties as two percent of the CERs issued for a CDM project activity.¹⁰⁴ Any project participant with a CDM underway and with more planned in the future must worry that Kyoto's mandate that a share of the proceeds must be given up will, in the future, increase to more than the current two percent as developing Parties influence the amendments to the Protocol.

There is an exception to this rule; activities in least developed country (LDC) Parties are exempt from the share of proceeds to assist with the costs of adaptation.¹⁰⁵ This exception is to encourage projects in countries which stand to benefit the most from the potential technology transfer and build-up of infrastructure. However, not only does implementing a CDM project in one of these countries

102. Marrakech, *supra* note 36, at 35.

103. Kyoto Protocol, art. XII, *supra* note 5.

104. Marrakech, *supra* note 36, at 23.

105. *Id.*

come with increased risks due to extremely poor infrastructure and often increased social and political unrest, but also very few LDCs have designated a national authority for the CDM as is required for participation.¹⁰⁶

Kyoto's Article 12 states that a portion of CDM proceeds shall be taken for administrative expenses, but in Marrakech the details of this requirement were pushed off for decision by the Conference of the Parties at a later time. It was not until the most recent meeting of the Conference of the Parties to the UNFCCC in December 2005 that a specific levy was established to cover the CDM Board's administrative expenses.¹⁰⁷ The time lag in defining this tax is an example of the regulatory uncertainty a project developer faces; he has no way to mitigate this particular type of risk stemming from the slow evolution of the CDM.

3. Leakage

Following the monitoring and reporting of reductions in GHG, CERs resulting from a CDM project activity are calculated, applying the registered methodology, by subtracting the actual anthropogenic emissions from baseline emissions and adjusting for leakage.¹⁰⁸ Leakage is the net change of emissions by sources of GHG which occurs outside the project boundary and is measurable and attributable to the CDM project activity.¹⁰⁹ In other words, if GHG increase outside the project boundary, this amount is subtracted from a project's emission reductions and thus the amount of CERs issued is lower.¹¹⁰

Measuring leakage is difficult; changes in emissions that occur outside the project are not a part of traditional monitoring and when these changes are found, it is often unclear whether they are caused

106. See UNFCCC, CDM, Designated National Authorities, available at <http://cdm.unfccc.int/DNA> (last visited Mar. 19, 2006).

107. The first 15,000 CERs per project will be subject to a levy of US \$0.10 per CER, and above this threshold the levy will be US \$0.20 per CER. Tim Williams, *Climate Change: The 11th Conference Of The Parties To The United Nations Framework Convention*, available at <http://www.parl.gc.ca/information/library/PRBpubs/prb0516-e.htm#dthecleantxt> (last visited Mar. 19, 2006).

108. Marrakech, *supra* note 31, at 39.

109. *Id.* at 37.

110. The project boundary shall encompass all anthropogenic emissions by sources of GHG under the control of the project participants that are significant and reasonably attributable to the CDM project activity. *Id.* at 37.

by the project at hand.¹¹¹ A link must be established between the GHG emissions detected outside the project and the project itself; this is complex as emissions might be due to other CDM projects, weather conditions, and a host of other factors unrelated to the particular CDM.

Currently, leakage has largely been ignored in CDM Project Design Documents, although it is explicitly listed as a calculation necessary for validation.¹¹² In Article 12, Kyoto states that CERs will be granted on the basis of real, measurable, and long-term benefits related to the mitigation of climate change.¹¹³ Leakage means that any reduction is not “real” as it is offset by greater emissions elsewhere; thus, Article 12 requires that leakage not only be accounted for, but that “attributable” be interpreted widely.¹¹⁴

Studies have shown that leakage rates of CDM projects can be high, with estimates between five percent and twenty percent,¹¹⁵ thus project participants are at risk that either leakage will unexpectedly be taken into account in their case, substantially reducing the amount of CERs they will be issued, or if they complied with the requirement that leakage be accounted for, their calculation was lower than leakage later found by the DOE. Leakage can also affect the required environmental impact assessment, which explicitly includes transboundary impacts and must be carried out prior to validation by the DOE.¹¹⁶

The type of leakage that has been discussed is ecological leakage, but market leakage also exists in relation to CDM projects; market leakage is a CDM-induced change in emissions resulting from changes in supply or demand in commercial markets.¹¹⁷ These price changes stem from production factors and goods and services supplied by the project.¹¹⁸ Market leakage effects have not been accounted for, although they can have a significant impact on GHG emissions, particularly when the CDM deals with fossil fuel and

111. Frank Vöhringer, Timo Kuosmanen & Rob Dellink, *A Proposal for the Attribution of Market Leakage to CDM Projects*, available at http://www.hwwa.de/Publikationen/Discussion_Paper/2004/262.pdf, at 5.

112. *Id.* at 2.

113. Kyoto Protocol, art. XII(5), *supra* note 5.

114. Frank Vöhringer et al., *supra* note 111, at 17.

115. *Id.* at 1.

116. Marrakech, *supra* note 36, at 14.

117. World Resources Institute, *The CDM quantification challenge*, available at <http://www.rtcc.org/html/articles/cdm/wri.htm> (last visited Mar. 19, 2006).

118. Frank Vöhringer et al., *supra* note 111, at 3.

timber markets.¹¹⁹ There is a risk to any project designer that not only will leakage accounting become more stringent, but also that market leakage will become a factor in the calculation. This can have potentially disastrous effects for project participants as the amount of CERs they anticipate may be drastically reduced.

4. Institutional Barriers

While all potential host Parties to CDM projects are developing countries, each has attained a significantly different level of development from the others. Countless development efforts fail because countries lack sufficient institutional capacity to sustain economic and other policies, and the CDM is no different.¹²⁰ This lack of institutional capacity prevents many of these Parties from founding a Designated National Authority (DNA), or if they manage to create one, it is often not fully established and operational. Project developers face the risk that after initial planning and negotiations with a host country, the host will not be able to establish the requisite DNA, or an existing one will not work cooperatively with the investor or follow the CDM project timeline in an efficient manner.

To mitigate this potential risk, a project developer must perform due diligence regarding a country's DNA or lack thereof and, in the latter case, the stability and functionality of its public sector, particularly if there is any established environmental authority or has been in the past, in order to gauge how likely the timely establishment of a DNA will be. The unfortunate effect is that project developers often prefer to undertake CDM activity in countries which have a higher level of development than others, such as Brazil, India, and Mexico, with many lesser developed nations who desperately need the technology and infrastructure being left out of the process altogether.¹²¹

5. Change after 2012

Marrakech provides for a revision of the procedures for a CDM no more than one year after the end of the first commitment period, the

119. *Id.* at 9.

120. Carol Graham, *Strengthening Institutional Capacity in Poor Countries: Shoring Up Institutions, Reducing Global Poverty*, available at <http://www.brookings.edu/comm/policybriefs/pb98.htm> (last visited Jan. 20, 2007).

121. See UNFCCC, CDM, <http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html>, for a chart of CDM projects by host Party.

year 2012, with subsequent reviews carried out periodically following this.¹²² Registered projects will not be affected, but as has been demonstrated above, the process leading to registration can be lengthy, putting a project developer at risk that while his project registration is pending, significant changes to CDM requirements will occur. Changes to the CDM process will also harm a developer who undertakes multiple projects and has invested in perfecting a system for CDM activity as he will incur increased legal and other transactional fees.

A more significant concern is that the CDM process will not exist past the year 2012. Kyoto only provides for this mechanism until the end of the first commitment period, and what will occur following this can only be speculated. In this case, a project participant who undertakes a project that requires several years to develop and generate CERs, faces the risk that his investment will be worthless. The only remedy for this concern lies with the Parties to Kyoto and the UNFCCC and in their ability to negotiate either a second commitment period or some other way to give the CDM process and CERs longevity.

6. CER Pricing

There is a substantial time lag between the moment a project is conceived and the day the CERs are issued, thus the project developer must be wary of the volatility of the emissions trading market. As the market for emissions credits is new, and in fact the global market has yet to be created, it is impossible to make reliable assumptions based on models and long-term price curves. The CDM market so far has seen a significant amount of volatility for CERs and allowances in the EU ETS, as well as a price-gap between the European allowances and CERs generated from the CDM.¹²³ While any investor takes some level of currency risk, CERs are currently an exceptionally volatile form of currency.

One option for the project developer is to contract with a third party to become a buyer of the CERs at the very beginning of the CDM process; the International Emissions Trading Association (IETA) has developed a CDM Emissions Reduction Purchase

122. Marrakech, *supra* note 36, at 25.

123. Ricardo Nogueira, *Managing Dispute Risks in CDM Transactions*, INT'L ENVTL. L. COMM. NEWSL., Vol. 1, No. 1, June 2005, at 2, available at <http://www.vnf.com/content/articles/rpnabaart0605.pdf>.

Agreement (ERPA) for this purpose.¹²⁴ It is important for the project developer to actively allocate risk between himself and the buyer.

Use of this contract highlights potential pricing risk; if the current CER market price rises above the fixed ERPA price, the CER seller might be tempted to sell the CERs on the market rather than deliver them pursuant to the ERPA terms.¹²⁵ On the other hand, if the CER price falls below the fixed ERPA price, the buyer might decide to disclaim the contract.¹²⁶ While pricing is a standard tool for allocating risk in a transaction, CDM parties must limit their dependence on this method of risk mitigation. One possible mitigation tactic is to structure a series of advance payments due upon the occurrence of conditions precedent; these conditions may be certain milestones in the CDM process, such as host Party approval or validation by the DOE. Advance payments equilibrate the playing field between the CER buyer and seller, as without these the seller bears the majority of project development risks with payment potentially far off in the future. While advance payments usually bear a lower rate of return for the seller, this loss might be worth the resulting risk allocation.

Another method is to clearly define what occurs in the event of a breach of the contract. One option in the case of non-delivery of the CERs is to require replacement CERs from another source; this would eliminate any benefit from breaching the contract on the part of the seller. As for the buyer, a liquidated damages remedy will likely dissuade him from breaching the contract; this will also save the seller the trouble of proving damages if the buyer does breach.¹²⁷ Insurance can act as a safeguard as well; insurance and reinsurance agencies offer tools such as carbon delivery guarantees to insure up-front payments for CDM projects.

124. ERPA, *supra* note 80.

125. Nogueira, *supra* note 123, at 2.

126. *Id.*

127. The parties must ensure that this remedy is enforceable under the law which governs the contract. In New York, liquidated damage clauses are enforceable if (i) actual damages are difficult to prove or incapable of estimation, (ii) the clause fixes an amount that bears a reasonable relationship to the anticipated loss suffered by the non-breaching party, and (iii) the clause is not a penalty. David Skinner & Jeremy P. Sirota, *The Enforceability of Service Credits and Liquidated Damages under New York Law*, Morrison & Foerster Legal Updates & News, April 2005, available at http://www.mofo.com/news/updates/files/update02018.html#_ednref5 (last visited Jan. 20, 2007).

VI. CONCLUSION

The CDM process is certainly not without complications and risks. It remains, however, an innovative solution to a growing international problem. As this is a novel mechanism, there is hope that it will evolve into a much simpler and more streamlined process. As more parties begin to participate, it is likely that the number of DOEs, DNAs, and approved methodologies for the process will increase. Several concerns must be addressed in the next meeting of the Conference of the Parties, such as assisting developing countries with the establishment of the institutional capacity needed for a functional DNA, as well as determining what exactly will occur post-2012.

While significant changes to the CDM are necessary, if a project developer is aware of and accounts for the various risks he will face, he can take part in and benefit from a truly innovative and internationally responsible way to invest his capital.