

The Clean Development Mechanism and its Implications for Climate Justice

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INTRODUCTION

In recent years, the problem of climate change has risen to the forefront of global consciousness, generating widespread concern about the effects of, and solutions to, climate change. As the international effort to address climate change advances, two issues will demand consideration: the disproportionate effects of climate change on the poorest communities in the world and the injustice of permitting the worst consequences of climate change to be

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borne by the countries least responsible for its creation. While crafting a binding international agreement on climate change, the signatories of the Kyoto Protocol were not blind to the unfair burdens climate change imposes on developing countries. They accounted for this distributional inequity, sometimes called “climate injustice,” by placing binding emissions limitations on developed-nation signatories while permitting developing countries to participate on a voluntary basis during the 2008–2012 period.¹ In addition, they created the Clean Development Mechanism (CDM), contained in Article 12 of the Kyoto Protocol, which permits developed countries to generate credits towards their mandatory emissions reduction targets by investing in a variety of low emissions projects in the developing world.²

The CDM is intended to serve the dual purpose of allowing cost-effective compliance with emissions caps in developed nations, while encouraging developed countries to fund sustainable development in poorer nations that will be disproportionately affected by climate change.³ Despite these laudable objectives, the CDM as adopted is unlikely to promote the goals of the developing countries that stand to suffer the most from climate change. Its market-based approach and insufficient procedural safeguards will allow developed countries to pursue their economic bottom line without meaningfully contributing to sustainable development in developing nations.

This paper will explore the climate justice implications of the CDM. Part I describes the problem of climate change and the corresponding climate justice implications. Part II briefly discusses the history of the Kyoto Protocol and the formulation of the CDM. After providing this background, Part III confronts the injustices that may emerge as signatories utilize the CDM, focusing on the incentives facing developed nations and the consequences for poorer nations seeking sustainable development funding. Because of the economic framework underlying the CDM, developing

1. Conference of the Parties to the Framework Convention on Climate Change, Kyoto, Japan, Dec. 1–10, 1997, *Kyoto Protocol*, art. 3, U.N. Doc. FCCC/CP/1997/L.7/Add.1 (Jan. 1998) [hereinafter *Kyoto Protocol*].

2. *Id.* at art. 12.

3. *Id.* at art. 12.2; *see also* Conference of the Parties to the Framework Convention of Climate Change, Marrakesh, Morocco, Oct. 29–Nov. 11, 2001, *The Marrakesh Accords*, U.N. Doc. FCCC/CP/2001/13/Add.2, Decision 17/CP.7 (Jan. 21, 2002) [hereinafter *Marrakesh Accords*].

nations further along the path to development, such as China, India, and Brazil, will be able to attract profitable projects, while the poorest nations in areas such as Sub-Saharan Africa are forced to either accept undesirable projects on the investing nations' terms or forfeit funding altogether. Finally, Part IV notes several alternatives that could help move the CDM toward its sustainable development goals in future commitment periods. The idea of a CDM is worthwhile; however without significant adjustments, Article 12 of the Kyoto Protocol will be unable to protect developing nations from being victimized by the market-based decisions of developed countries.

I. CLIMATE CHANGE AND CLIMATE INJUSTICE

The beginning of the 21st century has marked the end of serious debate over the existence of climate change. Leaders and scientists worldwide now largely agree that "warming of the climate system is unequivocal," and the discussion has shifted to the effects of climate change and what can be done to prevent them.⁴ One notable trend in this discourse is the recognition by the scientific community and many world leaders that certain regions, including some of the world's poorest areas, will bear disproportionate negative consequences as the climate continues to change.⁵ For example, studies confirm that worldwide precipitation is shifting away from the equator and towards the poles as temperatures in the equatorial regions increase.⁶ Accordingly, droughts, famine, illness, and flooding are all predicted to increase in countries near the equator.⁷ These effects are likely to be severe; the Intergovernmental Panel on Climate Change (IPCC) predicts that

4. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SUMMARY FOR POLICYMAKERS 2 (2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf [hereinafter IPCC SUMMARY FOR POLICYMAKERS]. The IPCC is a scientific body set up by the World Meteorological Organization and the United Nations Environment Programme to review the scientific documentation of climate change and provide its analyses to decision makers. See Intergovernmental Panel of Climate Change, About IPCC, <http://www.ipcc.ch/about/index.htm> (last visited Mar. 23, 2009).

5. In its most recent report, the IPCC notes that areas near the equator, coastal areas, and the Polar Regions will suffer the most severe impacts from climate change. IPCC SUMMARY FOR POLICYMAKERS, *supra* note 4, at 9.

6. Andrew Revkin, *Poorest Nations Will Bear Brunt as World Warms*, N.Y. TIMES, Apr. 1, 2007, at A1.

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, 630 (2004).

between 75 and 250 million people in Africa will be exposed to increased water stress by 2020, while in some African countries yields from rain-fed agriculture could decrease by up to 50% during the same time period.⁸

This unequal distribution of climate change burdens will be exacerbated because developing countries will be least able to insulate themselves from the effects of climate change. Adapting to the reality of climate change will be expensive and will require technological and economic resources that the poorest developing countries often lack.⁹ These developing nations have not yet created infrastructure that will allow them to adjust their lifestyles or relocate their populations as areas become unlivable; even simple innovations like importing food and water may be beyond the reach of many impoverished communities. Further, despite strong rhetoric to the contrary, industrialized countries have not yet undertaken large-scale investments to help poorer countries adapt to climate change.¹⁰ As of 2007, only \$40 million was being spent annually for adaptation measures in the world's poorest regions.¹¹ By contrast, nations like the United States are investing billions of dollars in technology and infrastructure to prepare their own populations for the changes in weather and climate that many scientists predict.¹² No one claims that the rich are immune from climate change; however, wealthy countries will be able to prepare themselves at least partially while "the poorest of the poor . . . are going to be the worst hit."¹³

8. IPCC SUMMARY FOR POLICYMAKERS, *supra* note 4, at 11.

9. Ruth Gordon, *Climate Change and the Poorest Nations: Further Reflections on Global Inequality*, 78 U. COLO. L. REV. 1559, 1590–91 (2007); *see also* Nelson, *supra* note 7, at 617.

10. In 1992, the world's industrial leaders signed the United Nations Framework Convention on Climate Change and promised to aid countries "that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation." United Nations Conference on Environment and Development, Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, New York, N.Y., Apr. 30–May 9, 1992, *United Nations Framework Convention on Climate Change*, at art. 4, cl. 4, U.N. Doc. A/AC.237/18, (1992) [hereinafter *Framework Convention*].

11. *See* Revkin, *supra* note 6, at 1.

12. *Id.* For example, cities in Texas, California, and Australia have already begun construction or planning for desalination plants that will be capable of providing water even during droughts. *Id.*

13. Arthur Max, *Climate Report: Poor Will Suffer Most*, ASSOCIATED PRESS, Apr. 6, 2007 (quoting Rajendra Pachauri, chairman of the IPCC), available at http://www.redorbit.com/news/general/894966/climate_report_poor_will_suffer_most/index.html (last visited Apr. 18, 2009).

Standing alone, the unequal distribution of climate change burdens demonstrates that any international agreement on climate change will have implications for justice. When the disproportionate impacts are considered in conjunction with developed nations' primary responsibility for causing climate change, the problem of climate justice becomes undeniable.¹⁴ Industrialized nations have degraded the atmosphere for more than a century, engaging in high emissions activities that have both made them wealthy and created the problem of climate change.¹⁵ Studies show, for example, that the United States and Western Europe alone are responsible for two-thirds of the atmospheric buildup of carbon dioxide.¹⁶ Ironically, developed countries' superior ability to adjust to climate change is largely based on their ongoing abuse of the atmosphere and the continued prosperity their polluting technologies provide. However, the opportunity to profit at the expense of the environment has not been available to all countries. Developing countries have only recently begun to industrialize (if they have done so at all) and therefore most of the climate-related problems they will deal with are not the result of their own profit-seeking behavior. To illustrate, the entire continent of Africa has contributed just 3% of global emissions of carbon dioxide since 1900.¹⁷ The poorest developing nations have not benefited from the development of high emissions industries; instead they are unindustrialized, poor, and about to endure the costs of other nations' prosperity.

The poorest developing countries face several injustices related to climate change: they are likely to suffer the worst effects of climate change, they are least able to invest in adaptation measures, and they are historically the least responsible for the emissions that caused climate change in the first place. The distribution of the burdens of climate change is directly inverse to the benefits attained through CO₂ emissions, creating an inequity that

14. See Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 BUFF. L. REV. 169, 187 (2008) (observing that "the unequal burden that is occurring, and is predicted, falls on those who have not been primarily responsible for climate change, domestically as well as internationally," leading to "profound injustices"); see also RUCHI ANAND, INTERNATIONAL ENVIRONMENTAL JUSTICE: A NORTH-SOUTH DIMENSION 35 (Tom Lansford & Patrick Hayden eds., Ashgate Pub. Co. 2004).

15. Gordon, *supra* note 9, at 1601.

16. Revkin, *supra* note 6, at 1.

17. *Id.*

regulators have tried to address through the international climate change effort, albeit with questionable success.¹⁸

II. THE INTERNATIONAL RESPONSE: THE HISTORY OF THE KYOTO PROTOCOL AND THE CLEAN DEVELOPMENT MECHANISM

Before discussing the Kyoto Protocol's attempt to deal with the injustice of climate change—the CDM—it is helpful to briefly introduce the history of the international response to climate change that culminated in the Kyoto Protocol. The foundation for the international climate change regime is the United Nations Framework Convention on Climate Change.¹⁹ Proposed in 1992 and taking effect in 1994, the Framework Convention created a structure for further action and cooperation among its signatories.²⁰ The document does not provide any binding greenhouse gas (GHG) limitations.²¹ Instead, some of its main innovations were dividing signatories into two main groups—Annex I countries (or developed countries) and non-Annex I countries (or developing countries)—and establishing the Conference of the Parties (COP), “a kind of super-legislature” for the climate change effort that consists of representatives from all the Convention's signatories and meets annually in numbered meetings.²² Additionally, the Framework Convention marked the initial recognition of the principle of “common but differentiated responsibilities” in the battle against climate change.²³ Generally understood to reflect the fact that developed countries bear a greater historical responsibility for climate change and are in a superior position to take action in response, the principle foreshadowed the later decision to make emissions limitations binding only on developed countries.²⁴ The Framework

18. *See infra* Part III.

19. *Framework Convention, supra* note 10.

20. Kyle W. Danish, *The International Regime*, in *GLOBAL CLIMATE CHANGE AND U.S. LAW* 31, 33 (Michael B. Gerrard ed., 2007).

21. *Framework Convention, supra* note 10.

22. Danish, *supra* note 20, at 34–35.

23. *Framework Convention, supra* note 10, at art. 3.

24. *See, e.g.*, Benjamin J. Richardson, *Environmental Law in Postcolonial Societies: Straddling the Local–Global Institutional Spectrum*, 11 *COLO. J. INT'L ENVTL. L. & POL'Y* 1, 67 (2000) (stating that the phrase common but differentiated responsibilities “refers to the greater responsibility of developed states to address global environmental problems because of their historically disproportionate contribution to such problems (i.e., industrialization and resource use) and their superior financial and technological resources available for remedial

Convention was ratified almost universally and its creation signified the start of an ongoing effort to address global climate change.²⁵

With the Framework Convention in place, the COP quickly began working to reach an agreement that would place binding GHG emissions limitations on its member countries. After three years of negotiations, the result was the Kyoto Protocol.²⁶ The Kyoto Protocol was adopted by the parties at the COP-3 in Kyoto in 1997, however by its terms it did not come into force until it was ratified by 55 parties to the Convention, including Annex I parties that account for at least 55% of total greenhouse gas emissions based on 1990 emissions levels.²⁷ Attaining a sufficient number of signatories was a difficult process, but the Protocol finally took effect eight years later in 2005 when Russia signed on.²⁸

Probably the most important feature of the Kyoto Protocol is its imposition of binding emissions limitations on all Annex I country signatories.²⁹ For the first time, developed countries collectively committed to reducing their national GHG emissions and each country agreed to a reduction target calculated as a percentage of its emissions levels during the baseline year, 1990.³⁰ Reflecting the principle of “common but differentiated responsibilities,” non-Annex I countries were not made subject to binding emissions limitations.³¹ Instead, their involvement under the Protocol is

action”); Jutta Brunnée, *The United States and International Environmental Law: Living with an Elephant*, 15 EUR. J. INT’L L. 617, 628–29 (2004) (explaining that “the concept of common but differentiated responsibilities captures the unequal historical contributions of developed and developing countries to many global environmental concerns, and their vastly different capacity to take corrective measures”); 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. L. & POL’Y 29, 50 (2004) (“The principle of common but differentiated responsibilities requires us to recognize that because of historical circumstances, countries at different stages of development have different capacities, and consequently, different levels and kinds of responsibility for dealing with international environmental issues.”).

25. Danish, *supra* note 20, at 32–33.

26. *Kyoto Protocol*, *supra* note 1.

27. *Id.* at art. 24.

28. Danish, *supra* note 20, at 37.

29. *Kyoto Protocol*, *supra* note 1, at art. 3 (stating that “[t]he Parties included in Annex I shall . . . ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts . . .”). Quantified emissions reduction commitments are listed by country in Annex B of the Protocol. *Id.* at Annex B.

30. *Id.* at art. 3, Annex B.

31. *Id.*

limited to voluntary participation in the CDM.³² The first commitment period is now underway, and Annex I countries must meet their emissions reduction targets as an average of annual emissions during the period from 2008 to 2012.³³

A second key attribute of the Protocol is its emphasis on flexibility. The Protocol has three flexibility mechanisms, each of which allows Annex I countries to meet a portion of their reduction goal without reducing their domestic emissions.³⁴ First, the COP created a cap-and-trade system that authorizes countries to generate tradable carbon allowances.³⁵ Each Annex I member is given an "Assigned Amount" of allowances reflecting its emissions reduction goal, and may choose to reduce emissions beyond its goal and sell excess allowances, or to purchase excess allowances from other members to meet part of its goal.³⁶ Second, the Kyoto Protocol includes a Joint Implementation Program that allows Annex I countries to invest in emissions reduction projects in other Annex I countries to earn credits towards their target emissions levels.³⁷ Article 12 of the Kyoto Protocol contains the final flexibility tool, the CDM.³⁸

The idea for the CDM originated with the Brazilian government's proposal for a Clean Development Fund.³⁹ In its initial conception, the provision would have required countries that exceeded their emissions targets during a period to pay a fine into the Fund, which would then be used to finance sustainable development in non-Annex I countries.⁴⁰ During negotiations, however, the idea of the Fund was modified and the CDM emerged in its place.⁴¹ Under the CDM, an Annex I country can earn Certified Emissions Reductions (CERs) by investing in an emissions reduction project in a non-Annex I country. The CERs can either be applied to the developed

32. For further discussion of the CDM, *see infra* notes 38–53 and accompanying text.

33. *Kyoto Protocol*, *supra* note 1, at art. 3, Annex B.

34. Danish, *supra* note 20, at 42.

35. *Kyoto Protocol*, *supra* note 1, at art. 16 bis.

36. *See id.*; *see also* Danish, *supra* note 20, at 43–44.

37. *Kyoto Protocol*, *supra* note 1, at art. 6.

38. *Id.* at art. 12.

39. Ogunlade R. Davidson & Youba Sokona, *Africa and the Clean Development Mechanism: Perspectives for Growth*, in *AFRICAN PERSPECTIVES ON THE CLEAN DEVELOPMENT MECHANISM* 11, 11 (Cassandra Brooke & John Turkson eds., 1999), <http://www.unep-riaoe.org/CDM/accra/AccraPapers.pdf>; *see also* Gordon, *supra* note 9, at 1608.

40. Davidson & Sokona, *supra* note 39, at 11; *see also* Gordon, *supra* note 9, at 1608.

41. *See* Gordon, *supra* note 9, at 1608; *see also* Nelson, *supra* note 7, at 620.

country's emissions reduction goal or sold to other Annex I countries.⁴² The Protocol specifies that in order to qualify for CERs, each project must be voluntarily undertaken by both parties, the project's benefits must be measurable, and the project must create reductions that are additional to any that would occur in the absence of the CDM project.⁴³ Beyond laying out these three requirements, the Kyoto Protocol only skeletally describes how the CDM will work in practice. Further details of the mechanism's operation are spelled out in the Marrakesh Accords, adopted at COP-7 in 2001.⁴⁴

Under the Marrakesh Accords, countries interested in undertaking a CDM project must develop a "project design document" (PDD) that delineates the details of the project and how it meets each requirement contained in the Protocol and the Accords.⁴⁵ In addition to providing details on emissions monitoring and reduction calculations, the PDD must indicate that the host country both approved the proposal and is participating voluntarily.⁴⁶ The PDD must also confirm that "[c]omments by local stakeholders have been invited" and that "due account was taken of any comments . . ."⁴⁷ Finally, if the environmental impacts of the project are considered significant by either the project participants or the host Party, the PDD must indicate that the participants have conducted "an environmental impact assessment in accordance with procedures as required by the host Party."⁴⁸

After a PDD is submitted, the project is first reviewed by a private "designated operational entity" (DOE) that is authorized to validate projects by the CDM Executive Board.⁴⁹ The DOE may verify a project if the PDD contains the necessary information, the three requirements of the Kyoto Protocol are met, and the DOE has

42. *Kyoto Protocol*, *supra* note 1, at art. 12.

43. *Id.* at art. 12.5(a)–(c).

44. *See Marrakesh Accords*, *supra* note 3.

45. *Id.* at 34; *see also* Danish, *supra* note 20, at 48.

46. *See Marrakesh Accords*, *supra* note 3, at 32, 35.

47. "'Stakeholders' means the public, including individuals, groups or communities affected, or likely to be affected, by the proposed clean development mechanism project activity." *Id.* at 26.

48. *Id.* at 34.

49. *Id.* at 31–32. DOEs are approved based on a number of accreditation criteria, including technical ability, management structure, and demonstrated independence. *See id.* at 41–43.

received a “confirmation by the host Party that the project activity assists it in achieving sustainable development.”⁵⁰ The DOE does not independently assess the project’s contribution to sustainable development; instead, “it is the host Party’s prerogative to confirm whether a CDM project activity assists it in achieving sustainable development.”⁵¹ Once the DOE verifies the project, it delivers a recommendation of registration to the Executive Board of the CDM.⁵² Unless a Party involved in the project or three members of the Executive Board request review, the project is deemed “registered” eight weeks after it is delivered to the Executive Board and the participants are free to move forward.⁵³

III. CLIMATE JUSTICE ISSUES ARISING UNDER THE CLEAN DEVELOPMENT MECHANISM

In creating the CDM, the COP intended to establish a market-based system capable of promoting sustainable development in developing countries while providing a low-cost compliance option for developed countries.⁵⁴ This is an incredibly important goal from a climate justice perspective because sustainable development funding can help poor countries prepare for the reality of climate change. There is no way to completely reverse climate change or alleviate the burdens it places on the poorest developing countries, but providing these countries with the capital to build sustainable infrastructure and develop low emissions industries may help mitigate some of their problems. However, as the following discussion will demonstrate, there are several reasons that the CDM may be wholly inadequate to achieve this task. The objective of the CDM is a great one, but precisely because the goal is so important, the shortcomings of the CDM are troubling. These failings must be understood and addressed to achieve climate justice in future international agreements.

50. *Id.* at 34, 35.

51. *Id.* at 20.

52. Danish, *supra* note 20, at 48.

53. *Marrakesh Accords*, *supra* note 3, at 36.

54. *Id.* at 20; *Kyoto Protocol*, *supra* note 1, at art. 12.2.

A. The Poorest Developing Nations will not be Able to Attract Clean Development Mechanism Projects

Primarily, the CDM will not further climate justice because it is a competitive mechanism that inherently favors more-developed developing nations that have already begun industrialization and have strong financial and governmental institutions in place.⁵⁵ As developed nations select CDM investment projects, two characteristics of more-developed developing nations, like India, Brazil, and China, make them more desirable CDM project hosts. First, the more-developed non-Annex I countries are preferable because they have the institutional structure required to both implement high-yield projects and reassure investors that their investments will not be lost because of instability in the developing country.⁵⁶ Investors that utilize the CDM are unquestionably concerned with risk and the potential for profits, and countries with more advanced financial markets, infrastructure, and government capacity are better investments.⁵⁷

Second, as previously discussed, less-developed developing nations will be at a disadvantage in attracting CDM projects because the Kyoto Protocol requires environmental additionality, meaning that each project must reduce GHG emissions below the level that would be achieved without the project in place.⁵⁸ This provides an advantage to non-Annex I countries already on the path to industrialization because they are currently conducting large-scale, high-pollution activities that can be incrementally improved, generating a large number of credits.⁵⁹ As compared to completing numerous smaller projects in nations with lower GHG emissions, investors can reduce their administrative burden, utilize economies of scale to decrease costs, and generate credits more quickly by pursuing projects in wealthier developing nations that have higher existing emissions.

55. Anil Agarwal, *A Southern Perspective on Curbing Global Climate Change*, in CLIMATE CHANGE POLICY: A SURVEY 375, 386 (Schneider et al. eds., Island Press 2002) [hereinafter *Southern Perspective*]; see also Gordon, *supra* note 9, at 1615; Nelson, *supra* note 7, at 631.

56. Randall Spalding-Fecher et al., *The Clean Development Mechanism: Energy Projects for Africa*, in AFRICAN PERSPECTIVES ON THE CLEAN DEVELOPMENT MECHANISM 63, 67–68 (Cassandra Brooke & John Turkson eds., 1999), <http://www.uneprioe.org/CDM/accra/AccraPapers.pdf>.

57. Gordon, *supra* note 9, at 1609.

58. *Kyoto Protocol*, *supra* note 1, at art. 12.5(c).

59. ANAND, *supra* note 14, at 49; see also Nelson, *supra* note 7, at 632–33.

The evidence confirms that, while technically eligible for participation in CDM projects, the poorest developing nations have been unable to compete against more-developed developing countries. For example, two-thirds of the CDM arrangements signed by the World Bank between January 2005 and March 2006 were with China.⁶⁰ Similarly, under the forerunner to the CDM, the Activities Implemented Jointly program, Africa attracted only twelve of the 156 projects undertaken.⁶¹ With market incentives driving the CDM, these results are likely to persist, allowing the CDM to bypass the poorest nations completely. The CDM cannot further climate justice without changing the status quo in countries that have been disproportionately and unfairly burdened by climate change. The inability of poor nations to attract investment in a competitive market immediately signals that the CDM may not succeed as a tool for promoting climate justice.

B. The Unequal Playing Field: The CDM May Yield Exploitative Projects in Countries that Lack Bargaining Power

That the CDM may completely bypass the poorest nations it purports to aid is troubling. However, an even more troubling scenario may arise if investors from developed countries are able to exploit poor countries' competitive disadvantages in the CDM marketplace, pressuring them to host projects that will be profitable to the investing country or company but that will not further the developing countries' objectives. Unfortunately, this scenario seems plausible.

Exploring the motivations underlying a CDM transaction, the investor's primary goal is presumably to produce CERs, and to do so at the lowest cost possible in order to maximize profits. From an investment perspective, this means developed countries will attempt to sweep up the "low-hanging fruit" in developing countries while refusing to undertake more expensive and comprehensive projects.⁶² Projects that can generate credits quickly and inexpensively will be pursued while smaller, more diffuse projects like transportation, energy efficiency, and

60. Burkett, *supra* note 14, at 211.

61. Nelson, *supra* note 7, at 634.

62. Press Release, A SEED et al., Bonn Statement on Climate Change—'Saving' the Kyoto Protocol Means Ending the Market Mania (Jul. 16, 2001), *available at* <http://www.corporateurope.org/climate/bonnstatement.html> (last visited Apr. 18, 2009).

renewable energy are marginalized.⁶³ When host nations have no more cheap emissions reductions to “sell,” they will no longer be desirable investment recipients and they will be left to finance future, more expensive emissions reductions themselves.⁶⁴

Meanwhile, faced with the market-based nature of the CDM and the corresponding need to compete for projects against wealthier, more-industrialized developing countries, the poorest developing countries will probably find they lack the bargaining power to pursue their own sustainable development needs through the CDM.⁶⁵ Countries seeking to host projects must compete on investors’ terms or risk losing investment altogether, so they may be willing to “discount their future” by selling cheap reductions while postponing sustainable development.⁶⁶ The Marrakesh Accords explicitly require that the host country certify that each project undertaken meets its sustainable development goals;⁶⁷ however, the document does not include any definition of, or criteria for, sustainable development.⁶⁸ Instead, the responsibility for designing and safeguarding sustainable development is left solely to host governments that, in the case of the poorest countries, may need investment so desperately that they elect to approve questionable projects rather than receive no projects at all.⁶⁹ Considered in conjunction with the fact that investing nations are in a vastly superior position to generate information about the profitability and desirability of projects,⁷⁰ this market imbalance seems likely to

63. Burkett, *supra* note 14, at 211–12.

64. *Southern Perspective*, *supra* note 55, at 384–85.

65. ANAND, *supra* note 14, at 48–49; Nelson *supra* note 7, at 638–39 (observing that African countries “are competing for investment on an investor’s terms,” and may acquiesce to less sustainable projects because they need the investment).

66. *Southern Perspective*, *supra* note 55, at 384–85; *Boiling Point*, in GREEN POLITICS 15, 78 (Anil Agarwal et al. eds., Centre for Science & the Environment 1999) [hereinafter *Boiling Point*].

67. *Marrakesh Accords*, *supra* note 3, at 34, 35.

68. Nelson, *supra* note 7, at 622; Lucia Schild Ortiz et al., *Ringside III: Not So Clean*, EQUITY WATCH, Oct. 30, 2002, available at http://www.cseindia.org/html/cmp/climate/ew/ew_oct30/clean.htm (last visited Apr. 18, 2009).

69. *Marrakesh Accords*, *supra* note 3, at 20 (“[I]t is the host Party’s prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development.”). For further discussion of the financial pressures that may drive developing countries to accept any available CDM projects, see Nelson, *supra* note 7, at 638–39.

70. For example, Ugandan authorities have already signed two massive leases with Norwegian tree farm companies, on terms that are extremely favorable to the tenants. EQUITY WATCH, CARBON COLONIALISM, CHEAP FIX: THE RUSH TO MAKE PROFITS OUT OF

end in host countries acquiescing to projects with negative social and environmental impacts.

There are many types of detrimental projects that could be implemented if host countries agree to projects that marginally alleviate their poverty at the expense of their environmental and social needs. This section will discuss two common areas of concern: the expansion of fossil fuel technology and the creation of carbon sinks.

1. The Spread of Fossil Fuel Technology and the Consequences for Developing Host Countries

The first ramification of the inferior negotiating power possessed by developing countries is that CDM investments will focus on the perpetuation of fossil fuel technology in societies where more sustainable options exist.⁷¹ Because technologies like low sulfur coal and coal washing have already been developed and tested in the industrialized world, “clean” fossil fuel technology is often the least costly energy investment available for CDM credit.⁷² Studies show, for example, that coal washing can earn CERs for as little as \$3 per ton of carbon equivalent reduced, while zero-carbon energy systems generally cost between \$12 and \$15 per ton.⁷³ Not surprisingly then, wind and solar energy have been largely ignored while energy projects focus on fossil fuels.⁷⁴

These advancements may be an improvement over the use of high sulfur coal, but they are a far worse alternative than the development of infrastructure that does not require fossil fuels at all.⁷⁵ Countries such as those in Sub-Saharan Africa, where 95% of the rural population is not hooked up to a traditional electricity grid, still have non-fossil fuel options. For example, small-scale

CARBON-FIXING ENGENDERS ANOTHER KIND OF COLONIALISM (Oct. 25, 2000) [hereinafter CHEAP FIX], available at http://www.cseindia.org/campaign/ew/art20001025_4.htm (last visited Apr. 18, 2009). Part III.B.2, *infra*, discusses the Ugandan leases in greater detail.

71. ANAND, *supra* note 14, at 49.

72. See Gordon, *supra* note 9, at 1610.

73. Anil Agarwal, *Small Step, Wrong Direction: The Kyoto Protocol, the 'Only Show in Town,' is a Poor One*, EQUITY WATCH, Nov. 20, 2000 [hereinafter *Small Step, Wrong Direction*], available at http://www.cseindia.org/campaign/ew/art20001120_2.htm (last visited Apr. 18, 2009).

74. ANAND, *supra* note 14, at 49.

75. See Gordon, *supra* note 9, at 1610 (“[The CDM] has the potential to subsidize carbon-based energy production, which is usually the least costly form of mitigation, rather than forward-looking, alternative forms of energy, which make the inevitable measures that will eventually have to be put into place more expensive.”).

wind and solar technology could provide power to communities without contributing to climate change *or* local pollution.⁷⁶ Without the CDM distorting decision making in favor of the investor's bottom line, these developing countries could very well elect to bypass fossil fuel dependence altogether.⁷⁷ More sustainable technologies exist that could better serve developing countries with large rural populations and incomplete infrastructure; why wouldn't they select small-scale wind or solar projects if they controlled the finances? The trouble is, because developing countries may prefer investment in fossil fuel technology to no investment whatsoever, they may accept fossil fuel projects even though fossil fuel development is not their first choice. If this proves true, the CDM will serve to lock developing countries into decades of fossil fuel dependence that could otherwise have been avoided entirely.⁷⁸

The climate justice consequences of perpetuating fossil fuel dependence in countries where more sustainable options exist are significant. From a health perspective, expansion of coal burning energy production will create substantial negative impacts on the communities where plants are sited, causing asthma, respiratory disease, heart disease, and early mortality.⁷⁹ Equally disconcerting, the fossil fuel lock-in does not contribute to the creation of sustainable infrastructure that could ease developing countries' burdens from climate change. Fossil fuel offers a short term solution to energy shortages, but developing countries will ultimately need to phase out high emissions technologies just like the rest of the world. When this occurs, developing nations may need to replace the fossil fuel systems that the CDM helped create with more expensive zero emissions technologies at their own expense. The CDM is intended to make sustainable, low or zero emissions technologies attainable for developing nations; transferring fossil fuel technology provides developed countries

76. *Southern Perspective*, *supra* note 55, at 385 (suggesting that the CDM will subsidize the transfer of carbon-based technologies to developing countries, making it more difficult for otherwise-viable renewable energy technologies to compete in developing countries' energy markets).

77. Nelson, *supra* note 7, at 645.

78. *Small Step, Wrong Direction*, *supra* note 73.

79. Bruce Barrett, M.D., Op-Ed., *Madison Needs to Clean Up Its Coal*, WIS. STATE J., Jul. 7, 2008, at A10, available at <http://www.madison.com/wsj/home/column/other/295010> (last visited Mar. 14, 2009).

with profitable credits, but does not further the ultimate goals of the developing world.

2. Carbon Sinks

In addition to incentivizing the transfer of fossil fuel technologies over more sustainable options, another questionable aspect of the CDM from a climate justice standpoint is that it grants CERs for the creation of “carbon sinks.”⁸⁰ After difficult negotiations that divided the signatories to the Kyoto Protocol,⁸¹ the Marrakesh Accords permit countries to earn CERs through the creation of carbon sinks in non-Annex I countries.⁸² During the first commitment period, the number of CERs available for sink creation is limited: for each year of the five year commitment period, countries may earn only 1% of their base year emissions by investing in carbon sinks.⁸³ Also, for the first commitment period, credits for carbon sinks can be generated through either afforestation⁸⁴ or reforestation,⁸⁵ but not through forestry management.⁸⁶ Carbon sinks generate credits inexpensively, especially in developing nations near the equator where land is cheap and trees grow quickly, so sink projects are extremely popular.⁸⁷

80. The term “sink” is used to describe a process, activity, or mechanism that removes greenhouse gases from the atmosphere and stores them. Dennis D. Hirsch, *Trading in Ecosystem Services: Carbon Sinks and the Clean Development Mechanism*, 22 J. LAND USE & ENVTL. L. 623, 628 (2007). Planting trees is one way to create a CO₂ sink. Alexander Gillespie, *Sinks and the Climate Change Regime: The State of Play*, 13 DUKE ENVTL. L. & POL'Y F. 279, 281–84 (2003).

81. Danish, *supra* note 20, at 36–37.

82. *Marrakesh Accords*, *supra* note 3, at 22.

83. *Id.* (“[F]or the first commitment period, the total additions to a Party’s assigned amount resulting from eligible land use, land-use change and forestry project activities under the clean development mechanism shall not exceed one percent of base year emissions of that Party, times five . . .”).

84. *Id.* “Afforestation” is usually defined as the establishment of a forest on land that has been without forest for a period of time and was previously under a different land use. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS, LAND USE, LAND-USE CHANGE, AND FORESTRY 6 (2000) [hereinafter LULUCF REPORT], <http://www.ipcc.ch/pdf/special-reports/spm/sr-en.pdf>.

85. *Marrakesh Accords*, *supra* note 3, at 22. “Reforestation” is commonly defined as the activity of regenerating trees immediately after a disturbance without an interim land use change. LULUCF REPORT, *supra* note 84, at 6.

86. Dennis Hirsch et al., *Emissions Trading—Practical Aspects*, in GLOBAL CLIMATE CHANGE AND U.S. LAW 627, 642 (Michael B. Gerrard ed., 2007).

87. Gillespie, *supra* note 80, at 282–83.

However, like fossil fuel development projects, carbon sinks carry severe environmental and social costs. Carbon sinks cause problems in local communities because they can destroy biodiversity, replacing native grasslands with one or a few species of fast-growing trees.⁸⁸ These replacements absorb more carbon than local species, but they may interfere with the lifestyles of local communities that rely on their surroundings for food, medicine, clothing, shelter, and cultural traditions.⁸⁹ Further, tree farms may divert water from local residents, reducing the availability of water at a time when climate change is making it increasingly scarce in equatorial regions. The IPCC observes that afforestation may have highly varied impacts on groundwater supply, river flows, and water quality, and in at least some regions may decrease the availability of water significantly.⁹⁰ Commercial tree farms will also require pesticides that may further degrade water resources while affecting food and air quality in rural communities.⁹¹

In addition to the severe impacts that carbon sinks may have on communities' surrounding environments, the use of tree farms to generate CERs may destroy the ability of communities to self-govern, commandeering their land while providing little or no benefit to those most affected. Primarily, this issue arises because the large parcels of land required for tree farms will be acquired through negotiations with the host country's national government, but the consequences will largely be felt in the impoverished, rural communities dependent on these lands for survival. While the national government likely has its constituents' interests in mind, its weak bargaining position and dire need of funding may result in the approval of projects that harm host communities.⁹² Once lands are leased or sold to investing companies, the local residents have no way to enforce their systems of property ownership and management against the companies' legal claim to the land.⁹³

88. LULUCF REPORT, *supra* note 84, at 17.

89. CENTER FOR PROGRESSIVE REFORM, INTERNATIONAL ENVIRONMENTAL JUSTICE AND CLIMATE CHANGE, *available at* <http://www.progressiveregulation.org/perspectives/intlenvironJustice.cfm> (last visited Mar. 1, 2009).

90. LULUCF REPORT, *supra* note 84, at 17.

91. WORLD RAINFOREST MOVEMENT, WORKING CONDITIONS AND HEALTH IMPACTS OF INDUSTRIAL TREE MONOCULTURES 7–8 (Dec. 2007) (describing the pesticides used by industrial tree farms), http://www.wrm.org.uy/plantations/Working_conditions_and_health.pdf.

92. *See supra* Part III.B.

93. Carol M. Rose, *Big Roads, Big Rights: Varieties of Public Infrastructure and Their Impact on*

Local residents may even be evicted from their lands and displaced completely if their methods of farming, fishing, or fuel gathering are incompatible with the needs of the new tree farm.⁹⁴ Further, sink projects often contain no offsetting benefits for the affected communities and countries. The projects themselves do nothing to further sustainable development and, because nearly all the profits from generating CERs are extracted by the investing country, they do not even provide capital for developing countries to utilize in implementing their sustainable development plans.⁹⁵ In fact, because the sinks must be permanent for benefits to accrue under the CDM, sinks may actually prevent the developing countries from *ever* altering their local planning to promote sustainable development and serve their citizens' needs.⁹⁶

To illustrate how carbon sinks can exacerbate the burdens of climate change, it is helpful to examine CDM carbon sink projects that are already underway in Uganda. In the mid-1990s, two Norwegian companies acquired large parcels of land in Uganda for the explicit purpose of generating carbon credits to sell in the emerging emissions market.⁹⁷ Capitalizing on the anticipated ratification of the Kyoto Protocol, Tree Farms and Norwegian Afforestation Group rushed to begin planting fast-growing eucalyptus and pine trees, leasing 4,260 hectares of land and 2,800 hectares of land respectively.⁹⁸ Each company leased the Ugandan land for a 50-year period with the possibility of renewing the lease for another 50-year period at the company's option.⁹⁹ In exchange, Uganda received a one-time payment of \$312 for each leased parcel, regardless of its size, and \$3 per hectare of trees planted per year.¹⁰⁰ The companies do not owe rent for land not planted, and no clause in the contracts prevents the leaseholder from leaving

Environmental Resources, 50 ARIZ. L. REV. 409, 428 (2008) (discussing how informal local customs can be destroyed when newcomers institute traditional property rights regimes for the first time).

94. See Heidi Bachram, *Climate Fraud and Carbon Colonialism: The New Trade in Greenhouse Gases*, 15 CAPITALISM, NATURE, SOCIALISM 5, 12 (2004).

95. See *infra* note 102 and accompanying text.

96. See CHEAP FIX, *supra* note 70.

97. *Id.*; see also WORLD RAINFOREST MOVEMENT, UGANDA: CARBON SINKS AND NORWEGIAN COLONIALISM (June 2000) [hereinafter NORWEGIAN COLONIALISM], available at <http://www.wrm.org.uy/bulletin/35/Uganda.html> (last visited Mar. 1, 2009).

98. CHEAP FIX, *supra* note 70.

99. *Id.*

100. *Id.*

the land vacant or using it for other activities.¹⁰¹ These lease terms are highly favorable to the Norwegian companies, probably because the Ugandan forestry authorities who entered the leases were in a vastly inferior position to assess the value of their land for generating carbon credits.¹⁰² If the investing companies' predictions about the value of CERs are even close to accurate, both companies stand to make millions in profits over the next few decades.¹⁰³ Unfortunately, based on the generous terms of the leases, Uganda will receive rent payments of no more than \$21,800 each year, a small fraction of the value of its now-occupied land.¹⁰⁴

Now that the tree farm projects are underway, the arrangements between Uganda and the Norwegian companies also demonstrate the potential for social and environmental degradation associated with carbon sinks. Local communities depend on the land controlled by the companies for their livelihood, but are permitted to continue their customs and occupations only at the discretion of the companies.¹⁰⁵ Employment opportunities within the tree farms are scarce; tree farms used solely to sequester carbon do not require much maintenance and accordingly only a handful of residents are able to find employment with the companies.¹⁰⁶ For the maintenance that is required, Tree Farms implemented a system that allows local residents to grow maize, beans, and other vegetables between the rows of trees for the first few years after planting, but the residents must pay for this use.¹⁰⁷ The company receives a double benefit: it makes a small profit as local residents are forced to pay for the use of their community's land *and* the residents who agree to this arrangement are essentially weeding and managing the trees for the company for free.¹⁰⁸ Even so,

101. *Id.*

102. *Id.* See also NORWEGIAN CO₂ LONIALISM, *supra* note 97.

103. CHEAP FIX, *supra* note 70. Based on an estimated price per ton of carbon of \$13.50, Tree Farms anticipates profits totaling \$28.8 million in the next 25 years, while Norwegian Afforestation Group predicts \$13.5 million in profits during the same period. *Id.*

104. *Id.*

105. NORWEGIAN CO₂ LONIALISM, *supra* note 97.

106. See, e.g., Stephan Faris, *The Other Side of Carbon Trading*, FORTUNE MAGAZINE, Aug. 29, 2007 (noting that, in a similar project at Mount Elgon National Park in eastern Uganda, government authorities and private companies were unable to hire more than a handful of full time staff to maintain the newly planted trees), available at <http://news.mongabay.com/2007/0829-fortune.html> (last visited Apr. 18, 2009).

107. NORWEGIAN CO₂ LONIALISM, *supra* note 97.

108. *Id.*

residents who are permitted to stay under these unfair conditions are still significantly better off than some of their fellow citizens.¹⁰⁹ Tree Farms has already evicted 8,000 people, mainly farmers and fisher folk, from 13 villages to make room for its massive carbon sinks.¹¹⁰

This example demonstrates several injustices surrounding carbon sink CDM projects. Rather than providing sustainable development and helping communities prepare for a future that includes climate change, these CDM projects are interfering with citizens' longstanding practices and, in extreme cases, forcing them off their lands. The companies have the legal right to occupy the property and the communities that depend on the land are left to find alternatives. Further, despite the loss of their livelihood and ability to self-govern, the communities do not receive the profits generated by the projects. Their national government lacked the expertise and bargaining power to extract a significant percentage of the value of these investments, so the citizens will not see any improvements in their communities that justify the costs inflicted. The idea that local residents are being effectively displaced by large-scale monoculture plantations and the multinational companies that control them is abhorrent to the goals that underlie the CDM, but it may prove to be a very real effect of its implementation in countries like Uganda.

C. The CDM's Inadequate Procedural Protections

As the previous section demonstrates, the market-based CDM approach may actually exacerbate climate injustice in direct contradiction to its aim of helping the poorest nations in the world attain a sustainable future. With developed countries seeking profit, and the more-developed developing countries like China, India, and Brazil providing the best investment opportunities, the governments of poor nations in need of sustainable development may elect to discount their nations' futures to attract much-needed funding today. Perhaps recognizing this reality, the COP created a role for communities in the formation of CDM projects, giving a voice to those most affected by the undertaking. However, the

109. See, e.g., Faris, *supra* note 106 (describing a reforestation project in a Ugandan national park that failed despite evicting a community when evicted farmers returned and clear cut the growing trees).

110. Bachram, *supra* note 94, at 8; NORWEGIAN CO₂ COLONIALISM, *supra* note 97.

protections provided are too limited and unstructured to ensure that host communities are able to protect themselves from exploitation.

1. The Stakeholders' Participation Requirement

Participation by local residents in the design and implementation of projects should be an obvious priority for any legislative initiative intended to promote sustainable development in countries with dispersed, impoverished, and rural populations. From a normative standpoint, CDM projects should create benefits for affected communities and the easiest (and possibly only) way to ensure that these benefits accrue is through participation by local community members.¹¹¹ The Marrakesh Accords make a symbolic effort to include local stakeholders, but ultimately fail to guarantee that they will be given any real input.

The Marrakesh Accords require CDM host countries to invite comments by local stakeholders, summarize those comments, and explain how the comments were taken into "due account."¹¹² This provision is much less stringent, and probably less effective, than the initial stakeholder provision proposed by the European Union, which would have required that the PDD show "local stakeholders have been involved at an early stage in project design."¹¹³ Instead of having to fulfill an affirmative duty to seek out comments and participation, sponsors will presumably be able to satisfy the provision in the Marrakesh Accords by merely publishing a notice of their intent to develop a CDM project.¹¹⁴ Because affected stakeholders in rural communities will not always have internet access, phones, or other means of long distance communication,

111. Timothy Afful-Koomson & Paul Opoku-Mensah, *Participatory Implementation and Governance of Clean Development Mechanism (CDM) Projects in Africa*, in AFRICAN PERSPECTIVES ON THE CLEAN DEVELOPMENT MECHANISM 35, 38–39 (Cassandra Brooke & John Turkson eds., 1999), <http://www.unepiso.org/CDM/accra/AccraPapers.pdf>.

112. *Marrakesh Accords*, *supra* note 3, at 34; *see supra* notes 45–53 and accompanying text.

113. Malte Meinshausen & Bill Hare, *Sinks in the CDM: An Analysis of the CDM Sinks Agreement at CoP-9*, at 7–8 (2003), <http://www.greenpeace.org/raw/content/international/press/reports/sinks-in-the-cdm-after-the-cl-2.pdf>.

114. *See Marrakesh Accords*, *supra* note 3, at 34. Under the Accords, a demonstration that comments have been "invited" is sufficient to meet the participation requirement. *Id.* Although this provision has not yet been widely implemented, there is no indication that a project would be deemed procedurally inadequate if comments were invited but not received.

the invitation for comments may never be received. Even if it is received, lack of transportation and technology may impair meaningful participation. The communities most likely to be affected by CDM projects are in dire need of foreign investment precisely because they lack technology, often even electricity, and they cannot be expected to mobilize under models adapted for the industrialized world.¹¹⁵ The “notice and comment” model may be appropriate in developed countries, but in the poorest developing nations that are the intended beneficiaries of the CDM, investors should bear a greater burden to ensure meaningful participation from local stakeholders at all stages of the CDM process.

2. The Environmental Impact Assessment Requirement

In addition to requiring some nominal opportunity for stakeholder participation, the Marrakesh Accords also require project participants to analyze the impacts of each project activity.¹¹⁶ This analysis provision is presumably aimed at traditional environmental effects, such as pollution, but based on analogy to case law in the United States, the requirement may be broad enough to reach effects like displacement and loss of community as well.¹¹⁷ If it leads to the generation of information on a variety of problems, the provision would provide community members or advocates with evidence that they could utilize to identify problematic aspects of projects *before* legal rights have been transferred to the investing party.

However, despite its promising premise, the environmental analysis provision is not properly formulated to provide the vast information source (and tool for fighting undesirable projects) that environmental analysis statutes supply to citizens of developed nations.¹¹⁸ This is because, while each PDD must include

115. In the United States, for example, any similar projects would probably be instituted by an agency that would publish notice of the proposed action in the Federal Register and post information about the project online, inviting comments. This process is better suited to the United States, where many households have personal computers and even those without computers often have internet access at nearby libraries or community centers.

116. *Marrakesh Accords*, *supra* note 3, at 34.

117. *See, e.g.*, *Chinese Staff Workers Ass'n v. City of New York*, 502 N.E.2d 176 (N.Y. 1986) (holding that the city's process for deciding whether or not to undertake a full environmental impact assessment under New York state law must include consideration of the proposed project's social effects and effects on the community environment, as well as its traditional environmental effects).

118. *See, e.g.*, National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–70(d) (2004)

“documentation of environmental impacts of the project activity,” an environmental impact assessment need not be undertaken unless “those impacts are considered significant by the project participants or the host Party”¹¹⁹ Accordingly, the host country and its investing partner are given complete discretion over the environmental impact assessment decision. Unlike United States courts, for example, which are frequently called upon to review the sufficiency of initial environmental studies and determine whether the decision to forgo a full environmental impact statement was appropriate, the DOE and the Executive Board are not given the authority to second guess the parties’ decisions or deny projects on the basis of unexamined environmental impacts.¹²⁰ Assuming that the parties are interested in pursuing the CDM project—which is a safe assumption since the parties are in the process of getting approval for a voluntary project—it seems likely that the countries may decline to study environmental impacts extensively, especially because these assessments are notorious in the developed world for their costliness and time consumption.¹²¹

Furthermore, even if an environmental impact assessment is deemed necessary, there are no guidelines dictating how stringent the assessment must be.¹²² Instead, the party participants need only show that they “have undertaken an environmental impact assessment in accordance with procedures as required by the host Party.”¹²³ Like the decision to undertake an assessment in the first place, the factors that must be assessed and the rigor that must be applied are determined wholly by the host nation, which has a vested interest in gaining approval for projects to which it consents.

In both the initial decision to require an impact assessment, and the decision regarding what procedures should be required, the

(United States); Council Directive 85/337, the Assessment of the Effects of Certain Public and Private Projects on the Environment, 1985 O.J. (L 175) 40 (EU); Environment Protection and Biodiversity Conservation Act, 1999 (Austl.).

119. *Marrakesh Accords*, *supra* note 3, at 34.

120. *See id.*

121. *See, e.g.*, COUNCIL ON ENVIRONMENTAL QUALITY, THE NATIONAL ENVIRONMENTAL POLICY ACT: A STUDY OF ITS EFFECTIVENESS AFTER TWENTY-FIVE YEARS 7 (Jan. 1997) (noting that NEPA, which requires federal agencies to study the significant environmental impacts of their projects “frequently . . . takes too long and costs too much,” and as a result, “millions of dollars, years of time, and tons of paper have been spent on documents that have little effect on decision making”).

122. *Marrakesh Accords*, *supra* note 3, at 34.

123. *Id.*

only stakeholders likely to desire more assessment are affected community members who will suffer the consequences of these investments. Local conditions coupled with inadequate procedural protections, however, may prevent input from community members from ever being heard or addressed.¹²⁴ Also, the lack of strong environmental assessment provisions exacerbates public participation problems.¹²⁵ Even if community members overcome the notice, communication, and distance hurdles to participation, without a strong environmental impact assessment provision, they may have difficulty finding technical and scientific data to support their claims.

For the reasons outlined in this section, the market-based CDM, widely sold as a tool to increase equity and relieve the burdens of climate change on the poorest nations, is unlikely to help the least-developed developing nations. Instead, its economic emphasis, unequal balance of power, and inadequate assurance of local participation may cause the CDM to further the injustices already suffered by the poorest regions of the world.

VI. LOOKING FORWARD: CAN THE CLEAN DEVELOPMENT MECHANISM BE TAILORED TO PROMOTE ENVIRONMENTAL JUSTICE?

The real downfall of the CDM is that regardless of policymakers' intentions, a market-based system for distributing a valuable asset like CERs encourages parties to seek out the bottom line and maximize their own gains. Without meaningful restraint, this market system will perpetuate current wealth and power structures, to the great disadvantage of impoverished developing countries whose resources do not rival those of their multinational trading partners. To create a flexibility mechanism that stays true to the goal of promoting sustainable development in the poorest nations and alleviating the burdens borne by parties not responsible for climate change, the power structure must be altered so that the poorest developing nations can profit from the development of low emissions solutions to climate change in their communities. This paper concludes by proposing several ideas that could help effectuate this change.

The first alternative that could help align the goals and effects of

124. *See supra* Part III.C.1.

125. *Id.*

the Clean Development provision in the Kyoto Protocol is to transform the CDM into a Clean Development Fund, as Brazil initially proposed during negotiations.¹²⁶ Countries that exceed their emissions targets would be required to pay a penalty into the Fund, and the Fund could also generate money by “taxing” high emissions activities or less favored methods of credit generation. Grants from the Fund would then be given directly to host governments in developing countries based on need. The only criteria for obtaining awards would be the national government’s proposal of a sustainable development project suited to its country. Because attracting foreign investors would no longer be a prerequisite to gaining funding, countries would be free to pursue their sustainable development goals without being pressured to consider other parties’ profit margins.

Second, a program that permits developing countries to earn and sell their own CERs could both shift project development back to developing countries and ensure that the countries receive the profits generated through the use of their natural resources.¹²⁷ Developing countries still would not be bound by emissions reductions goals like Annex I countries, but they could take the initiative to develop sustainable infrastructure or manage their resources, then sell the associated reductions and use the proceeds to fund continued development and growth. The pre-Kyoto Costa Rican emissions reduction program provides a good illustration of this proposal and its potential. In 1994, Costa Rica initiated a program under which it sold “certified tradable offsets” to foreign companies and governments.¹²⁸ Each credit was verified by the Costa Rican Carbon Fund, a division of the Costa Rica Environmental Ministry, and corresponded to one ton of carbon dioxide absorbed by trees.¹²⁹ The credits were accepted by the Chicago Climate Exchange and European governments, and by 1998 Costa Rica had saved more than 1.25 million hectares of

126. Ortiz, *supra* note 68; *see also* Davidson & Sokona, *supra* note 39, at 11.

127. Under the Kyoto Protocol, host countries cannot earn and sell emissions reduction credits themselves. *Boiling Point*, *supra* note 66, at 76. Instead, reduction projects in developing countries must be carried out by Annex I countries and companies, and these Annex I investors often keep a large percentage of any profits generated. *Id.*

128. *Boiling Point*, *supra* note 66, at 76.

129. Vicki Allen, *Costa Rica to Save Forest with Carbon Credits*, REUTERS, Apr. 24, 1998, available at <http://forests.org/archive/samerica/crcarbc.htm> (last visited Apr. 18, 2009).

forest land under the program.¹³⁰ The profits were not insignificant: in 1997, the Costa Rican Carbon Fund completed its first transaction, selling 100,000 tons of certified tradable offsets to Norway for \$1 million.¹³¹

Like the status quo, allowing developing countries to generate their own CERs creates a market incentive to reduce emissions in all sectors. Unlike the current CDM, however, in this scenario the economic benefits accrue to the party hosting the projects. Because the host countries will both reap the benefits *and* endure any consequences of shortsighted decisions, they will be far more likely to make investment choices that incorporate their long-term goals. Without a profit-driven investor to satisfy, countries can make decisions based on their true needs, with profitable emissions reduction sales as an added benefit.

A final alternative that could be incorporated into an alternative clean development program is a community-level incentive structure that rewards local projects that provide direct climate protection and environmental benefits. Under this approach, national governments would develop emissions reduction projects that could be implemented locally and would offer direct compensation (provided out of an international clean development fund) to those individuals who participate. Although probably not capable of supplanting a national-level clean development program entirely, permitting communities to generate credits through small-scale, grassroots projects could be a valuable supplement to a more hierarchical approach.

The benefits of mobilizing citizens in impoverished areas to protect their own environment are exemplified by Wangari Maathai's Green Belt Movement project.¹³² Started in 1977 by Dr. Maathai, the project promotes tree planting to address soil erosion, deforestation, and drought in rural Africa.¹³³ At the same time, the project encourages citizens to become environmental stewards,

130. *Id.*; *Boiling Point*, *supra* note 66, at 76.

131. Guillermo Escofer, *Costa Rica Sells Carbon Bonds to Norway*, THE TICO TIMES, Feb. 2, 1997, available at <http://forests.org/archive/samerica/carbbond.htm> (last visited Apr. 18, 2009).

132. Dr. Maathai is a Kenyan human rights and environmental activist. In 2004, Dr. Maathai became the first African woman to win the Nobel Peace Prize. Patrick E. Tyler, *Peace Prize Goes to Environmentalist in Kenya*, N.Y. TIMES, Oct. 9, 2004, at A1.

133. What is the Green Belt Movement?—A Vision Statement, <http://greenbeltmovement.org/a.php?id=178&t=p> (last visited Apr. 18, 2009).

empowering rural communities to work to achieve a sustainable future.¹³⁴ Participants are paid a small amount for each seedling they grow, providing economic incentives in addition to the benefit of an improved physical environment.¹³⁵ The Green Belt Movement has been an enormous success: to date 40 million trees have been planted across Kenya and Africa.¹³⁶

By providing funding to community-based initiatives such as Dr. Maathai's, a clean development provision could achieve its goal of emissions reductions while improving conditions for the poorest countries that are facing inequitable burdens from climate change. This type of carbon sink creation is the antithesis of the monoculture tree farm model. Communities can manage afforestation so that it improves their quality of life rather than disrupts it, making small steps towards sustainability while contributing to a global solution to climate change.

CONCLUSION

Driven by market forces and lacking adequate procedural protections, the CDM may actually exacerbate environmental injustices in direct conflict to its aim of helping the world's poorest developing nations achieve a sustainable future. Although clearly formulated with the world's poorest countries in mind, the CDM favors more-developed developing nations like China, Brazil, and India, while forcing the least-developed nations to compete on investors' terms. When these poorer nations are not bypassed altogether, they are pressured to approve potentially undesirable projects or lose needed investments. The results, which will likely include perpetuation of fossil fuel technology and exploitative carbon sink projects, will do little to further sustainable development or help the poorest countries survive the climate change reality.

While tighter supervision or increased procedural requirements may improve the situation incrementally, the CDM needs an overhaul in order to achieve its stated purposes. A market-based approach that gives Annex I countries the ability to select low cost compliance options may be the cheapest way to meet emissions

134. *Id.*

135. Wangari Maathai, *Trees for Democracy*, N.Y. TIMES, Dec. 10, 2004, at A1.

136. What is the Green Belt Movement?—A Vision Statement, *supra* note 133.

reduction targets, but it achieves cost-effectiveness at the expense of its sustainable development objective. Unless members of the COP recognize the flaws of the current Annex I-driven approach to clean development and seek out ways to shift power towards the poorest developing nations, the CDM will not serve the interwoven goals of climate justice and sustainable development.