

Clean Development Mechanism (“CDM”) Forest and Forestry Project-Activities Under the Climate Change Regime

Rômulo Silveira da Rocha Sampaio¹

Researcher at the Getulio Vargas Foundation School of Law in Rio de Janeiro, Brazil (GV Law Rio); Adjunct Professor and Doctoral Candidate at Pace University School of Law in White Plains, New York, USA. Address: Praia de Botafogo 190 – 13º andar, Rio de Janeiro-RJ, Brazil – 22250-900. Phone: +55 21 2559.6065 - Fax: +55 21 2259.5459. E-mails: romulo.sampaio@fgv.br / rsampaio@law.pace.edu

Abstract

The framework and starting point to examining forest and forestry project activities under the clean development mechanism (“CDM”) is the historical legal and scientific international recognition of the role carbon “sink” and “reservoir” can play as part of mitigation and adaptation strategies to climate change. The analysis takes off by differentiating the international legal status of forest. In delineating the scope of the study, two possible approaches to forests and forestry activities are presented: accounting for forestry activities domestically; or through jointly implemented project-based activities. The focus lies on the later, specifically on activities under the CDM. Since the 1992 mother Convention (“UNFCCC”), much has evolved. An analytical review of the Activities Implemented Pilot Phase (“AII”) and of the subsequent Conferences/Meetings of the Parties (COPs/MOPs) is useful research tool for further analysis.

Based on this historical and analytical overview, it is possible to assess current obstacles, and positive and negative impacts related to CDM forestry project activities. Legal and political obstacles include the United States resistance in ratifying the Kyoto Protocol, EU refusal to accept CDM forests and forestry project activities under the EU Emissions Trading Scheme, and the limitation of project-activities to afforestation and reforestation practices. Following this track, environmental, socio-economic, social and cultural downsides and upsides can also be assessed. With that, perspectives to overcoming obstacles and adverse impacts of CDM forest and forestry project-activities for upcoming commitment periods under the UNFCCC can be drawn, aiming at maximizing the mitigation and adaptation benefits and outcomes of the CDM in developing countries. This would serve not only the purposes of achieving the objective of the climate change Convention, but also the goals of other related multilateral environmental agreements, such as the Conventions on Biological Diversity (“CBD”).

¹ Doctoral (S.J.D.) Candidate, Pace University School of Law (Pace); LL.M. in Environmental Law, Pace; LL.M. in Economic and Social Law and LL.B., Pontific Catholic University of Parana School of Law in Curitiba, Brazil (PUC-PR); My thanks to the Brazilian Coordination for Improvement of Higher Education Personnel (CAPES), GV Direito Rio, and Pace (Feldschuh Scholarship) for making this research possible. This Article builds forward on a previous manuscript of the author accepted for publication in the Fordham International Law Journal, entitled: “Seeing the Forest for the Treaties: The Evolving Debates on Forest and Forestry Activities Under the Clean Development Mechanism Ten Years After the Kyoto Protocol”.

Table of Contents

- I. Introduction
- II. “Sinks,” “Reservoirs” and “Sources” of CO₂
- III. Forests and Forestry Activities in the Climate Change Legal Regime
 - A. Forests and Forestry Activities under the UNFCCC
 - B. Forests and Forestry Activities under the Kyoto Protocol and Subsequent Sessions of the Conference and Meeting of the Parties
- IV. The Two Different Approaches to Accounting for Forests and Forestry Activities
 - A. Accounting Domestically
 - B. Accounting Under Project-Based Flexibility Mechanisms
- V. Legal and Institutional Frameworks of the CDM Forestry Activities
 - A. The Evolution of the Legal Framework
 - 1. The Activities Implemented Jointly Pilot Phase (“AIJ”)
 - 2. The Controversy Whether Forests and Forestry Activities Were Meant to be Included in the CDM
 - B. The Marrakesh Accords
 - C. The Ninth and Tenth Session of the Conference of the Parties and First Session of the Meeting of the Parties
 - D. The CDM Forestry Institutional Framework
 - 1. The Conference of the Parties and Meeting of the Parties
 - 2. The Subsidiary Body for Scientific and Technological Advice (“SBSTA”)
 - 3. The CDM Executive Board
 - 4. Designated Operational Entities (“DOEs”)
 - 5. The Afforestation and Reforestation Working Group (“A&R WG”) and the Methodologies Panel (“Meth Panel”)
 - E. Provisions for Domestic Legal and Institutional Frameworks
- VI. Current Obstacles to, and Impacts of, Forestry Activities under the CDM
 - A. Political and Legal Obstacles
 - 1. The United States’ Refusal to Ratify the Kyoto Protocol
 - 2. The EU’s Refusal to Accept Forestry Activities under the CDM
 - 3. The CDM’s Limitation to Afforestation and Reforestation Activities
 - B. Technical Challenges

1. Additionality
2. Domestic Definitions of Forest
3. Defining Baseline and Monitoring Methodologies
4. Non-Permanence/Reversibility and Leakage

C. Environmental Impacts

1. Conversion of Forested Areas into Plantations, Grazing Land and Agricultural Land
2. Biodiversity
3. Natural Ecosystems

D. Socio-Economic Impacts

1. Capacity-building and the Transfer of Sound Technology
2. International Trade
3. Local Participation and Financial Return to Local Stakeholders
4. Domestic CDM Forestry Subsidies

VII. Overcoming the Obstacles to, and Adverse Impacts of, Forest and Forestry Project-Activities under the CDM for Upcoming Commitment Periods

- A. Overcoming Political Obstacles
- B. A Stronger Link Between the Climate Change Legal Regime and Other Major Multilateral Environmental Agreements
- C. Environmental and Socio-Economic Impact Analyses and Assessments
- D. Good Governance: Education, Training, Public Awareness, Land Tenure, Transparency and Domestic Accountability

VIII. Conclusion

I. Introduction

The positive role of forests in mitigating climate change, and unsustainable forestry practices and deforestation as major contributors to global warming, have been recognized widely since at least the late 1970s. In the Declaration of the World Climate Conference in 1979, it was highlighted that deforestation and changes in land use, such as agricultural and pastoral practices, are contributing to the increased amount of carbon dioxide (“CO₂”) in the atmosphere.¹ In 1989, the Noordwijk Declaration on Atmospheric Pollution and Climatic Change² stressed the importance of sustainable forestry, reforestation, afforestation, and conservation activities;³ and called for a global increase in net forest growth of 12,000,000 hectares per year in the beginning of the Twenty-First Century.⁴ Shortly after the first assessment report of the Intergovernmental Panel on Climate Change (“IPCC”), the Second World Climate Conference, held in Geneva from October 29th to November 7th, 1990, called upon national governments to take measures to increase “sinks” of greenhouse gases.⁵

A more comprehensive and legally binding scheme to curb the Earth’s increased temperature was put in place in 1992, with the adoption of the United Nations Framework Convention on Climate Change (“UNFCCC”). Forests and forestry activities are implicitly addressed by this important multilateral environmental agreement, but it was not until the 1997 Kyoto Protocol to the Framework Convention (Kyoto Protocol) that a more detailed and specific legal framework began to be shaped.

This Article focuses on the evolving debates concerning jointly implemented forest and forestry activities. The Kyoto Protocol effectively created the project-based flexibility mechanisms that would allow for joint implementation of policies and measures. Article 6 envisioned joint implementation (“JI”), between developed countries and economies in transition, and Article 12 envisioned the clean development mechanism (“CDM”), between developed and developing countries. More specifically, this Article focuses on forest and forestry activities under the CDM.

It is worth noting that this work was built from a more comprehensive Article that will be published by the Fordham International Law Journal. In this shorter manuscript we envisioned to summarize the current political, policy, legal and technical challenges inherent in forest and forestry activities under the CDM; provide an assessment of likely trends for upcoming commitment periods; and; finally, propose viable solutions for overcoming future obstacles that currently prevent further developments in this area of the CDM.

II. “Sinks,” “Reservoirs” and “Sources” of CO₂

The UNFCCC expressly recognizes the role and importance of “sinks” and “reservoirs” of greenhouse gases in mitigating global warming.⁶ According to the UNFCCC’s handbook, “[a] sink is a process, activity or mechanism that removes [greenhouse gases] from the atmosphere; a reservoir is part of the climate system that enables a [greenhouse gas] to be stored.”⁷ The characterization of forestry and forest activities as types of sinks and reservoirs of CO₂ was established by scientific studies⁸ that, in turn, inspired the climate change legal regime.⁹ Although the UNFCCC makes some general references to promoting the enhancement of forests, sinks, and reservoirs of greenhouse gases,¹⁰ the term “forestry” appears only once in the UNFCCC,¹¹ and no legal definition is provided.¹²

The relationship between forests and CO₂ in the atmosphere is characterized by forests' ability to absorb and store CO₂.¹³ Nonetheless, when disturbed, forests no longer play a role in mitigating global warming; rather, they become part of the problem because they turn into a considerable source of CO₂.¹⁴ According to the UNFCCC, a "source" is "any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere."¹⁵

III. Forests and Forestry Activities in the Climate Change Legal Regime

Forests and forestry experienced two distinct phases within the climate change legal regime. The first phase was characterized by the generic concepts of sink, reservoir, and source provided by the UNFCCC. The second phase is characterized by the more precise and specific notions of these terms provided by the Kyoto Protocol and subsequent Conferences and Meetings of the Parties.¹⁶

A. Forests and Forestry Activities under the UNFCCC

The UNFCCC's broad definitions for the terms sink,¹⁷ reservoir,¹⁸ and source¹⁹ subsumed the concepts of forest and forestry; and as a result, they supported forestry project activities during an experimental phase called Activities Implemented Jointly ("AIJ") Pilot Phase.²⁰

Legally, at least until the Kyoto Protocol, Article 4(1)(d) of the UNFCCC provided the formal connection between forests and forestry and sinks and reservoirs. This provision called on all Parties to promote the enhancement of sinks and reservoirs of greenhouse gases, including forests. Such broad definitions allowed for forests and forestry activities to be equated to sinks and reservoirs, or sources when disturbed.²¹

In practice, this is important because the broadness of the definitions in the period leading up to the Kyoto Protocol allowed for project-based activities beyond merely afforestation and reforestation (currently allowed)²² to include also conservation practices and sustainable forest management.²³

B. Forests and Forestry Activities under the Kyoto Protocol and Subsequent Sessions of the Conference and Meeting of the Parties

The Kyoto Protocol expressly embraced forest and forestry practices and narrowed the UNFCCC's broad definitions of sinks, reservoirs, and sources,²⁴. Thereafter, negotiators began shaping a more specific legal regime for addressing land use, land-use change and forestry ("LULUCF").²⁵

The initial legal framework dealing with LULUCF was launched by Articles 3(3) and 3(4) of the Kyoto Protocol, followed by Decision 9/CP.4. At first, the Parties opted for limiting LULUCF activities to afforestation, reforestation, and deforestation practices²⁶ while providing enough flexibility to allow for the inclusion of additional activities.²⁷

Afforestation and reforestation are both defined as the human-induced conversion of non-forested areas into forested land,²⁸ but they differ slightly: The definition of afforestation presupposes that the converted area has not been forested for at least fifty years,²⁹ while reforestation is limited to the conversion of non-forested areas that were not forested on December 31, 1989.³⁰

Amidst intense political debate over conflicting interests,³¹ the Parties agreed upon additional activities at the seventh session of the Conference of the Parties (“COP-7”) in Marrakesh.³² Revegetation, forest management, cropland management, and grazing land management were added as domestically conducted activities but excluded as jointly implemented activities.³³ Decision 16/CMP.1 provided each of those additional activities with a specific definition.³⁴

IV. The Two Different Approaches to Accounting for Forests and Forestry Activities

Along with domestic mitigation measures to comply with emissions reduction and limitation commitments, the Kyoto Protocol added flexibility mechanisms.³⁵ Annex I Parties had before them two possible mitigation approaches to meet their commitments: accounting for LULUCF activities domestically and/or through jointly implemented projects.

A. Accounting Domestically

According to domestically accountability rules for the first commitment period,³⁶ a selected domestic forestry activity can result in the augmentation or the diminution of an Annex I Party’s assigned amount,³⁷ depending upon whether the practice constitute a net sink or a net source of greenhouse gases, respectively.

“Credits” awarded for improvements using one or more of the above listed land use and forestry activities, increase a Party’s assigned amount.³⁸ On the other hand, whenever verifiable human-induced changes in land use and forestry result in a net emission of greenhouse gas, an Annex I Party’s assigned amount is decreased.³⁹

B. Accounting Under Project-Based Flexibility Mechanisms

Under the Kyoto Protocol, Annex I Parties can claim credits against their assigned amounts for project-based forestry activities implemented jointly with another Annex I Party (joint implementation, “JI”)⁴⁰ or with a non-Annex I Party (clean development mechanism, “CDM”).⁴¹ The origin of joint projects can be traced back to the text of the UNFCCC,⁴² which contemplates the possibility of Annex I Parties implementing policies and measures jointly.⁴³

The issue of allowing for flexibility mechanisms was highly contentious.⁴⁴ But an agreement was reached at COP-7, when the Parties expressly embraced project-based forestry activities⁴⁵ although limited to afforestation and reforestation,⁴⁶ excluded nuclear project-activities⁴⁷ and imposed the requirement that projects implemented jointly be supplemental to domestic mitigation actions.⁴⁸

V. Legal and Institutional Frameworks of the CDM Forestry Activities

This section examines the legal and institutional frameworks regarding forestry activities under the CDM; how they were influenced by different interests; their evolution over the time, and the experiences had during the AIJ Pilot Phase.

A. The Evolution of the Legal Framework

The legal framework for forest and forestry activities under the CDM is a product of a broader regulatory regime for joint implementation flexibility mechanisms, under which Articles 4(2)(a), 4(2)(b), 4(2)(d), and 3(3) of the UNFCCC are the main pillars⁴⁹ The first action in this regard was taken in 1995 at COP-1, when the parties agreed upon the AIJ Pilot Phase.⁵⁰

1. The Activities Implemented Jointly Pilot Phase (“AIJ”)

Decision 5/CP.1 of COP-1 in 1995 expressly recognized Article 4(2)(d)’s mandate imposing upon the Conference of the Parties the duty to regulate joint implementation of policies and measures aimed at curbing anthropogenic emission of greenhouse gases. Activities undertaken pursuant to the AIJ Pilot Phase did not provide credits against developed countries’ assigned amounts, which at that time had not yet been agreed upon. The AIJ Pilot Phase was experimental and voluntary in nature.

Moreover, the AIJ Pilot Phase embraced non-Annex I countries’ participation through the hosting of project-based activities. This experimental period also covered, at least generically, all relevant sources, sinks, and reservoirs of greenhouse gases. The AIJ Pilot Phase drew the technical expertise and built on the necessary knowledge, contributing to the Parties’ negotiation on the Kyoto flexibility mechanisms.⁵¹

This phase was also important in raising some of the challenges related to forest and forestry-project activities. Some of these challenges include, just to cite a few: “...(a) differences in the investment climate; (b) cultural differences; (c) insufficient infrastructure; (d) institutional capacity;...”⁵²

Furthermore, the AIJ Pilot Phase was crucial in that it called attention to the technical, scientific, and socio-economic challenges related to forest and forestry activities, which inevitably represented one of the most important factors in the development of a stronger and tighter regulatory regime.⁵³

2. The Controversy Whether Forests and Forestry Activities Were Meant to be Included in the CDM

The inclusion of sink projects in the CDM was a highly contentious issue. Countries opposing such inclusion⁵⁴ argued that: 1) Contrary to Article 6 of the Kyoto Protocol (JI), Article 12 (CDM) did not mention sink projects;⁵⁵ 2) Forests and forestry projects could not be accurately measured violating, therefore, Article 12(5)(b)’s requirement that certification under the CDM be precisely measured.⁵⁶

However, a closer analysis shows that the climate change regime did not provide for the exclusion of sink projects in the CDM.⁵⁷ First, the CDM originated in the UNFCCC’s joint implementation provisions, and under the AIJ Pilot Phase, Annex I and non-Annex I Parties utilized forest and forestry activities amply. Second, while it is true that Article 12 does not refer to sinks, it also does not identify any other specific type of project, such as renewable energy or energy efficiency.⁵⁸ At the most, this omission represents a mere inaccuracy in the Kyoto Protocol’s written language. Moreover, with respect to the above listed second argument, currently approved monitoring methodologies by the CDM’s Executive Board

demonstrate that forestry activities can be monitored and measured, albeit with more difficulty.

B. The Marrakech Accords

Progress made during the sixth session of the Conference of the Parties (“COP-6”) and COP-6 “bis” allowed for consensus at COP-7 in Marrakesh in 2001. The outcome of this meeting was called the “Marrakesh Accords.”⁵⁹ Forestry in the CDM was limited in the following ways: (1) only afforestation and reforestation activities⁶⁰; (2) total additions to a Party’s assigned amount were limited to one percent of base year emissions times five⁶¹; and (3) a regulatory regime for future commitment periods would be agreed upon during the negotiations over the second commitment period.⁶²

C. The Ninth and Tenth Sessions of the Conference of the Parties and First Session of the Meeting of the Parties

Negotiators succeed in approving more specific regulatory and institutional regimes at the ninth session of the Conference of the Parties (“COP-9”) in 2003.⁶³ Among the main accomplishments of Decision 19/CP.9 were: 1) it set up modalities and procedures for afforestation and reforestation activities under the CDM;⁶⁴ 2) it affirmed the principles of Decision 11/CP.7 of COP-7 on LULUCF;⁶⁵ and 3) it envisioned a more flexible regulatory regime for small-scale forestry projects in the CDM.⁶⁶

Eventually, at the tenth session of the Conference of the Parties (“COP-10”) in 2004, the Parties agreed upon Decision 14/CP.10, setting forth simplified modalities and procedures for small-scale afforestation and reforestation projects in the CDM, and completed the regulatory framework for the first commitment period⁶⁷, which, in turn, was fully adopted during the first session of the meeting of the parties.

D. The CDM Forestry Institutional Framework

The institutions dealing with forestry in the CDM are the product of a broader framework laid out in the UNFCCC and in the Kyoto Protocol.⁶⁸ The following two sections break down the CDM’s institutional framework with respect to forestry.

1. The Conference of the Parties and Meeting of the Parties

With primary decision-making power, the Conference of the Parties is the highest body in the institutional hierarchy and the organ from which the regulatory scheme emerges.⁶⁹ Therefore, the decisions on forestry in the CDM⁷⁰ derive their legal force from the powers conferred to the Conference of the Parties by the UNFCCC. The Kyoto Protocol set forth the CDM’s specific institutional framework⁷¹ and granted the Conference of the Parties the function of serving as the Meeting of the Parties to the Kyoto Protocol.⁷²

2. The Subsidiary Body for Scientific and Technological Advice (“SBSTA”)

The SBSTA is the advisory body that links available scientific information to the climate change regime's decision-making process.⁷³ It was created under the UNFCCC and assigned the task of providing scientific and technological advice to the Conference of the Parties and the Meeting of the Parties.⁷⁴ The SBSTA takes into account the work of other international institutions, such as the IPCC; provides guidance on scientific, technical, and technological matters; and recommends decisions to the Conference of the Parties and the Meeting of the Parties.⁷⁵

3. The CDM Executive Board

The CDM Executive Board is featured in Article 12(4) of the Kyoto Protocol. It was promulgated to oversee CDM activities.⁷⁶ Through Decision 17/CP.7, the Conference of the Parties expanded the Executive Board's supervisory role by granting it decision-making power over the approval of designated operational entities ("DOEs");⁷⁷ the final work on new methodologies;⁷⁸ baseline and monitoring methodologies;⁷⁹ and issuance of certified emission reductions ("CERs").⁸⁰ In sum, the Executive Board is the administrative body in charge of handling projects undertaken pursuant to the CDM and all related matters.⁸¹

4. Designated Operational Entities ("DOEs")

The DOEs are accredited third parties in charge of the validation and monitoring activities pursuant to the procedure for issuance of CERs.⁸² The rationale behind DOEs is to preserve the Executive Board's oversight and decision-making role over proposed new methodologies while delegating validation, verification, and certification procedures to a specialized outside corporation.⁸³ The downside of a third party auditing process is that such a comprehensive procedure adds bureaucracy and complexity, requiring a high level of multidisciplinary expertise.

5. The Afforestation and Reforestation Working Group ("A&R WG") and the Methodologies Panel ("Meth Panel")

In light of the need for a wide range of scientific, technical, and technological expertise for different projects under the CDM, the Conference of the Parties conferred upon the Executive Board the authority to "establish committees, panels or working groups to assist it in the performance of its functions."⁸⁴ At its fourteenth meeting, the Executive Board agreed to establish the A&R WG for forestry-related projects.⁸⁵ The A&R WG is responsible for commenting on proposed baseline and monitoring methodologies for forestry projects, preparing draft reformatted versions of those approved by the Executive Board, and recommending available options for expanding the applicability of approved afforestation and reforestation methodologies.⁸⁶ The A&G WG works closely and in consonance with the Meth Panel⁸⁷, which, in turn, is designed to provide the Executive Board with recommendations on proposed new methodologies and baseline and monitoring plans, including those designed for afforestation and reforestation projects.⁸⁸

E. Provisions for Domestic Legal and Institutional Frameworks

Participation in the CDM is voluntary and dependent upon prior domestic approval.⁸⁹ The Conference of the Parties requires project developers to obtain confirmation from the host country that a proposed project activity meets its sustainability development standards.⁹⁰ The procedural participation requirement imposed upon non-Annex I Parties is the establishment of a designated national authority (“DNA”).⁹¹ This provision allows for the development of national legal and institutional frameworks by non-Annex I countries desiring to participate in the CDM.

VI. Current Obstacles to, and Impacts of, Forestry Activities under the CDM

In light of its controversial nature, forestry activities have been conducive to many assessments (both positive and negative) regarding the impacts resulting from their implementation. Moreover, the expansion of permitted forestry activities beyond afforestation and reforestation activities is facing political, legal, and technical obstacles.

A. Political and Legal Obstacles

The United States’ refusal to ratify the Kyoto Protocol, the EU’s decision to reject CDM forestry projects, and the limitation of forestry to afforestation and reforestation activities, form the core obstacles examined in this section.

1. The United States’ Refusal to Ratify the Kyoto Protocol

G.J.H. van Hoof has pointed out that “[i]f delay in, or failure of ratification are the result of unwillingness on the part of the States concerned the problem, of course, is first of all of a political nature.”⁹² For what it represents economically and politically, the United States is a major player in any international negotiation. Therefore, U.S. resistance to accepting the Kyoto Protocol constitutes a significant political obstacle to the development of forestry activities within the climate change legal regime, because the country was among those pushing forward the inclusion of such activities in the CDM.⁹³ By ratifying the Kyoto Protocol, the United States could play a much greater role in pushing negotiations towards expanding eligible activities for future commitment periods and stimulating the market for forestry CERs.⁹⁴

2. The EU’s Refusal to Accept Forestry Activities under the CDM

On January 1, 2005, the EU’s Emissions Trading Scheme (“ETS”) became the world’s largest domestic greenhouse gas emissions trading scheme.⁹⁵ However, while it allowed for the use of CERs issued pursuant to the Kyoto Protocol, the EU ETS enjoined countries from using credits from afforestation and reforestation project-activities.⁹⁶ Since most of the countries with established commitments under the Kyoto Protocol are members of the EU,⁹⁷ the policy of excluding CERs from forestry project activities is a major obstacle for the enhancement of a stronger market in this area.⁹⁸

3. The CDM’s Limitation to Afforestation and Reforestation Activities

One of the major obstacles to the expansion of LULUCF projects in the CDM for the first commitment period is the limitation of activities to anthropogenic afforestation and reforestation practices. “The literature regarding forestry as a climate change mitigation strategy suggests that efforts to constrain project-based forestry interventions to reforestation and afforestation projects is technically inappropriate.”⁹⁹ A preoccupation with ensuring the effectiveness of such a limitation compelled climate change negotiators to include it in at least three different decisions prior to the first Meeting of the Parties.¹⁰⁰

B. Technical Challenges

According to the FAO, the forestry sector is “technically especially challenging in terms of CDM project formulation”¹⁰¹ In an attempt to minimize the complexity of the forestry procedures in the CDM, the Parties requested that the SBSTA develop definitions and modalities for including afforestation and reforestation while taking into account the issues of non-permanence, additionality, and leakage.¹⁰² These technical concerns stemmed from problems the IPCC reported in its 2000 special report on LULUCF.¹⁰³ Furthermore, Decision 19/CP.9’s requirement that non-Annex I countries opt for a definition of forest based on pre-established parameters¹⁰⁴ represented an additional technical challenge.¹⁰⁵

1. Additionality

Article 12 of the Kyoto Protocol establishes that emissions reductions from CDM projects must be “additional to any that would occur in the absence of the certified project activity.”¹⁰⁶ Aiming to assist forestry project developers, the A&R WG revised a tool for demonstration and assessment of additionality.¹⁰⁷ Its most recent version was adopted at the EB’s thirty-fifth meeting.¹⁰⁸

The additionality requirement is crucial in a baseline-scenario scheme. It is often a technically challenging, especially in the forestry field,¹⁰⁹ because of the strict criteria applicable in identifying whether a projected scenario would occur in the absence of a CDM project-activity.¹¹⁰ Therefore, additionality is a necessary technical burden that needs to be properly addressed on a project-by-project basis.¹¹¹

2. Domestic Definitions of Forest

Traditionally, countries have defined the term forest in varying ways using different criteria, such as legal, administrative, or cultural considerations.¹¹² Nonetheless, for the successful implementation of LULUCF activities it is crucial to harmonize those domestic definitions.¹¹³ In an attempt to accomplish such harmonization, the annex to Decision 19/CP.9 imposed the requirement that countries define forests prior to participating in the CDM. The Parties could opt for minimum tree crown cover, land area, and tree height in values varying from 10% to 30%, 0.05 to 1 hectare, and 2 to 5 meters, respectively.¹¹⁴ The idea behind this was to provide the Parties with the ability to adjust their domestic definition according to their individual natural and geographic realities, and economic interests.¹¹⁵ The proper selection of parameters also directly affects the question of which areas will be eligible for afforestation and reforestation projects, and although it presents another technical challenge to participants and developers, it reflects the evolution of the topic.¹¹⁶

3. Defining Baseline and Monitoring Methodologies

Baseline scenarios and monitoring methodologies are complex by nature,¹¹⁷ but they are more difficult in the ambit of reforestation and afforestation activities¹¹⁸ than they are in the ambit of renewable energy and energy efficiency projects.¹¹⁹ The credibility of the CERs from afforestation and reforestation projects is constantly threatened due to anthropogenic and naturally-occurring phenomena that can disturb the project.¹²⁰ As a result, as of the writing of this Article, there are ten approved baseline and monitoring methodologies for afforestation and reforestation projects,¹²¹ whereas there are more than sixty for energy efficiency and renewable energy activities.¹²²

4. Non-Permanence/Reversibility and Leakage

Two additional technical challenges typical to forestry activities are permanence and leakage.¹²³ The term permanence refers to the ability of a forestry project to undergo undisturbed.¹²⁴ Because forests are constantly subject to naturally occurring phenomena, such as fire for instance, and human disturbance, dealing with issues of non-permanence becomes a technical challenge. Leakage, on the other hand, is when a forestry activity leads to deforestation outside the project's boundary. The climate change regime created mechanisms to deal with both non-permanence and leakage issues.¹²⁵

C. Environmental Impacts

According to the IPCC's 2000 special report on LULUCF, forestry projects in the CDM "aiming to mitigate climate change may provide socio-economic and environmental benefits primarily within project boundaries, although they may also pose risks of negative impacts."¹²⁶ These impacts can be environmental, socio-economic, and cultural in nature.

1. Conversion of Forested Areas into Plantations, Grazing land and Agricultural Land

The expansion of allowable forestry activities could encourage the replacement of mature forests by fast-growing tree plantations, which have higher rates of carbon sequestration.¹²⁷ Although limited to afforestation and reforestation projects, the risks are diminished because of the definitions these activities are given by the climate change regime.¹²⁸ The rationale for establishing a historical baseline is to avoid deforestation of mature forests for subsequent re-growth for CDM carbon credit purposes.¹²⁹

On the other hand, if the CDM legal framework is properly used (which appears to be the case),¹³⁰ it can provide the means for avoiding harmful conversions. One possibility for subsequent commitment periods would be the inclusion of accountability for the carbon emissions associated with deforestation practices before any forested land is replaced with, and/or converted into, fast-growing tree plantations.¹³¹ Another possibility is allowing for forest preservation and conservation projects under the CDM.¹³²

2. Biodiversity

The impacts on biodiversity have the potential to be catastrophic. However, if the climate change regime allows for forest conservation projects, biodiversity stands to benefit considerably.¹³³ Therefore, rather than representing an obstacle that needs overcoming, the climate change legal regime can be seen as an important tool that is available to different stakeholders involved in biodiversity conservation.

3. Natural Ecosystems

CDM forestry project activities also have the potential to impact natural ecosystems, both positively and negatively. The introduction of alien species,¹³⁴ increases in erosion processes,¹³⁵ and adverse impacts on water supplies are among the potential threats posed by forestry projects to natural ecosystems.¹³⁶ An SBSTA synthesis report on projects undertaken in the AIJ Pilot Phase identified positive impacts on natural ecosystems, such as improvements in water quality and reductions in the erosion of hydrological resources.¹³⁷ It is worth noting that the same provisions in the climate change legal regime designed to protect biodiversity are extended to the protection of natural ecosystems.¹³⁸

D. Socio-Economic Impacts

An analysis of the socio-economic impacts is required whenever the host country or the project participants deem them relevant.¹³⁹ For the purposes of this section, socio-economic impacts of forestry projects are examined in light of capacity-building related to employment opportunities and/or job losses, international trade, financial return to local entities, and public and private forestry subsidies.

1. Capacity-building and the Transfer of Sound Technology

Due to the complexities of the CDM with respect to forestry,¹⁴⁰ the consequent demand for highly qualified technical personnel, and the implementation of new technologies, forestry projects in developing countries could lead to job losses or increased employment opportunities for personnel from developed countries.¹⁴¹ However, the involvement of local communities is essentially a requirement for the achievement of the desired positive effects in these types of project activities.¹⁴² Consequently, based on information from the AIJ Pilot Phase, forestry activities have the potential to significantly increase capacity-building and employment opportunities in developing countries, as well as benefit local communities through the transfer of new sound technologies.¹⁴³

2. International Trade

Presumably, only “[p]rojects affecting the supply of timber products or consumption of energy services, for example, can affect price signals for the rest of the market, potentially counteracting a portion of the calculated benefits of the original project.”¹⁴⁴ Although non-permanence may be an issue,¹⁴⁵ forestry projects generate timber products that did not exist in the first place. This means that currently allowed afforestation and reforestation activities will have little or no effect on international trade—including the existing timber market.¹⁴⁶

3. Local Participation and Financial Return to Local Stakeholders

Even before tighter regulations on modalities and procedures for forestry projects in the CDM were promulgated at COP-9 in 2004,¹⁴⁷ the IPCC had indicated that enabling local stakeholders to share the financial benefits of CDM forestry activities was a necessary social condition.¹⁴⁸ Although the international legal framework is already in place, the practice is still incipient.¹⁴⁹ The challenges for upcoming commitment periods include: considerations of profit sharing in forest management and conservation projects; local participation in the decision-making process at all levels (from project conception to project implementation and management)¹⁵⁰; and the harmonization of domestic policies and measures with the international legal framework so as to allow local communities to benefit from forestry activities.¹⁵¹

4. Domestic CDM Forestry Subsidies

A domestic CDM forestry subsidy scheme that is harmonized with the climate change legal framework is a powerful incentive for current afforestation and reforestation projects and other LULUCF activities that might eventually be added for upcoming commitment periods. This harmonization should start with the elimination of conflicting domestic subsidies, as the Parties directed at COP/MOP-1.¹⁵² An example is domestic legislation penalizing forest conservation and promoting land clearance (deforestation) for agricultural purposes and urban sprawl.¹⁵³

VII. Overcoming the Obstacles to, and Adverse Impacts of, Forest and Forestry Project-Activities under the CDM for Upcoming Commitment Periods

The positive aspects of forestry activities can overcome challenges and obstacles. This section is dedicated to examining trends and proposing actions for future commitment periods.

A. Overcoming Political and Legal Obstacles

U.S. resistance to the Kyoto Protocol may be overcome once a new administration comes to power. The 2006 elections in the United States saw the Democrats take the majority from the Republicans, which might indicate a Democratic victory in the 2008 presidential election. In view of Democratic sensibilities with respect to climate change, and the fact that the Clinton Administration signed the Kyoto Protocol but faced a Republican Congress, one could see how the United States is much more likely to ratify the Protocol.¹⁵⁴

On the other hand, two factors indicate that the EU will not easily accept forestry activities in the CDM in future commitment periods. The EU's refusal to accept credits from forestry activities in the ETS is the first clear indication.¹⁵⁵ In addition, should the afforestation and reforestation limitation be overcome in the CDM for future commitment periods, the language used in the ETS suggests that it is not likely that the EU will accept the expansion of allowable activities.¹⁵⁶ Instead of using just the terms afforestation and reforestation in the ETS, legislators used the abbreviated format "LULUCF",¹⁵⁷ which indicates that the EU anticipated future attempts to broaden the scope of forestry projects in the CDM and opted to exclude all forestry projects in advance.

Prospects are better for the CDM's current limitation on forestry activities to afforestation and reforestation projects. Decision 11/CP.7 provides that the limitation is valid for only the first commitment period and that the Parties should decide upon new LULUCF activities for upcoming commitment periods.¹⁵⁸

B. A Stronger Link Between the Climate Change Legal Regime and Other Major Multilateral Environmental Agreements

As far as CDM forestry activities are concerned, in light of environmental, social, and political implications arising internationally from the climate change debate, it is crucial that the legal regime create links beyond those envisioned between the Liaison Group and the Rio Conventions.¹⁵⁹ Following the example set by the FAO,¹⁶⁰ stronger communications channels ought to be opened with the World Bank and the International Labor Organization on the potential implications and benefits of forestry activities on employment conditions and opportunities.¹⁶¹ The Secretariat of the Convention on Biological Diversity has also provided a paradigm to be followed in the socio-economic area by developing a specific study on the relationship between biological diversity and climate change.¹⁶²

C. Environmental and Socio-Economic Impact Analyses and Assessments

The importance of environmental and socio-economic impact assessments is doubtless. Nonetheless, two major factors appear to limit the power of climate change negotiators to go beyond merely requiring preliminary analyses instead of an impact assessment. The first one is a legal limitation. Article 21 of the 1972 Declaration of the United Nations Conference on the Human Environment clearly states that countries have the sovereign right to exploit their own natural resources pursuant to their own environmental policies.¹⁶³ In addition, Principle 17 of the Rio Declaration on Environment and Development, while embracing environmental impact assessments, establishes that they shall be conducted only when the proposed activity is likely to adversely impact the environment.¹⁶⁴

The second factor seems to be of a policy nature. That is, the whole validation, verification, and certification process for afforestation and reforestation projects is already overly burdensome, bureaucratic, time consuming, and replete with high procedural costs. Adding an environmental and social-economic impact assessment for those projects that, at first, do not present the risk for any adverse impacts would make CDM forestry activities practically unfeasible in light of the aforementioned legal, political, and technical obstacles already apparent.¹⁶⁵

D. Good Governance: Education, Training, Public Awareness, Land Tenure, Transparency and Domestic Accountability

Good governance in CDM forestry can be achieved by supporting domestic legislation that enhances the role of sinks in the climate change legal regime.¹⁶⁶ Legislation could be aimed at, *inter alia*, combating corruption, regulating ownership and management of public forested areas, reconciling the interests of private owners (land tenure), promoting education, providing training and public awareness, and ensuring transparency.¹⁶⁷

The positive interaction of the aforementioned socio-economic elements with forestry practices is crucial for overcoming the obstacles and challenges CDM forestry activities will face in future commitment periods.¹⁶⁸

Conclusion

Forest and forestry projects in the CDM were extremely controversial during the climate change negotiations, and as a result, they were limited to afforestation and reforestation practices. The main concerns included the difficulty of monitoring forest and forestry activities; the hampering of stronger domestic mitigation action because they provided cheap carbon credits; and the fear that they would lead to deforestation.

However, CDM forest and forestry projects can provide benefits that trump their adverse effects. If there is flexibility on a human-induced requirement for future commitment periods, forest conservation projects can help foster biodiversity and, if sustainable, provide positive revenue alternatives for local communities.

In order for that to occur, though, current obstacles, such as the United States' refusal to ratify the Kyoto Protocol, the EU's refusal to accept CDM LULUCF credits, and the legal limitation on allowable practices, must be overcome. At the same time, technical challenges, including additionality, defining baseline and monitoring methodologies, choosing a domestic definition for forests, and overseeing issues of non-permanence and leakage, are necessary for ensuring the positive outcomes of forestry projects and softening resistance for upcoming commitment periods.

¹ See World Climate Conference, Geneva, Switz., Feb. 12-23, 1979, *Declaration of the World Climate Conference*, at 2, U.N. Doc IOC/SAB-IV/INF.3 (“[W]e can say with some confidence that the burning of fossil fuels, deforestation, and changes of land use have increased the amount of carbon dioxide in the atmosphere by about 15 percent during the last century and it is at present increasing by about 0.4 percent per year.”).

² See The Ministerial Conference on Atmospheric Pollution and Climatic Change, Noordwijk, Neth., Nov. 7, 1989, *The Noordwijk Declaration on Atmospheric Pollution and Climatic Change*, ¶¶ 1-3, reprinted in *Selected International Legal Materials on Global Warming and Climate Change*, 5 AM. U. J. INT’L L. & POL’Y 513, 592-601 (1990).

³ See *id.* ¶ 9.

⁴ See *id.* ¶ 21.

⁵ See Climate Change Fact Sheet 221, <http://unfccc.int/resource/ccsites/senegal/fact/fs221.htm> (last visited Oct. 14, 2007).

⁶ See United Nations Framework Convention on Climate Change, pmbl., May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

⁷ See CLIMATE CHANGE SECRETARIAT, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE (“UNFCCC”), UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE HANDBOOK 24 (2006), available at <http://unfccc.int/resource/docs/publications/handbook.pdf> [hereinafter UNFCCC HANDBOOK].

⁸ See SEBASTIAN OBERTHÜR & HERMANN E. OTT, *THE KYOTO PROTOCOL: INTERNATIONAL CLIMATE POLICY FOR THE 21ST CENTURY* 9, 131-32 (1999) (describing the science underpinning the relationship between forests and CO₂ in the atmosphere).

⁹ See UNFCCC, *supra* note 6, art. 4(1)(d) (setting forth biomass, forests, oceans, and other terrestrial, coastal, and marine ecosystems as examples of sinks and reservoirs of greenhouse gases).

¹⁰ See, e.g., *id.* art. 4(1)(d).

¹¹ See *id.* art. 4(1)(c).

¹² See Imke Sagemüller, *Forest Sinks Under the United Nations Framework Convention*

on *Climate Change and the Kyoto Protocol: Opportunity or Risk for Biodiversity?*, 31 COLUM. J. ENVTL. L. 189, 201 (2006) (explaining that “[a]s a framework convention, the UNFCCC includes only few broad references to the removal of [greenhouse gases] by sinks.”).

¹³ See Pedro Moura Costa & Charlie Wilson, *An Equivalence Factor Between CO₂ Avoided Emissions and Sequestration—Description and Applications in Forestry*, 5 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 51, 51 (2000).

¹⁴ See KENNETH L. ROSENBAUM ET AL., FOOD & AGRICULTURE ORGANIZATION OF THE U.N., CLIMATE CHANGE AND THE FOREST FACTORS: POSSIBLE NATIONAL AND SUBNATIONAL LEGISLATION 2 (2004), available at [ftp://ftp.fao.org/docrep/fao/007/y5647e/y5647e00.pdf](http://ftp.fao.org/docrep/fao/007/y5647e/y5647e00.pdf) (“Actively growing trees and other plants capture CO₂ from the atmosphere, combine it with water through photosynthesis and create sugars and more stable carbohydrates. They may store a significant part of the carbon absorbed for appreciable lengths of time, from years to millennia . . . Eventually, when plants and animals die, CO₂ returns to the atmosphere. When wood products and other organic materials burn or decompose, they also release CO₂.”).

¹⁵ UNFCCC, *supra* note 6, art. 1(9).

¹⁶ For a discussion of the importance of developing clear definitions for terms such as “forests,” “afforestation,” “reforestation,” and “deforestation,” see Robert T. Watson & David J. Verardo, *Preface to INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (“IPCC”), IPCC SPECIAL REPORT: LAND USE, LAND-USE CHANGE, AND FORESTRY (“LULUCF”) – SUMMARY FOR POLICYMAKERS* (2000).

¹⁷ See UNFCCC, *supra* note 6, art. 1(8) (“‘Sink’ means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.”).

¹⁸ See *id.* art. 1(7) (“‘Reservoir’ means a component or components of the climate system where a greenhouse gas or a precursor of greenhouse gas is stored.”).

¹⁹ See *id.* art. 1(9) (“‘Source’ means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.”).

²⁰ See Conference of the Parties to the Kyoto Protocol, Berlin, F.R.G., Mar. 28 - Apr. 7, 1995, *Report of the Conference of the Parties on its First Session—Part Two: Action Taken by the Conference of the Parties at its First Session*, Decision 5/CP.1, ¶ 1(b), U.N. Doc FCCC/CP/1995/7/Add.1 (June 6, 1995) [hereinafter *COP-1 Report—Part Two*] (“[A]ctivities implemented jointly should be compatible with and supportive of national environment and development priorities and strategies, contribute to cost-effectiveness in achieving global benefits and could be conducted in a comprehensive manner covering all relevant sources, sinks and reservoirs of greenhouse gases . . .”).

²¹ See UNFCCC, *supra* note 6, art. 1(9) (“‘Source’ means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.”); Lavanya Rajamani, *Re-Negotiating Kyoto: A Review of the Sixth Conference of the Parties to the Framework Convention on Climate Change*, COLO. J. INT’L ENVTL. L. & POL’Y, 2000 Yearbook, at 201, 207 (“Forests can be sources, sinks, or reservoirs of [greenhouse gases].”).

²² See *COP-1 Report—Part Two*, *supra* note 20, Decision 5/CP.1, ¶ 1(b) (deciding that activities implemented jointly “could be conducted in a comprehensive manner covering all relevant sources, sinks and reservoirs of greenhouse gases.”).

²³ See Conference of the Parties to the Kyoto Protocol, Geneva, Switz., Jul. 8-19, 1996, *Review of the Implementation of the Convention and of Decisions of the First Session of the Conference of the Parties—Activities Implemented Jointly: Annual Review of Progress Under the Pilot Phase*, ¶ 13, U.N. Doc FCCC/CP/1996/14 (June 4, 1996) (reporting that there are five ongoing projects in forest preservation, restoration, or reforestation and four in afforestation).

²⁴ See Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3(3)-(4), Dec. 10, 1997, 37 I.L.M. 22 [hereinafter *Kyoto Protocol*].

²⁵ See OBERTHÜR & OTT, *supra* note 8, at 132 (suggesting that the issue of sinks was problematic in that there was little information available for the purposes of making a decision).

²⁶ See *Kyoto Protocol*, *supra* note 24, art. 3(3) (“The net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation . . .”). Deforestation, when characterized as a LULUCF activity, refers to the practice of preventing or reducing deforestation. See Pedro Moura-Costa & Marc D. Stuart, *Forestry-Based Greenhouse Gas Mitigation: A Short Story of Market Evolution*, 77 COMMONWEALTH FORESTRY REV. 191, 192 (1998).

²⁷ See Kyoto Protocol, *supra* note 24, art. 3(4) (“The Conference of the Parties serving as the Meeting of the Parties to this Protocol shall, at its first session or as soon as practicable thereafter, decide upon modalities, rules and guidelines as to how, and which, additional human-induced activities related to changes in greenhouse gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I . . .”).

²⁸ See Conference of the Parties to the Kyoto Protocol, Marrakesh, Morocco, Oct. 29-Nov. 10, 2001, *Report of the Conference of the Parties on its Seventh Session—Part Two: Action Taken by the Conference of the Parties (Volume I)*, Decision 11/CP.7 Annex, ¶ 1(b)-(c), U.N. Doc FCCC/CP/2001/13/Add.1 (Jan. 21, 2002) [hereinafter *COP-7 Report—Part Two (Volume I)*].

²⁹ See *id.* ¶ 1(b).

³⁰ See *id.* ¶ 1(c).

³¹ See Rajamani, *supra* note 21, at 223 (“At COP-6, the Umbrella Group argued in favor of including additional activities in the first commitment period. However, the AOSIS and the EU opposed it.”).

³² See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7.

³³ See Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol, Montreal, Can., Nov. 28-Dec. 10, 2005, *Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on its First Session—Part Two: Action Taken by the Conference of the Parties Serving as the Meeting of the Parties at its First Session*, Decision 16/CMP.1 Annex, ¶ 6, U.N. Doc FCCC/KP/CMP/2005/8/Add.3 (Mar. 30, 2006) [hereinafter *COP/MOP-1 Report—Part Two*].

³⁴ See *COP/MOP-1 Report—Part Two*, *supra* note 33, Decision 16/CMP.1 Annex, ¶ 1.

³⁵ See generally Tim Jackson et al., *The Language of Flexibility: Operational forms of Joint Implementation*, in FLEXIBILITY IN CLIMATE POLICY: MAKING THE KYOTO MECHANISMS WORK 16, 22-26 (Tim Jackson et al. eds., 2001) (discussing the flexibility mechanisms of the Kyoto Protocol).

³⁶ See Kyoto Protocol, *supra* note 24, art. 3(7) (establishing the first commitment period from 2008-2012, within which Annex I Parties will have to meet their quantified limitation and reduction objectives set forth in Annex B to the Kyoto Protocol).

³⁷ See *COP/MOP-1 Report—Part Two*, *supra* note 33, Decision 16/CMP.1 Annex, ¶ 17.

³⁸ See *id.* ¶ 17 (This is only true, though, if the party makes a timely formal identification of the activities in its annual report and the party demonstrates that the chosen activities have occurred since 1990 and are human-induced). See *id.* ¶¶ 7, 8;

³⁹ See *id.* ¶ 17; see also G. CORNELIS VAN KOOTEN, CLIMATE CHANGE ECONOMICS: WHY INTERNATIONAL ACCORDS FAIL 74 (2004) (“Afforestation and reforestation result in a credit, while deforestation (human-induced conversion of forestland to non-forest use) results in a debit. Since most countries have not embarked on large-scale afforestation and/or reforestation projects in the past decade, harvesting trees during the five-year commitment period (2008-12) will cause them to have a debit on the ARD account (. . .) If there is no ARD debit, then a country cannot claim the credit.”).

⁴⁰ See Kyoto Protocol, *supra* note 24, art. 6.

⁴¹ See *id.* art. 12.

⁴² See Mark C. Trexler & Laura H. Kosloff, *The 1997 Kyoto Protocol: What Does it Mean For Project-Based Climate Change Mitigation?*, 3 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 1, 2-3 (1998).

⁴³ See UNFCCC, *supra* note 6, art. 4(2)(a) (“These [Annex I Parties] may implement such policies and measures [limiting anthropogenic greenhouse gas emissions] jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention and, in particular, that of this subparagraph.”).

⁴⁴ On the road to Kyoto, and during the negotiations of the Kyoto Protocol at COP-3, flexibility was a highly contentious issue among the Parties. The JUSSCANNZ countries ((Japan, United States, Switzerland, Canada, Australia, Norway and New Zealand) envisioned the opportunity to invest in projects abroad as a cheap way to mitigate their commitments (especially those related to forest and forestry activities) and as the only feasible way to achieve them without hurting their economies. The G-77 (plus China) and the European Union (“EU”) saw it as a loophole. Developing countries referred to joint implementation as “eco-colonialism.” Opponents saw forest and forestry projects abroad as allowing Annex I countries to invest in developing countries without having to take stronger domestic mitigation measures. See MICHAEL GRUBB ET AL., THE KYOTO PROTOCOL: A GUIDE AND ASSESSMENT 87 (1999) (describing some Annex I countries’ desire to obtain international flexibility and thus lessen domestic pressures against emissions reductions).

⁴⁵ See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, ¶ 13 (“The eligibility of land use, land-use change and forestry project activities under Article 12 is limited to afforestation and reforestation.”).

⁴⁶ See Conference of the Parties to the Kyoto Protocol, Milan, Italy, Dec. 1-12, 2003, *Report of the Conference of the Parties on its Ninth Session—Part Two: Action Taken by the Conference of the Parties at its Ninth Session*, Decision 19/CP.9, U.N. Doc FCCC/CP/2003/6/Add.2 (Mar. 30, 2004) [hereinafter *COP-9 Report—Part Two*].

⁴⁷ See Jason Schwartz, Note, “*Whose Woods These Are I Think I Know*”: *How Kyoto May Change Who Controls Biodiversity*, 14 N.Y.U. ENVTL. L. J. 421, 457 (2006) (suggesting that the EU accepted the inclusion of forestry in the CDM as a tradeoff for the exclusion of nuclear power projects).

⁴⁸ See *COP-9 Report—Part Two*, *supra* note 46, Decision 19/CP.9.

⁴⁹ See Naoki Matsuo, *CDM in the Kyoto Negotiations: How CDM has Worked as a Bridge Between Developed and Developing Worlds?*, 8 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 191, 192 (2003).

⁵⁰ See *COP-1 Report—Part Two*, *supra* note 20, ¶ 1(a).

⁵¹ See Eleventh Session of the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation, Bonn, F.R.G., Oct. 25-Nov. 5, 1999, *Activities Implemented Jointly Under the Pilot Phase: Issues to be Addressed in the Review of the Pilot Phase, Including the Third Synthesis Report on Activities Implemented Jointly—Note by the Secretariat*, ¶¶ 6-21, U.N. Doc FCCC/SB/1999/5 (Sept. 15, 1999) [hereinafter *1999 SBSTA & SBI Report*] (presenting data on geographical distribution of projects, environmental, and socio-economic impacts).

⁵² See 1999 SBSTA & SBI Report, *supra* note 51, ¶ 8.

⁵³ See generally Moura-Costa & Stuart, *supra* note 26, at 5-7 (following the development of AIJ programs through the difficult early phases to the eventual creation of the CDM).

⁵⁴ The EU was the main opponent of the inclusion of forestry in the CDM, while the Umbrella Group (United States, Japan, Canada, Australia, New Zealand, and Iceland) was the main proponent. See Pedro Moura-Costa, *Carbon Trading and Investment in Clean Energy Products 4* (2001) (unpublished manuscript, available at http://www.ecosecurities.com/Assets/3157/Pubs_Carbon%20trading%20and%20investment%20in%20clean%20energy%20projects.pdf).

⁵⁵ Compare Kyoto Protocol, *supra* note 24, art. 6(1) (referring specifically to enhancement of removals by sinks of greenhouse gases), with Kyoto Protocol, *supra* note 24, art. 12(5) (referring to “emission reductions” generally).

⁵⁶ See GRUBB ET AL., *supra* note 44, at 241.

⁵⁷ See DAVID HUNTER ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 645 (2d ed. 2002) (“Both the Framework Convention and the Kyoto Protocol clearly contemplate that sinks such as forests would be within the ambit of the climate regime.”).

⁵⁸ See Kyoto Protocol, *supra* note 24, art. 12(5) (referring to “emission reductions” generally).

⁵⁹ See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7, ¶ 1.

⁶⁰ See *id.* ¶ 13(e).

⁶¹ See *id.* Decision 11/CP.7 Annex, ¶ 14.

⁶² See *id.* ¶ 15.

⁶³ See *COP-9 Report—Part Two*, *supra* note 46, Decision 19/CP.9.

⁶⁴ See *id.*

⁶⁵ See *id.* p.mbl.

⁶⁶ See *id.* ¶¶ 3-6.

⁶⁷ See Conference of the Parties to the Kyoto Protocol, Buenos Aires, Arg., Dec.6-18, 2004, *Report of the Conference of the Parties on its Tenth Session—Part Two: Action Taken by the Conference of the Parties at its Tenth Session*, Decision 14/CP.10, U.N. Doc FCCC/CP/2004/10/Add.2 (Apr. 19, 2005).

⁶⁸ See UNFCCC HANDBOOK, *supra* note 7, at 27-43.

⁶⁹ See HUNTER ET AL., *supra* note 6, at 233 (“Much like a corporate body of directors, the conferences of the parties (“CoPs”) are the primary policy-making organs of most global environmental treaty regimes. The CoPs usually occur once every one or two years and conduct the major business of monitoring, updating, revising, and enforcing the conventions.”).

⁷⁰ See UNFCCC, *supra* note 6, art. 7.

⁷¹ See Kyoto Protocol, *supra* note 24, art. 12.

⁷² See *id.* art. 13(1).

⁷³ See *COP-1 Report—Part Two*, *supra* note 20, Decision 6/CP.1 (characterizing the SBSTA as “the link between the scientific, technical and technological assessments and the information provided by competent international bodies, and the policy-oriented needs of the Conference of the Parties.”).

⁷⁴ See Kyoto Protocol, *supra* note 24, art. 15(1).

⁷⁵ See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7, ¶ 2. The SBSTA’s eighth session report is a good example of its work. In this report, the SBSTA offered an interpretation of Article 3.3 of the Kyoto Protocol; requested that the IPCC prepare a report regarding LULUCF; invited the Parties to submit data relating to the implementation of Article 3.3 of the Kyoto Protocol and modalities, rules, and guidelines regarding additional human-induced activities under Article 3.4 of the Kyoto Protocol; called for a workshop of experts; and requested that the secretariat liaise with the secretariat of the Convention on Biological Diversity, the secretariat of the Convention to Combat Desertification, the International Forum on Forests, the FAO, and any other international organizations that might have relevant information. See Eighth Session of the Subsidiary Body for Scientific and Technological Advice, Bonn, F.R.G., June 2–12, 1998, *Report of the Subsidiary Body for Scientific and Technological Advice on its Eighth Session*, ¶ 45, U.N. Doc FCCC/SBSTA/1998/6 (Aug. 12, 1998), available at <http://unfccc.int/resource/docs/1998/sbsta/06.pdf>.

⁷⁶ See Conference of the Parties to the Kyoto Protocol, Marrakesh, Morocco, Oct. 29 Nov. 10, 2001, *Report of the Conference of the Parties on its Seventh Session – Part Two: Action Taken by the Conference of the Parties (Volume II)*, Decision 17/CP.7 Annex ¶ 5, pmbl., U.N. Doc FCCC/CP/2001/13/Add.2 (Jan. 21, 2002) [hereinafter *COP-7 Report—Part Two (Volume II)*].

⁷⁷ See *id.* ¶ 5(f); Wolfram Kägi & Dieter Schöne, *Forestry Projects Under the CDM: Procedures, Experiences and Lessons Learned* 9 (U.N. Food and Agriculture Organization, Forests and Climate Change Working Paper No. 3, 2005) (“DOEs are accredited by the Executive Board and perform two functions: validating CDM projects, and verifying and certifying emissions reductions from projects. A designated operational entity shall not perform validation or verification and certification on the same CDM [afforestation/reforestation] project activity.”).

⁷⁸ See *COP-7 Report—Part Two (Volume II)*, *supra* note 76, Decision 17/CP.7 Annex, ¶ 5(d).

⁷⁹ See *id.*

⁸⁰ See *id.* ¶¶ 64-66.

⁸¹ See Alex Michaelowa, *CDM Host Country Institution Building*, 8 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CLIMATE CHANGE 203 (2003).

⁸² See *COP-7 Report—Part Two (Volume II)*, *supra* note 76, Decision 17/CP.7 Annex, ¶ 5(f).

⁸³ See CLIMATE CHANGE SECRETARIAT, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE: THE FIRST TEN YEARS 87 (2004), available at http://unfccc.int/resource/docs/publications/first_ten_years_en.pdf. See Moura-Costa & Stuart, *supra* note 26, at 199 (“It became obvious that third-party certification was instrumental in the validation and credibility of these new transactions.”).

⁸⁴ See *COP-7 Report—Part Two (Volume II)*, *supra* note 76, Decision 17/CP.7 Annex, ¶ 18.

⁸⁵ See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., June 12-14, 2004, *Executive Board of the Clean Development Mechanism Fourteenth Meeting Report*, ¶ 13, U.N. Doc CDM-EB-14 (June 14, 2004).

⁸⁶ See Kägi & Schöne, *supra* note 77, at 9-10.

⁸⁷ See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., Apr. 9-10, 2002, *Executive Board of the Clean Development Mechanism Third Meeting Report*, ¶ 48, U.N. Doc CDM-EB-03 (Apr. 17, 2002).

⁸⁸ See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., June 9-10, 2002, *Executive Board of the Clean Development Mechanism Fourth Meeting Report*, ¶ 11, U.N. Doc CDM-EB-04 (June 10, 2002).

⁸⁹ See Kyoto Protocol, *supra* note 24, art. 12(5)(a).

⁹⁰ See *COP-7 Report—Part Two (Volume II)*, *supra* note 76, Decision 17/CP.7 Annex, ¶ 40(a).

⁹¹ See *id.* ¶ 29.

⁹² See G.J.H. VAN HOOFF, *RETHINKING THE SOURCES OF INTERNATIONAL LAW* 122 (1983).

⁹³ In 1998, the U.S. Senate passed Senate Resolution 98, which “urged the President not to agree to a treaty that did not include binding commitments for developing countries, or that would cause harm to the U.S. economy.” In March of 2001, the Bush Administration announced the rejection of the Kyoto Protocol, shortly

after the United States experienced the tragedies of September 11, 2001. Although it is not clear whether the terrorist attacks influenced U.S. policies with regard to the climate change legal regime, some have suggested that the lack of stronger involvement in the Kyoto Protocol over the past years indicates that the tragedy may have shifted the United States' focus. See JOHN R. JUSTUS & SUSAN R. FLETCHER, CONGRESSIONAL RESEARCH SERVICE, CRS ISSUE BRIEF FOR CONGRESS: GLOBAL CLIMATE CHANGE 10 (2004); see *id.* at 11; See Todd M. Lopez, Note, *A Look at Climate Change and the Evolution of the Kyoto Protocol*, 43 NAT. RESOURCES J. 285, 306 (2003).

⁹⁴ See OBERTHÜR ET AL., *supra* note 8, at 132-33; Michaelowa, *supra* note 81, at 201 (“[G]iven the absence of the US and the weakening of industrialised country emission targets through higher allowances for sinks, the demand for emission reductions abroad will be much lower than originally anticipated.”).

⁹⁵ Marjan Peeters, *The Enforcement of Greenhouse Gas Emissions Trading in Europe—Reliability Ensured?* 3 (Oct. 16, 2006) (paper presented at the Fourth IUCN Colloquium on Environment Enforcement and Compliance, on file with the author).

⁹⁶ See Council Directive No. 2004/101/EC, art. 1, 2004 O.J. L 338, at 18, 21 (“All CERs and ERUs that are issued and may be used in accordance with the UNFCCC and the Kyoto Protocol and subsequent decisions adopted thereunder may be used in the Community scheme . . . except for CERs and EURs from land use, land use change and forestry activities.”).

⁹⁷ See UNFCCC, *supra* note 6, Annex I.

⁹⁸ See Moura-Costa & Stuart, *supra* note 26, at 197 (observing that uncertainty regarding the potential value of forestry projects greatly reduces the level of investment in these projects).

⁹⁹ See Trexler & Kosloff, *supra* note 42, at 29.

¹⁰⁰ See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7 Annex, ¶ 13; *COP-7 Report—Part Two (Volume II)*, *supra* note 76, Decision 17/CP.7, ¶ 7(a); *COP-9 Report—Part Two*, *supra* note 46, Decision 19/CP.9, pmbl.

¹⁰¹ Kägi & Schöne, *supra* note 77, at 1.

¹⁰² See *COP-7 Report—Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7, ¶ 2(e).

¹⁰³ See IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, at 5 (bringing technical challenges related to LULUCF to the attention of policymakers).

¹⁰⁴ See *COP-9 Report—Part Two*, *supra* note 46, Decision 19/CP.9 Annex, ¶¶ 7-9.

¹⁰⁵ See Till Neeff et al., *Choosing a Forest Definition for the Clean Development Mechanism* 1 (FAO, Forests and Climate Change, Working Paper No. 4, 2006), available at <http://www.fao.org/forestry/webview/media?mediaId=11280&langId=1> (suggesting that choosing a definition for forest can be a difficult process).

¹⁰⁶ See Kyoto Protocol, *supra* note 24, art. 12(5)(c).

¹⁰⁷ See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., Sept. 28-30, 2005, *Executive Board of the Clean Development Mechanism Twenty First Meeting Report Annex 16: Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities*, at 8, U.N. Doc CDM-EB-21 (Sept. 30, 2005).

¹⁰⁸ See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., Oct. 15-19, 2007, *Executive Board of the Clean Development Mechanism Thirty Fifth Meeting Report Annex 17: Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities (Version 02)*, U.N. Doc CDM-EB-35 (Oct. 19, 2007).

¹⁰⁹ See GRUBB ET AL., *supra* note 44, at 192 (“[T]he question of ‘additionality’ under the CDM—and possibly sinks—is so complex that it cannot be assumed that all emission reductions under these mechanisms will be real and additional.”).

¹¹⁰ See IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, at 16.

¹¹¹ See Kägi & Schöne, *supra* note 77, at 5.

¹¹² See IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, ¶ 16.

¹¹³ See Watson & Verardo, *Preface* to IPCC SPECIAL REPORT ON LULUCF, *supra* note 16.

¹¹⁴ See *COP-9 Report – Part Two*, *supra* note 46, Decision 19/CP.9 Annex, ¶ 8.

¹¹⁵ See Neeff et al., *supra* note 105, at 5-6 (discussing the array of definitions countries use for forests).

¹¹⁶ See *id.* 6-7.

¹¹⁷ See Joel N. Swisher, *Joint Implementation Under the U.N. Framework Convention on Climate Change: Technical and Institutional Challenges*, 2 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 72 (1997) (“Long-term monitoring of forestry and landuse projects can also be complex.”).

¹¹⁸ The complexity of defining a baseline-scenario is reflected by the comprehensive and technically challenge voluntary guideline provided by the CDM Executive Board at its thirty-fifth meeting entitled “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities (Version 01).” See Meeting of the Executive Board of the Clean Development Mechanism, Bonn, F.R.G., Oct. 15-19, 2007, *Executive Board of the Clean Development Mechanism Thirty Fifth Meeting Report Annex 19: Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities (Version 01)*, U.N. Doc CDM-EB-35 (Oct. 19, 2007).

¹¹⁹ See Swisher, *supra* note 117 at 63 (“In the case of power supply projects, the baseline can be relatively clearly determined from the carbon content of the fossil fuel replaced.”).

¹²⁰ See IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, at 10.

¹²¹ See CDM: Afforestation/Reforestation Methodologies, http://cdm.unfccc.int/methodologies/ARmethodologies/approved_ar.html (last visited Oct. 22, 2007).

¹²² See Methodologies for CDM Project Activities, <http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html> (last visited Oct. 22, 2007).

¹²³ The term leakage is defined as “the increase in greenhouse gas emissions by sources which occurs outside the boundary of an afforestation or reforestation project activity under the CDM which is measurable and attributable to the afforestation or reforestation project activity.” *COP-9 Report – Part Two*, *supra* note 46, Decision 19/CP.9 Annex, ¶ 1(e).

¹²⁴ The term permanence refers to “[t]he longevity of a carbon pool.” IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, at 21.

¹²⁵ See *COP-9 Report – Part Two*, *supra* note 46, Decision 19/CP.9 Annex, ¶ 1(e); *see id.* at 16.

¹²⁶ IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, at 15.

¹²⁷ See Janine Bloomfield & Holly L. Pearson, *Land use, Land-use Change, Forestry, and Agricultural Activities in the Clean Development Mechanism: Estimates of Greenhouse Gas Offset Potential*, 5 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CLIMATE CHANGE 9, 12 (2000).

¹²⁸ See *COP-7 Report – Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7 Annex, ¶ 1(b)-(c) (defining both afforestation and reforestation as the human-induced conversion of non-forested areas into forested areas, but presupposing that the converted land had not been forested for at least fifty years and presupposing that reforestation involves the conversion of those areas that were not forested on December 31, 1989).

¹²⁹ See Bloomfield & Pearson, *supra* note 127, at 12.

¹³⁰ See Kägi & Schöne, *supra* note 77, at 11-13 (outlining the demanding procedure for the approval of new methodologies under the CDM).

¹³¹ See Bloomfield & Pearson, *supra* note 127, at 12.

¹³² See Trexler & Kosloff, *supra* note 42, at 29 (arguing against limiting forestry projects to afforestation and reforestation activities).

¹³³ See Moura-Costa & Stuart, *supra* note 26, at 235 (arguing that if investment in forest management regimes continues, a huge infusion of new capital in the forestry sector will result, benefiting the conservation of biodiversity).

¹³⁴ See Schwartz, *supra* note 47, at 423 n.6 (noting the fierce debate over allowing invasive species (also known as alien, exotic, or non-indigenous species) to be used in CDM reforestation projects).

¹³⁵ See Robert J. Zomer et al., *Carbon, Land and Water: A Global Analysis of the Hydrologic Dimensions of Climate Change Mitigation through Afforestation/Reforestation 3* (International Water Management Institute, Research Report No. 101, 2006).

¹³⁶ See *id.* at 3-5.

¹³⁷ See Seventh Session of the Subsidiary Body for Scientific and Technological Advice, Bonn, F.R.G., October 20-29, 1997, *Activities Implemented Jointly Under the Pilot Phase: Synthesis Report on Activities Implemented Jointly – Note by the Secretariat*, ¶ 28, U.N. Doc FCCC/SBSTA/1997/12 (Oct. 7, 1997) [hereinafter *1997 SBSTA Report*].

¹³⁸ See COP/MOP-1 Report – Part Two, *supra* note 33, Decision 5/CMP.1 Annex, ¶ 12(c).

¹³⁹ See *id.* Decision 5/CMP.1 Annex, ¶ 12(c).

¹⁴⁰ See Bloomfield & Pearson, *supra* note 127, at 21 (“Land-use decisions are complex, however, and are based on many conflicting economic, social, political, and environmental factors in addition to the amount of carbon that could be credited for a particular project.”).

¹⁴¹ See Michaelowa, *supra* note 81, at 206 (“A possible barrier to CDM projects can be a requirement that projects shall not lead to job losses. Any modern technology will displace workers due to its more efficient

character. However, often more jobs are created through the development effects induced by the use of the new technology. Thus a rigid job loss criterion only looking at the project itself is likely to prevent most CDM projects.”).

¹⁴² See Janine Bloomfield et al., *supra* note 127 (“[F]or projects to be conceived of, designed, and successfully implemented, stakeholder support, both by project funders and by the host countries and local communities, is crucial.”).

¹⁴³ See 1997 SBSTA Report, *supra* note 137, at ¶ 28.

¹⁴⁴ See Trexler & Kosloff, *supra* note 42, at 39.

¹⁴⁵ See *COP-9 Report – Part Two*, *supra* note 46, Decision 19/CP.9, pmb. (recognizing the problem of non-permanence).

¹⁴⁶ See Karen Alvarenga & Amber Moreen, *Positive Incentives to Reduce Emissions from Deforestation*, EARTH NEGOTIATIONS BULL. ON THE SIDE, May 9, 2007, at 4 (2007), <http://www.iisd.ca/climate/sb26/enbots/pdf/enbots1221e.pdf> (reporting that Brazil had “accounted for the production of timber in a sustainable way to meet demand for such products.”).

¹⁴⁷ See *COP-9 Report – Part Two*, *supra* note 46, Decision 19/CP.9.

¹⁴⁸ See IPCC SPECIAL REPORT ON LULUCF, *supra* note 16, ¶ 90.

¹⁴⁹ See UNEP Risøe CDM/JI Pipeline Analysis and Database, <http://cdmpipeline.org/overview.htm> (last visited Nov. 5, 2007) (listing 1666 CDM projects that are “at validation” and 154 that are “in the process of registration”).

¹⁵⁰ Cf. Schwartz, *supra* note 47, at 480 (recommending that local stakeholders be given the opportunity to comment on projects that may threaten biodiversity).

¹⁵¹ See Sagemüller, *supra* note 12, at 236 (“Domestic legal regimes may allow individual landowners to generate credits from LULUCF activities that may be traded on the international market.”).

¹⁵² See Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol, Montreal, Can., Nov. 28–Dec. 10, 2005, *Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on its First Session – Part Two: Action Taken by the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol at its First Session*, Decision 31/CMP.1, ¶ 8, U.N. Doc FCCC/KP/CMP/2005/8/Add.4 (Mar. 30, 2006).

¹⁵³ See Steven A. Kennett, *Carbon Sinks and the Kyoto Protocol: Legal and Policy Mechanisms for Domestic Implementation*, 21 J. ENERGY & NAT. RESOURCES L. 252, 273 (2003).

¹⁵⁴ See JUSTUS & FLETCHER, *supra* note 93, at 11 (implying that, contrary to the Bush administration, the Clinton administration demonstrated an affinity towards the international climate change legal regime).

¹⁵⁵ See KENNETH M. CHOMITZ ET AL., THE WORLD BANK, *Overview: At Loggerheads? Agricultural Expansion, Poverty Reduction, and Environment in the Tropical Forests* 23 (2007), available at http://siteresources.worldbank.org/INTTROPICALFOREST/Resources/2463822-1161184206155/3060670-1161608416166/PRR-AL_SAOOverviewwebnonembargo.pdf (“[S]ome observers think that tackling climate change requires paying about \$3 a ton for CO₂ abatement—and European Union (EU) members are currently paying up to \$20 a ton (though this price is volatile). In other words, deforesters are destroying a carbon storage asset theoretically worth \$1,500-\$10,000 to create a pasture worth \$200-\$500 (per hectare). Yet carbon markets, such as those under the Kyoto Protocol and EU Emissions Trading Scheme, do not reward forestholders for reduced emissions from avoided deforestation.”).

¹⁵⁶ See Sagemüller, *supra* note 12, at 233 (noting that the EU’s decision not to recognize credits for LULUCF activities is premised on the fact that forestry credits can be obtained at relatively low prices, reducing emissions allowances prices and inhibiting domestic action aimed at curbing greenhouse gas emissions).

¹⁵⁷ See Council Directive No. 2004/101/EC, art. 1, 2004 O.J. L 338, at 18, 21.

¹⁵⁸ See *COP-7 Report – Part Two (Volume I)*, *supra* note 28, Decision 11/CP.7 Annex, ¶¶ 14-15.

¹⁵⁹ Conference of the Parties to the Kyoto Protocol, New Delhi, India, Oct. 23-Nov. 1, 2002, *Report of the Conference of the Parties on its Eighth Session - Part Two: Action Taken by the Conference of the Parties at its Eighth Session*, Decision 13/CP.8, ¶ 1, U.N. Doc FCCC/CP/2002/7/Add.1 (Mar. 28, 2003) (affirming the need for enhanced cooperation between the UNFCCC, the Convention on Biological Diversity, and the Convention to Combat Desertification).

¹⁶⁰ See ROSENBAUM ET AL., *supra* note 14, at 31 (taking into consideration the benefits and pitfalls of markets as tools for the encouragement of mitigation activities).

¹⁶¹ See 1997 SBSTA Report, *supra* note 137, ¶ 28 (listing improved working environments, increased economic opportunities, and the development of local production capacity as potential benefits arising from jointly implemented activities).

¹⁶² See SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, INTERLINKAGES BETWEEN BIOLOGICAL DIVERSITY AND CLIMATE CHANGE. ADVICE ON THE INTEGRATION OF BIODIVERSITY CONSIDERATIONS INTO THE IMPLEMENTATION OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE AND ITS KYOTO PROTOCOL 48 (2003), *available at* <http://www.biodiv.org/doc/publications/cbd-ts-10.pdf>.

¹⁶³ See United Nations Conference on the Human Environment, Stockholm, Swed., June 5-16, 1972, *Declaration of the United Nations Conference on the Human Environment*, Principle 21, U.N. Doc A/Conf.48/14/Rev.1 (June 16, 1972) (“States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies . . .”).

¹⁶⁴ See United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Rio Declaration on Environment and Development*, Principle 17, U.N. Doc A/CONF.151/26 (Vol. I) (Aug. 12, 1992) (“Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.”).

¹⁶⁵ See Trexler & Kosloff, *supra* note 42, at 35 (“Overly detailed reviews of environmental impacts could require the equivalent of an environmental impact statement. Such a process could prove so expensive that it would impede the ability to prepare and fund projects.”).

¹⁶⁶ See ROSENBAUM ET AL., *supra* note 14, at 53 (“Having a legal foundation for forest [greenhouse gas] mitigation projects will enable forests to play a positive role in UNFCCC compliance.”).

¹⁶⁷ See CHOMITZ ET AL., *supra* note 155, at 19-22 (providing policy recommendations for maximizing forest management and conservation while reducing poverty).

¹⁶⁸ See *id.* at 22 (“While forests have many environmental benefits, only two command a global constituency with potentially large willingness to pay for those benefits: carbon storage and conservation of globally significant biodiversity. Mobilizing global finance for these environmental services is a crucial long-term challenge.”).