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Seeing the Forest for the Treaties - Evolving Debates on CDM Forest and Forestry Project Activities 10 Years After the Kyoto Protocol

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1. Introduction

The direct and formal relationship between unsustainable forestry practices and global climate change goes back at least to the late 1970's. Since the Declaration of the World Climate Conference in 1979, the international community acknowledged that deforestation, and changes of land use, such as agriculture and pastoral practices, were contributing to the increased amount of carbon dioxide in the atmosphere.² In 1989, the Noordwijk Declaration on Atmospheric Pollution and Climatic Change recognized a growing international preoccupation with the alteration of the composition of the Earth's atmosphere due to anthropogenic activities; stressed out the importance of sustainable forestry, reforestation, afforestation and conservation activities; and called for a world net forest growth of 12 million hectares per year in the beginning of the 21st Century.³ Shortly after IPCC's First Assessment report, the Second World Climate Conference, held in Geneva from 29 October to 7 November 1990, called upon the international community to take measures to increase "sinks" of greenhouse gases.⁴

This was the scenario on forest and forestry leading to the 1992 United Nations Framework Convention on Climate Change (UNFCCC), the formal and fundamental pillar to the current climate change legal regime. Among general norms and principles, the Convention called upon developed countries, based on the principle of common but differentiated responsibility, to adopt binding commitments envisioning greenhouse gases emissions reductions and limitations. In mitigating the adverse impacts of emissions limitations and reductions commitments, the Convention allowed the Parties to implement policies and measures domestically, and/or jointly.

This present study focuses on the evolving debates on forest and forestry activities implemented jointly, more specifically those under the Clean Development Mechanism (CDM), 15 years after the UNFCCC, and 10 years after the Kyoto Protocol. Launched by COP-1 through the so-called Activities Implemented Jointly (AIJ) Pilot Phase, it was the Kyoto Protocol that effectively created the flexibility mechanisms that would allow for joint implementation of policies and measures under the climate change regime. Articles 6 and 12 respectively envisioned the joint implementation (JI) (between developed countries and economies in transition), and the clean development mechanism (CDM) (between developed and developing countries). The overall objective of this paper is to identify the current political, policy, legal, and technical challenges inherent to CDM project-based forest and forestry activities, provide with an assessment of likely trends for upcoming commitment periods and, finally, propose viable solutions to overcome future obstacles currently preventing further developments in this area of the CDM.

² Declaration of the World Climate, Feb. 12- Feb. 23, 1979,

<http://unesdoc.unesco.org/images/0003/000376/037648eb.pdf> ("[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 per cent during the last century and it is at present increasing by about 0.4 per cent per year.").

³ The Noordwijk Declaration on Atmospheric Pollution and Climate Change, Nov. 7, 1989, *Selected International Legal Materials on Global Warming and Climate Change*, 5 AM. U.J. INT'L. L. & POL'Y 513, 592-601 (1990) [hereinafter Noordwijk Declaration].

⁴ United Nations Framework Convention on Climate Change Homepage, <http://unfccc.int/resource/ccsites/senegal/fact/fs221.htm> (last visited Mar. 8, 2007) [hereinafter UNFCCC Homepage].

For that, this paper is divided into four different sections as follow: the first one is designed to demonstrate how forest and sustainable forestry practices were introduced into the climate change legal regime, the science supporting such inclusion, and the different definitions, legal status and possible approaches to deal with the issue envisioned by the UNFCCC, Kyoto Protocol and Decisions of the Conference of the Parties / Meeting of the Parties. The second session is built toward formulating a legal and institutional framework specific to the CDM forest and forestry project-based within the complex and comprehensive climate change regime. The third part of the paper identifies the current obstacles, challenges and impacts to forestry project-activities under the CDM. Lastly, session four raises possible solutions to overcome those obstacles and challenges for upcoming commitment periods.

2. The Introduction of Forest and Forestry Activities Into the Climate Change Legal Regime

The United Nations Framework Convention on Climate Change (UNFCCC), constituting the formal and fundamental multilateral international agreement of the climate change legal regime, was adopted in New York on May 9th, 1992, and fully launched during the 1992 United Nations Conference on Environment and Development (UNCED)⁵ in Rio de Janeiro, Brazil.⁶ In its Preamble, the Convention expressly recognized the role and importance of terrestrial ecosystems of “sinks” and “reservoirs” of greenhouse gases in mitigating global warming.⁷

According to the UNFCCC Handbook, “[a] sink is a process, activity or mechanism that removes GHG from the atmosphere; a reservoir is part of the climate system that enables a GHG to be stored.”⁸ The characterization of forests and forestry activities as types of “sinks” and “reservoirs”⁹ of carbon dioxide (CO₂) was established by scientific studies, inspiring the climate change legal regime.¹⁰ Legally, despite some general reference to promoting enhancement of forests, sinks and reservoirs of greenhouse gases (e.g. articles 4.1(d) and 2(a) of the Convention), the term “forestry” appears once in the

⁵ United Nations Conference on Environment and Development, Jun. 3 – Jun. 14, 1992, 31 I.L.M. 819 [hereinafter UNCED]. See generally VED P. NANDA & GEORGE PRING, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY & FOR THE 21ST CENTURY 79 (Transnational Publishers 2003) (emphasizing that with the 1972 UN Conference on the Human Environment and Development (UNCED), the UNCED is a milestone in international environmental lawmaking).

⁶ United Nations Framework Convention on Climate Change UNFCCC, *Handbook*, at 19 (2006), available at <http://unfccc.int/resource/docs/publications/handbook.pdf> (last visited Jul. 23, 2007) [hereinafter UNFCCC Handbook] (a very useful reference material published by the UNFCCC Secretariat “designed to provide an easy route to understanding the climate change negotiations under the Convention.”).

⁷ United Nations Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849 (entered into force Mar. 21, 1994) [hereinafter UNFCCC] (“Aware of the role and importance in terrestrial and marine ecosystems of sinks and reservoirs of greenhouse gases,”).

⁸ UNFCCC Handbook, *supra* note 6, at 24.

⁹ UNFCCC, *supra* note 7, art. 4.1(d) (other examples of “sinks” and “reservoirs” of greenhouse gases are biomass, oceans and other terrestrial, coastal and marine ecosystems).

¹⁰ See generally SEBASTIAN OBERTHÜR & HERMANN E. OTT, THE KYOTO PROTOCOL INTERNATIONAL CLIMATE POLICY FOR THE 21ST CENTURY 9 (Springer 1999) (describing the scientific knowledge on forests and forestry activities behind the climate change legal regime).

Convention,¹¹ but without a legal definition being provided.¹²

a. The Science Linking Forest and Forestry Activities to the Climate Change Legal Regime: “Sinks”, “Reservoirs”, and “Sources” of CO₂.

Carbon dioxide (CO₂) is the dominant and most important greenhouse gas¹³ among the five others listed by the climate change legal regime.¹⁴ Carbon dioxide is also the parameter for measuring other greenhouse gases emissions.¹⁵ In this context, forests play a role by directly absorbing and storing CO₂, but also, indirectly, by offsetting other greenhouse gases emissions.¹⁶

Growing forests and plants, through photosynthesis, have enormous capacities of carbon sequestration. Long established old-growth and mature forests can store significant amounts of carbon for long periods of time.¹⁷ Nonetheless, when disturbed, forests no longer play a mitigation role in global warming. Rather, they become part of the problem, a considerable source of carbon dioxide (CO₂).¹⁸ Whenever the capacity of the ecosystem to

¹¹ UNFCCC, *supra* note 7, art. 4.1(c).

¹² Cf. Imke Sagemuller, *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 (2003) (“As a framework convention, the UNFCCC includes only few broad references to the removal of GHGs by sinks.”).

¹³ See S. Brown, M. Burnham, M. Delaney, M. Powell, R. Vaca and A. Moreno, *Issues and Challenges for Forest-Based Carbon-Offset Projects: A Case Study of the Noel Kempff Climate Action Project in Bolivia*, 5 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 99, 99 (2000) (stating that carbon dioxide is the most important greenhouse gas in the atmosphere).

¹⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change Annex A, Dec. 10, 1997, 37 I.L.M. 32 [hereinafter Kyoto Protocol] (other five listed gases are: methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆)).

¹⁵ *Id.* arts. 5.3, Dec. 10, 1997, 37 I.L.M. 32. See DAVID HUNTER, JAMES SALZMAN & DURWOOD ZAELEKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 599 (Found. Press 2d ed. 2002) (1998). (“Not all greenhouse gases are created equal; different gases have different “global warming potentials” (GWPs). The technical definition of global warming potentials is the cumulative radiative forcing between the present and some chosen time horizon caused by a unit mass of gas emitted now, expressed relative to that for some reference gas, typically CO₂. Thus, for example, the global warming potential of methane is 56 times that of CO₂ or, put another way, Methane is 56 times more potent in causing global warming than is CO₂ in a century. The global warming potential for nitrous oxide is 280 and the global warming potential is in the thousands for many of the HFCs, PFCs and SF₆. Thus emitting one ton of these compounds into the atmosphere has dramatically higher impacts than emitting one ton of CO₂ or even methane.”).

¹⁶ 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).

¹⁷ Intergovernmental Panel on Climate Change [IPCC], *IPCC Special Report Land Use, Land-Use Change, and Forestry*, at 2, Summary for Policymakers (2000), <http://www.ipcc.ch/pub/srllulucf-e.pdf> [hereinafter IPCC Special Report LULUCF] (“Newly planted or regenerating forests, in the absence of major disturbances, will continue to uptake carbon for 20 to 50 years or more after establishment depending on species and site conditions, though quantitative projections beyond a few decades are uncertain.”). *But see* Hawk Jia, *Old-growth forests ‘are key carbon sinks’* (Dec. 1, 2006), <http://www.wbcsd.org/puglins/DocSearch/details.asp?type=DocDet&ObjectId=MjE5NzU> (last visited Feb. 6, 2007) (contending that a recent study conducted in a 400-year-old forest in southern China is being capable of soaking up carbon significantly faster than expected).

¹⁸ Food and Agriculture Organization of the United Nations [FAO], *Climate Change and the Forest Sector: Possible National and Subnational Legislation*, at 2 (2004), available at

uptake carbon is limited, or the rates of photosynthesis can no longer accompany the increasing rates of carbon concentrations in the atmosphere, or due to anthropogenic or natural ecosystem degradation, forests act as sources of CO₂.¹⁹ As defined by the UNFCCC, article 1.9, a “source” means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.”²⁰

Reflecting this common scientific understanding, article 4.1(d) of the Convention reinstated the role of forest conservation practices and called upon all parties, while respecting the principle of common but differentiated responsibility,²¹ to promote and cooperate in the enhancement of sinks and reservoirs.²²

b. Forest’s and Forestry Activities’ Definitions and Legal Status in the Climate Change Legal Regime

The definitions and legal status of forest and forestry that legally supported project activities under the climate change regime experienced two distinct phases: the first one, based on the generic concepts of “sink”, “reservoir” and “source” provided by the mother Convention up to the Kyoto Protocol; and a second one, with more precise and specific notions provided by the Kyoto Protocol and subsequent Conference of the Parties (COPs) and Meeting of the Parties (MOPs).²³

i. Definitions and Legal Status in the UNFCCC and Up to the Kyoto Protocol

The UNFCCC presents broad definitions of “sink”, “reservoir”, and “source”²⁴ to

<ftp://ftp.fao.org/docrep/fao/007/y5647e/y5647e00.pdf>. [hereinafter FAO Climate Change and the Forest Sector] (“In nature, GHGs are constantly entering and leaving the atmosphere. The oceans exchange CO₂ and other GHGs with the atmosphere and hold CO₂ dissolved or precipitated out in sediments. Actively growing trees and other plants capture CO₂ from the atmosphere, combined with water through photosynthesis and create sugar and more stable carbohydrates. They may store a significant part of the carbon absorbed for appreciable lengths of time, from years to millennia. Carbohydrates become the building blocks and energy supply for most of life on Earth. 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.”).

¹⁹ IPCC Special Report LULUCF, *supra* note 17, at 4.

²⁰ UNFCCC art. 1.9 *supra* note 7.

²¹ See generally PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 285 (Cambridge Univ. Press 2d ed. 2003) (1995) (discussing in deeper details the principle of common but differentiated responsibility).

²² UNFCCC art. 4.1(d), *supra* note 7 (“All parties taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall: Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;”).

²³ See generally IPCC Special Report LULUCF, *supra* note 17, at Preface (stressing the importance of setting clear definitions for forests and forestry activities, the later encompassing afforestation, reforestation, and deforestation, and that “the challenge is to derive a set of definitions that are simple and consistent with the aims of the UNFCCC and the Kyoto Protocol.”).

²⁴ UNFCCC, *supra* note 7, arts. 1.8, 1.7 and 1.9. (“‘Sink’ means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of greenhouse gas from the atmosphere.”; ‘reservoir’ means a component or components of the climate system where a greenhouse gas or a precursor of greenhouse gas is stored.”; ‘source’ means any process or activity which releases a greenhouse gas, an aerosol

which the concept of forest and forestry are subsumed and, therefore, supported project activities during the so-called Activities Implemented Jointly (AIJ) Pilot Phase.²⁵ The primary concern during the negotiations at the three Conferences of the Parties (COP-1, COP-2 and COP-3, respectively 1995, 1996, and 1997) following the UNFCCC was to define quantified emissions reductions and limitations for developed countries.²⁶ Issues relating to project-based forest and forestry activities were primarily a cost-effective²⁷ way to make emissions reductions and limitations commitments feasible in the short term and, consequently, an important negotiation tool for the imposition of cap commitments upon developed countries.²⁸

Only during the fourth session of the Conference of the Parties (COP-4) (almost seven years after the UNFCCC) that a more specific legal regime for land use, land-use change and forestry started to emerge, one that would eventually encompass project-based forest and forestry activities.²⁹

Legally, though, at least until the Kyoto Protocol, the formal connection between forest and forestry with sink and reservoir was made by article 4.1(d) of the Convention. This provision called all Parties to promote actions to enhance sinks and reservoirs of greenhouse gases, including forests.

In this sense, from such ample definitions, on one hand, the legal status of forest and forestry is inferred: “sink” and “reservoir”. On the other hand, because forests can also emit CO₂ when disturbed, according to the Convention, they could also be deemed as “sources” of greenhouse gases.³⁰

or a precursor of a greenhouse gas into the atmosphere.”).

²⁵ See United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its First Session, Part Two: Action Taken by the Conference of the Parties, Decision 5/CP.1, Activities implemented jointly under the pilot phase*, Berlin, Mar. 28 – Apr. 7, 1995, 19 FCCC/CP/1995/7/Add.1 (June 6, 1995) [hereinafter Decision 5/CP.1] (“1(b) *Decides*: That activities 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;”).

²⁶ See MICHAEL GRUBB, CHRISTIAAN VROLIJK & DUNCAN BRACK, *THE EMERGION INTERNATIONAL REGIME FOR CLIMATE CHANGE: STRUCTURES AND OPTIONS AFTER BERLIN 7* (The Royal Institute of International Affairs 1995) (assessing the outcome of the first Conference of the Parties, known as the Berlin Mandate, for whom “[t]he Mandate calls for a process to begin to strengthen commitments beyond 2000. This process should lead the industrialized world to ‘elaborate policies and measures’, and to ‘set quantified limitation and reduction objectives within specified time-frames, such as 2005, 2010 and 2020, for their anthropogenic emissions’. Negotiations are to be completed by early 1997 in order that the results can be adopted at ‘COP-3’(...). The expectation is that a protocol or other legal agreement will be negotiated at COP-3 defining emission constraints for Annex 1 Parties potentially up to the year 2020.”).

²⁷ 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* 57, 60 (1997) (emphasizing that “there are low-cost opportunities for carbon storage in the forestry sector”).

²⁸ See also *id.*, *supra* note 27, at 58 (stressing that “expect Annex I countries to implement too large a share of the emission reductions could be physically or technically infeasible and would likely be inefficient”).

²⁹ See United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Fourth Session, Part Two: Action Taken by the Conference of the Parties, Decision 9/CP.4, Land-use, land-use change and forestry*, Buenos Aires, Nov. 2-14, 1998, 40 FCCC/CP/1998/16/Add.1 (January 25, 1999) [hereinafter Decision 9/CP.4] (constituting the first specific decision on land use, land-use change and forestry).

³⁰ See Lavanya Rajamani, *Re-Negotiating Kyoto: A Review of the Sixth Conference of the Parties to the Framework Convention on Climate Change*, 201 *COLO. J. INT’L ENVTL. L. & POL’Y* 207 (2000) (“Forests can be

In practical terms, this means that whenever the climate change legal regime refers to enhancement, promotion, and sustainable management of “sinks” and “reservoirs”, and calls for action to address anthropogenic emissions by “sources”, it is including and promoting actions on forests and forestry activities.³¹ The importance of this empirical analysis consists on the fact that the lack of more precise definitions and legal status for forest and forestry in this first period up until the Kyoto Protocol, led to no activity limitation whatsoever for those participating in the Activities Implemented Jointly Pilot Phase.³² For that reason, during the pilot phase, forest and forestry project activities included afforestation, reforestation, conservation practices and sustainable forest management.³³

ii. Definitions and Legal Status in the Kyoto Protocol and Subsequent COPs/MOPs

After the Kyoto Protocol had expressly embraced forest and forestry practices, narrowing down the Convention’s broad definitions of sinks, reservoirs and sources of CO₂,³⁴ negotiators faced the need to create a specific legal regime to reconcile conflicting interests of those Parties supporting such activities with those opposing them.³⁵ With the scientific support provided by the IPCC and FAO,³⁶ added to the technical expertise of the Subsidiary Body for Scientific and Technological Advice (SBSTA)³⁷, negotiators began to shaping a more specific legal regime to address land use, land-use change and forestry.³⁸

sources, sinks, or reservoirs of GHGs.”).

³¹ See generally OBERTHÜR ET AL., *supra* note 10, at 131 (specifying the range of the term “sink”, and highlighting that “[i]n general, forests have the highest sink potential, depending, however, on age and condition of the forest.”).

³² Decision 5/CP.1, *supra* note 25.

³³ United Nations Framework Convention on Climate Change, *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, Progress report on activities implemented jointly*, Geneva, July 8 – 19, 1996, 5 FCCC/CP/1996/14 (June 4, 1995) [hereinafter 1996 AIJ Pilot Phase Report] (reporting the occurrence of five ongoing projects in forest preservation, restoration or reforestation and four in afforestation).

³⁴ Kyoto Protocol arts. 3.3 and 3.4, *supra* note 17.

³⁵ See FARHANA YAMIN & JOANNA DEPLEDGE, *THE INTERNATIONAL CLIMATE REGIME A GUIDE TO RULES, INSTITUTIONS AND PROCEDURES* 123 (Cambridge Univ. Press 2004) (“The technical complexity, and high political stakes, of sinks issues contributed significantly to the breakdown of negotiations at The Hague at COP-6 part I.”).

³⁶ See United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on the First Part of its Sixth Session, Note by the President of the Conference of the Parties*, The Hague, November 13-25, 2000, 12 FCCC/CP/2000/5/Add.2 (April 4, 2001) [hereinafter COP-6 Note by the President] (“Parties agree that for the implementation of Article 3.3, [of the Kyoto Protocol] “forest” is defined in accordance with the FAO definition. (...) Parties decide that for defining afforestation, reforestation and deforestation [forestry activities] the set of IPCC definitions shall be applied.”).

³⁷ See generally GRUBB ET AL., *supra* note 26, at 2 (explaining that the purpose of the SBSTA is to function as “the main interlocutor between the scientific world and the Convention process;” and stressing that the SBSTA is different from the IPCC).

³⁸ See OBERTHÜR ET AL., *supra* note 10, at 132 (“Although the issue of sinks always loomed in the background of the negotiations prior to Kyoto, serious negotiations on this only began at AGBM 8 in October 1997. At this meeting, many Parties realized that there was almost no factual basis on which to take a decision. The whole issue of LUCF (Land-use Change and Forestry), as it was finally referred to, was surrounded by

The rationale behind a specific legal regime was to make the Convention's ultimate objective feasible, by allowing developed countries to offset part of their quantified emissions reductions and limitations commitments through jointly project-based practices under flexibility mechanisms,³⁹ (one approach) and through the promotion and enhancement of sinks and reservoirs of greenhouse gases domestically (another approach).⁴⁰

Articles 3.3 and 3.4 of the Kyoto Protocol set the stage for the beginning of a specific regulatory regime to deal with land-use change and forestry activities. The first decision carrying on the mandate established by the aforementioned provisions was decision 9/CP.4, taken pursuant COP-4 in Buenos Aires, 1999. From then on, this regulatory regime became known as "land use, land-use change and forestry (LULUCF)".⁴¹ At a first stage, Parties opted for limiting LULUCF activities to afforestation, reforestation and deforestation practices,⁴² (the later meaning "avoided deforestation"⁴³) while providing for enough flexibility to the inclusion of additional activities.⁴⁴

Afforestation and reforestation are both defined as the human-induced conversion of non-forested areas into forested, but with a slightly difference: the prior presupposes that the converted land into forested area has not been forested for at least 50 years, while the later is the conversion of land that once was forested into forested area, but limited to those areas that did not have forest on December 31, 1989.⁴⁵

Under intense political debate over conflicting interests,⁴⁶ the Parties agreed upon

uncertainties.”).

³⁹ Anita M. Halvorsen, *The Kyoto Protocol and Developing Countries—The Clean Development Mechanism*, 16 COLO. J. INT'L L. & POL'Y 353, 363 (2005) (“The Kyoto Protocol introduced three market-based, flexible mechanisms that enable Annex I Parties to meet part of their emission reduction commitments in a more cost effective manner. These mechanisms, also referred to as Kyoto Mechanisms, include emissions trading, joint implementation, and (...) clean development mechanism (CDM). The idea behind these mechanisms is that the cost of limiting emissions will differ from one region to another, yet the benefit for the atmosphere is the same, regardless of where the action is taken.”).

⁴⁰ See Mathew Vespa, *Climate Change 2001: Kyoto At Bonn and Marrakech*, 29 ECOLOGY L. Q. 395, 409 (2002) (differentiating domestic application of land use, land-use change and forestry (LULUCF) from LULUCF in the Clean Development Mechanism of the Kyoto Protocol).

⁴¹ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Fourth Session, Part Two: Action Taken by the Conference of the Parties, Decision 4/CP.9, Land-use, land-use change, forestry*, Buenos Aires, November 2 - 14, 1998, 40 FCCC/CP/1998/16/Add.1 (January 25, 1999) [hereinafter Decision 4/CP.9].

⁴² Kyoto Protocol art. 3.3, *supra* note 14 (“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....”).

⁴³ Pedro Moura-Costa, *Forestry and the Climate Change Convention: 10 –years of Evolution*, 7 available at <http://www.gm-uncd.org/FIELD/Private/Eco/Eco3.pdf> (last visited April 8, 2007).

⁴⁴ Kyoto Protocol art. 3.4, *supra* note 14 (“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....”).

⁴⁵ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Seventh Session, Part Two: Action Taken, Decision 11/CP.7, Land-use, land-use change, forestry*, Marrakech, Oct. 29 – Nov. 10, 2001, 58 FCCC/CP/2001/13/Add.1 (January 21, 2002) [hereinafter Decision 11/CP.7].

⁴⁶ Rajamani, *supra* note 30, 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.”).

additional activities during COP-7 in Marrakech⁴⁷, adding revegetation, forest management, cropland management, and grazing land management to those activities conducted domestically, but excluding them from jointly implemented project-based activities.⁴⁸

From the newly-established legal regime on LULUCF, definitions on activities, although broad in nature,⁴⁹ were useful operational guidance on handling this one form of accountability under the UNFCCC. Thus, the Annex to decision 16/CMP.1 provided definitions to “forest”, “afforestation”, “reforestation”, “deforestation”, “revegetation”, “forest management”, “cropland management”, and “grazing land management”.⁵⁰

c. Two Different Approaches to Accounting for Forests and Forestry Activities

Because developed countries were concerned that reliance solely upon domestic measures to curb anthropogenic greenhouse gases emissions could impair their national economies by imposing a significant financial burden as a result of mandatory emissions reductions, the Kyoto Protocol envisioned accountability through market-based flexibility mechanisms: emissions trading, joint implementation, and clean development mechanism.⁵¹ For forest and forestry, this scenario opened two possible approaches: first, accounting domestically for LULUCF; and second, through project-based activities abroad limited to afforestation and reforestation practices.

i. Accounting for Domestic Land Use, Land-Use Change, and Forestry Activities (LULUCF)

To some countries, accounting for LULUCF could offset up to 10% of their national gross emissions. For others, due to demographic and land-use patterns, sequestration potentials from enhancement of sinks are limited. As a consequence, accounting for LULUCF activities became a big part of the interests at stake during the Kyoto Protocol negotiations, dividing the Parties considerably and impairing much of the progress on a common and satisfactory agreement.⁵²

Through Decision 11/CP.7 the Parties addressed some of the previous concerns, while also requesting the SBSTA and the IPCC to develop and elaborate guidelines,

⁴⁷ Decision 11/CP.7, *supra* note 45, at 54.

⁴⁸ United Nations Framework Convention on Climate Change, *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, Decision 16/CMP.1, Land-use, land-use change, forestry*, Montreal, Nov. 28 – Dec. 10, 2005, 5 FCCC/KP/CMP/2005/8/Add.3 (March 30, 2006) [hereinafter Decision 16/CMP.1].

⁴⁹ See Sagemuller, *supra* note 12, at 203 (stressing the broadness of the definition of “deforestation” in the Marrakech Accords).

⁵⁰ *Id.*, at 5.

⁵¹ See generally Tim Jackson, Katherine Begg & Stuart Parkison, *The Language of Flexibility: Operational forms of joint implementation*, in FLEXIBILITY IN CLIMATE POLICY: MAKING THE KYOTO MECHANISMS WORK, 22-26 (Tim Jackson, Katie Begg & Stuart Parkison eds., Earthscan 2001) (detailing the flexibility mechanisms of the Kyoto Protocol);

⁵² MICHAEL GRUBB, CHRISTIAAN VROLIJK & DUNCAN BRACK, *THE KYOTO PROTOCOL A GUIDE AND ASSESSMENT* 79 (The Royal Institute of International Affairs 1999).

monitoring and reporting methodologies.⁵³ Following the Parties' request, IPCC issued a report on good practice guidance for land use, land-use change and forestry,⁵⁴ and another one on definitions and Methodological Options to Inventory Emissions from Direct Human Induced Degradation of Forests and Devegetation of Other Vegetation Types.⁵⁵ The IPCC work and SBSTA advices were based on the general principles governing accountability for LULUCF activities undertaken domestically by Annex I countries.⁵⁶

Under this framework regulatory regime governing LULUCF accountability, for the first commitment period⁵⁷ a selected domestic forestry activity can add or subtract to an Annex I Party's assigned amount, whether the practice constitute a sink or a source of carbon dioxide, respectively.⁵⁸ Accountable forestry activities include afforestation, reforestation, deforestation, revegetation, forest, cropland and grazing land management.⁵⁹

Any improvement made domestically using one or more of the abovementioned listed forestry activities will add to a Party's assigned amount ("credits") for the first commitment period, so long as a formal selection of any or all of them is made timely (identification in the Party's annual report), demonstration that the chosen activities had occurred since 1990, and are human-induced.⁶⁰ On the other hand, whenever verifiable human-induced changes in land use and forestry results in a net emission of greenhouse gas, a subtraction on an Annex I Party's assigned amount shall take place.⁶¹

The estimates are based on annual national inventories and communications⁶² on anthropogenic emissions by sources and removals by sinks that Annex I Parties are required to submit.⁶³ The information provided is used in the establishment of assigned amounts.⁶⁴ A limitation in accounting, either positively (crediting) or negatively (debiting) for domestic LULUCF activities is imposed individually to each Annex I Party, and measured in metric tonne of carbon dioxide equivalent per year. Those quantified

⁵³ Decision 11/CP.7, *supra* note 45, at 54.

⁵⁴ Intergovernmental Panel on Climate Change [IPCC], *IPCC Report on Good Practice Guidance for Land Use, Land-use Change and Forestry*, (2003), available at http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf_files/Chp1/Chp1_Overview.pdf [hereinafter IPCC Report on Good Practice Guidance for LUCF].

⁵⁵ Intergovernmental Panel on Climate Change [IPCC], *IPCC Report on Definitions and Methodological Options to Inventory Emissions from Direct Human Induced Degradation of Forests and Devegetation of Other Vegetation Types*, (2003), available at http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf_files/Task2/Degradation.pdf [hereinafter IPCC Report on Definitions and Methodological Options to Inventory Emissions].

⁵⁶ See Decision 16/CMP.1 annex, *supra* note 48, at 3.

⁵⁷ Kyoto Protocol art. 3.7, *supra* note 14 (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 Protocol).

⁵⁸ Decision 16/CMP.1 annex, *supra* note 48, at 8.

⁵⁹ *Id.*, at 6.

⁶⁰ *Id.*, at 6.

⁶¹ *Id.*, at 8.

⁶² See generally Halvorssen, *supra* note 39, at 360 ("[T]he UNFCCC required all Parties to develop inventories of anthropogenic emissions and measures to mitigate climate change. Furthermore, the UNFCCC, called "national communications." To fulfill their reporting obligations, Annex I Parties were given six months from the entry into force of the UNFCCC to submit their reports, while non-Annex I Parties (developing countries) were given three years and the least developed States were not given a deadline.").

⁶³ See Kyoto Protocol, *supra* note 14, art. 5.

⁶⁴ Decision 16/CMP.1 annex, *supra* note 48, at 8.

limitations to be subtracted or added to a Party's assigned amount are found in an Appendix to Decision 16/CMP.1.⁶⁵

ii. Accounting for Forestry Activities under Project-Based Flexibility Mechanisms of the Kyoto Protocol

Annex I Parties can claim credits against their assigned amounts for forestry project activities implemented jointly with another Annex I Party (Joint Implementation) or with a non-Annex I Party (Clean Development Mechanism).⁶⁶ The origin of joint projects goes back to the text of the Convention,⁶⁷ more precisely article 4.2(a) that generically mentioned the possibility of Annex I parties to implement policies and measures jointly.⁶⁸

On the road to Kyoto, and during the negotiations of the protocol at COP-3, flexibility was a highly contentious issue among Parties. On the one side, the JUSSCANNZ⁶⁹ countries envisioned the opportunity to invest in projects abroad as a cheap way to mitigate their commitments, especially those related to forest and forestry project activities⁷⁰, and the only feasible way to achieve them without hurting their economies. On the other side, the G-77 plus China⁷¹ and the European Union faced them as a loophole in the Protocol. The prior feared the so-called “carbon colonialism” or “eco-colonialism”,⁷² the later concern was basically on ethical grounds.⁷³ Opponents saw forest and forestry projects abroad as allowing Annex I countries to invest in developing countries without having to take any stronger domestic mitigation measures.⁷⁴

The conflicts were partially resolved with the parties agreeing upon limiting forestry

⁶⁵ *Id.*, at 7.

⁶⁶ Kyoto Protocol, *supra* note 14, arts. 6 and 12.

⁶⁷ 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 (1998).

⁶⁸ UNFCCC art. 4.2(a), *supra* note 7 (“These Parties [Annex I] may implement such policies and measures [referring to those limiting anthropogenic greenhouse gases 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.”).

⁶⁹ GRUBB ET AL., *supra* note 52, at xxxi (“Group of countries working together, tending to counter-balance the EU on the one hand and G77 on the other. The group consists of Japan, the United States, Switzerland, Canada, Australia, Norway and New Zealand, though Norway and in particular Switzerland frequently stood somewhat apart from JUSSCANNZ positions.”).

⁷⁰ Intergovernmental Panel on Climate Change, Summary for Policymakers to Climate Change 2001: Synthesis Report of the IPCC Third Assessment Report 15 (2001), available at <http://www.ipcc.ch/pub/SYR-text.pdf> [hereinafter IPCC Third Assessment Report] (“Costs estimates report reported to date for biological mitigation vary significantly from US\$0.1 to about US\$20 per t C in several tropical countries and from US\$20 to US\$100 per t C in non-tropical countries.”).

⁷¹ *Id.*, at 5 (“The Group of 77 (and China) is the main negotiating group of developing countries, representing over 120 Parties in many international negotiations. The group includes countries with very different objectives, including OPEC and AOSIS”).

⁷² Costa, *supra* note 43, at 4.

⁷³ See generally, Raoul Weiler, *The Kyoto Protocol And Its Socio-Ethical Aspects*, in READING THE KYOTO PROTOCOL ETHICAL ASPECTS OF THE CONVENTION ON CLIMATE CHANGE 53-54 (Etienne Vermeersch ed., 2005) (“The emission trading transforms a common good –the atmosphere- into a commercial good. The trading process turns the principle of the ‘polluter pays’ into the opposite ‘the polluter buys his way out’. From the ethical point of view the Protocol does not provide the necessary warranties for ethical practices.”).

⁷⁴ See GRUBB ET AL., *supra* note 52, at 87 (detailing the conflict of interests around the debate on flexible mechanisms).

activities to afforestation and reforestation projects, the exclusion of nuclear activities,⁷⁵ and the requirement that project-based activities shall be supplemental to domestic measures and policies.⁷⁶ Subsequently, since the Marrakech Accords (COP-7) the debate around this controversy is void, due to the express embracement of forestry activities by decision 11/CP.7.⁷⁷

3. Clean Development Mechanism (CDM) Forest and Forestry Project Activities: Legal and Institutional Framework

This section aims at building and examining the CDM forest and forestry project-activities legal and institutional framework and how they were influenced by the conflicting interests surrounding them, the evolution of scientific and technological knowledge, and the practice provided during the AIJ pilot phase.

a. The Evolution of the Legal Framework

A legal framework for forest and forest project-activities in the CDM is a sub-product of a broader regulatory regime for joint implementation flexibility mechanisms. Articles 4.2(a), (b), (d), and 3.3 of the UNFCCC are the main pillars of the joint implementation regulatory regime.⁷⁸ The first action in this regard was taken at COP-1, in Berlin, 1995, when the parties agreed upon an Activities Implemented Jointly (AIJ) Pilot Phase.⁷⁹ Shortly after, the Kyoto Protocol not only embraced the concept of Joint Implementation among Annex I Parties, but also extended it to non-Annex I countries (Clean Development Mechanism).⁸⁰

i. Activities Implemented Jointly Pilot Phase

The AIJ pilot phase made operational the UNFCCC broad provisions authorizing joint implementation of policies and measures.⁸¹ Decision 5/CP.1 taken at COP-1, in Berlin, 1995, expressly recognized the mandate of Article 4.2(d) imposing upon the Conference of the Parties the duty to regulate joint implementation of policies and measures to curb anthropogenic emissions of greenhouse gases. To reconcile and accommodate developing countries' concerns, project-activities undertaken pursuant to the

⁷⁵ See generally Jason Schwartz, "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).

⁷⁶ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Ninth Session, Part Two: Action Taken by the Conference of the Parties, Decision 19/CP.9, Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol*, Milan, December 1 - 12, 2003, 13 FCCC/CP/2003/6/Add.2 (March 30, 2004) [hereinafter Decision 19/CP.9].

⁷⁷ Decision 11/CP.7, *supra* note 45, at 60 ("The eligibility of land use, land-use change and forestry project activities under Article 12 is limited to afforestation and reforestation.").

⁷⁸ 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).

⁷⁹ Decision 5/CP.1, *supra* note 25, at 19.

⁸⁰ Kyoto Protocol arts. 6 & 12, *supra* note 14.

⁸¹ UNFCCC arts. 4.2(a) (b) (d) & 3.3, *supra* note 7.

pilot phase did not provide credits against the, then, not yet agreed upon developed countries' assigned amounts. The AIJ pilot phase was voluntarily in nature.

Moreover, the pilot phase embraced participation of non-Annex I countries hosting project-based activities undertaken thereof. This experimental period also covered generically "all relevant sources, sinks and reservoirs of greenhouse gases;"", allowing for ample use of forest and forestry project activities. The fact is that, "[t]he importance of information, training, appropriate capacity and institutions for the development of CDM projects is underlined by experience from the pilot phase of Activities Implemented Jointly."⁸²

The Parties' experience during the pilot phase showed geographic trends and potential social and environmental benefits related to forest and forestry project activities, which provided substantial background on future negotiations.⁸³ All these elements were crucial during the discussions over flexibility mechanisms in Kyoto, during the COP-3, and beyond, when negotiators faced the dilemma, and conflicting pressures of whether to include or not forest and forestry activities in the CDM.⁸⁴

1. A Brief Assessment of the AIJ Pilot Phase Main Reports, and Positive Outcomes

Through the AIJ pilot phase reporting requirements, the SBSTA was able to produce annual synthesis reports, before recommending a comprehensive review of the pilot phase, which was completed and sent to the COP-5 in Bonn, 1999.⁸⁵ Specifically with regard to forest and forestry project activities, those annual synthesis reports and the final review of the AIJ pilot phase provided useful data on important geographical trends, technical challenges (monitoring and reporting), social and environmental benefits and impacts, possible global benefits (in comparison with other types of project-activities), and implications on national economies (helping developing countries to achieve sustainable development, and developed countries in achieving their commitments under the climate change regime).⁸⁶ The figures bellow, excerpted from the SBSTA synthesis reports on AIJ pilot phase, illustrate the aforementioned elements of the experiences gained during this experimental period:

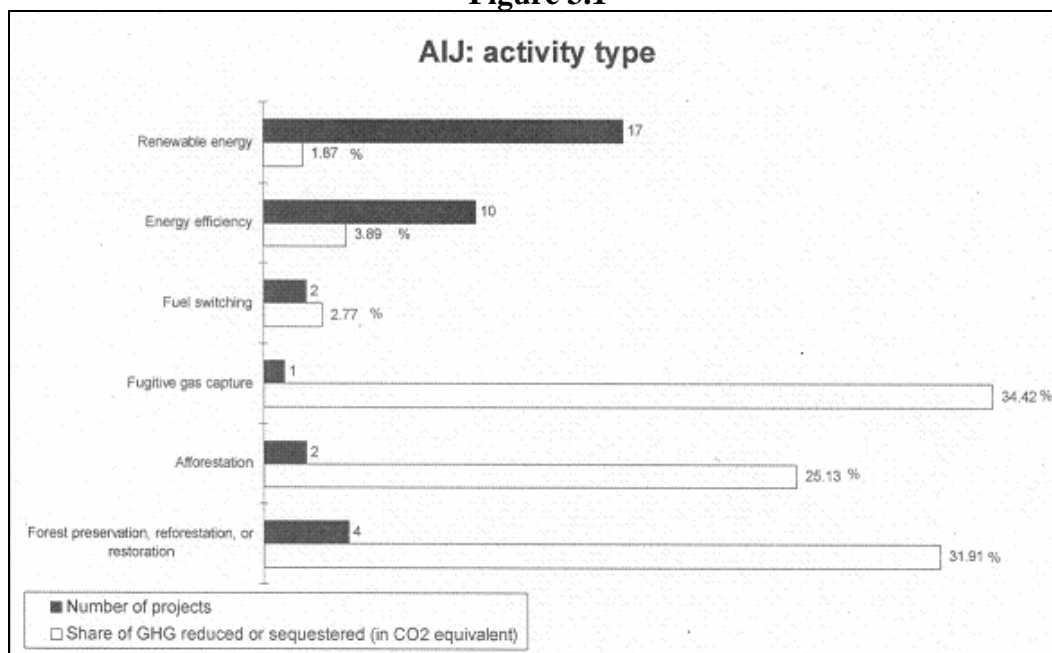
⁸² Alex Michaelowa, *CDM Host Country Institution Building*, 8 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CLIMATE CHANGE 201, 202 (2003).

⁸³ See United Nations Framework Convention on Climate Change, *Report of the Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation on Activities Implemented Jointly Under the Pilot Phase, Issues to be addressed in the review of the pilot phase*, Bonn, Oct. 25 – Nov. 5, 1999, 5 FCCC/SB/1999/5 (September 15, 1999) [hereinafter SBSTA & SBI 1999 Report] (presenting data on geographical distribution of projects, environmental and socio-economic impacts).

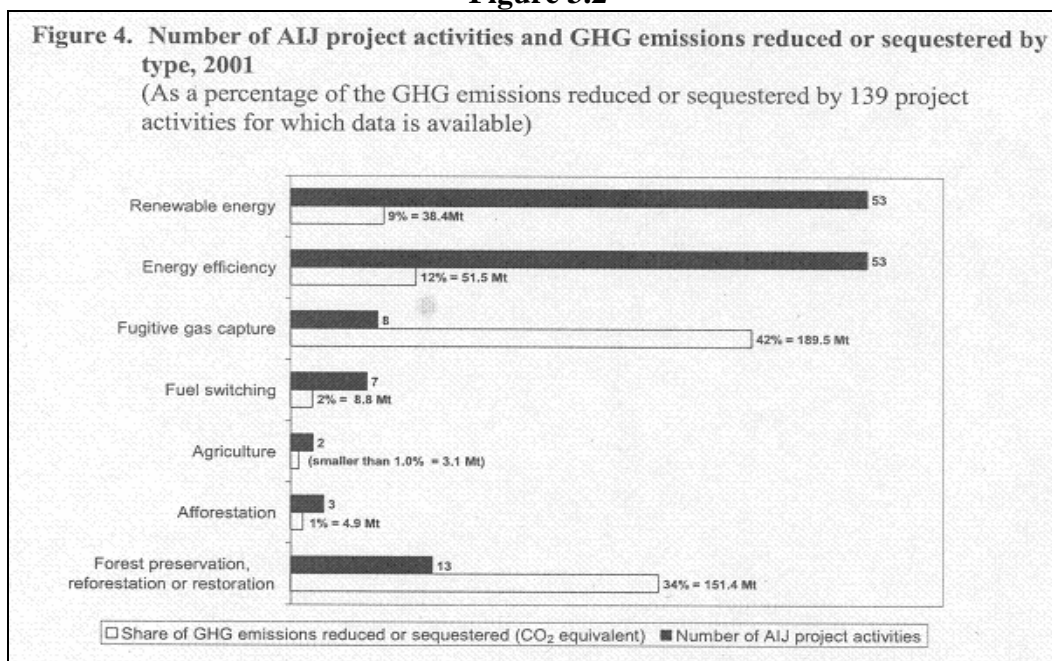
⁸⁴ See *id.*, at 5 (providing an "[a]ssessment of environmental benefits related to the mitigation of climate change that would not have occurred in the absence of AIJ, covering all relevant sources, sinks and reservoirs of greenhouse gases and the methods used to measure, monitor and independently verify these emissions, including by type of project, and other environmental benefits.").

⁸⁵ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Fifth Session, Part Two: Action Taken by the Conference of the Parties, Decision 13/CP.5, Activities implemented jointly under the pilot phase*, Bonn, Oct. 25 – Nov. 5, 2000, 36 FCCC/CP/1999/6/Add.1 (February 2, 2000) [hereinafter Decision 13/CP.5] (taking note of the comprehensive review of the AIJ pilot phase produced by the SBSTA and SBI).

⁸⁶ SBSTA & SBI 1999 Report, *supra* note 83, at 5.

Figure 3.1

Source: United Nations Framework Convention on Climate Change, *Report of the Subsidiary Body for Scientific and Technological Advice on Activities Implemented Jointly Under the Pilot Phase, Synthesis report on activities implemented jointly*, Bonn, October 20 – 29, 1997, 2 FCCC/SBSTA/1997/12/Corr.2 (October 12, 1997).

Figure 3.2

Source: United Nations Framework Convention on Climate Change, *Report of the Subsidiary Body for Scientific and Technological Advice on Activities Implemented Jointly Under the Pilot Phase, Fourth synthesis report and draft revised uniform reporting format*, Marrakesh, Oct. 29 – Nov. 9, 2001, 8 FCCC/SBSTA/2001/7 (September 12, 2001).

Figures 3.1 and 3.2 are excerpted from the first and fifth synthesis report on the pilot phase of AIJ, respectively. With respect to the number of forest conservation and forestry activities and their share in the total reduction of carbon dioxide in 1997, Figure 3.1 shows that while only numbering 6 out of 39 projects (roughly 15 per cent of the total), they account for 57 per cent of the final mitigation impact. On the other hand, in 2001, Figure 3.2 shows that while numbering 15 out of 139 projects (roughly 10 per cent of the total), forest conservation and forestry activities accounted for 35 per cent of the abatement impact. The data demonstrates that although representing a smaller portion of the total number of projects, sequestration potentials of forest and forestry activities are significantly higher in a comparison with other types of projects. In addition, the data collected from different years shows that the number of forest and forestry project activities decreased proportionately to the rising on scientific and technical knowledge and certainty on the complexities of processes related to these activities.⁸⁷

In its first synthesis report, the SBSTA highlighted that “most data on the costs and the amount of GHG abated are only estimates and are, therefore, not a suitable basis for analysis;”.⁸⁸ When the report was released, the Parties were in the final preparations for the Kyoto negotiations. The IPCC had not yet released its special report on LULUCF, which only happened in 2000.⁸⁹ The first specific decision on forestry activities in the CDM was only agreed upon in 2003 at COP-9 (decision 19/CP.9),⁹⁰ the same year in which the IPCC Report on Good Practice Guidance for Land Use, Land-use Change and Forestry was released.⁹¹ This chronological scenario explains the proportionality between growing consensus on the challenges of forest and forestry project activities and the consequent decrease in their total share (both in quantity and in share of GHG abatement impact) in a comparison with other types of projects, deemed much simpler.

As to the geographical distribution of forest conservation and forestry projects, and their environmental and socio-economic impacts, the 1999 Subsidiary Bodies’ report on the issues to be addressed in the review of the pilot phase provided useful source of information for a more comprehensive assessment of the pilot phase. With regard to socio-economic aspects of projects undertaken during the pilot phase, the Subsidiary Bodies verified an increase in capacity-building through enhancement of procedural and institutional experience, and the Parties reported “active involvement of local communities, increased public awareness, and the maintenance of natural heritage and historical site”.⁹²

In this same path, the report highlighted that host Parties, most developing countries, were being able to attract financial resources and direct them towards national

⁸⁷ Cf. Food and Agriculture Org. of the U.N. [FAO], *Forestry Projects Under the CDM Procedures, Experiences and Lessons Learned*, at 1, FAO Forests and Climate Change Working Paper 3 (2005), available at <http://ftp.fao.org/docrep/fao/008/j7017e/j7017e00.pdf> [hereinafter FAO Working Paper 3] (stating the challenges of afforestation and reforestation projects in the CDM years latter after the same types of projects undertaken in the AIJ pilot phase, when scientific and technical knowledge were not yet as consolidated).

⁸⁸ United Nations Framework Convention on Climate Change, *Report of the Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation on Activities Implemented Jointly Under the Pilot Phase, synthesis report on activities implemented jointly*, Bonn, October 20 – 29, 1997, 4 FCCC/SBSTA/1997/12 (October 7, 1997) [hereinafter SBSTA & SBI 1997 Report].

⁸⁹ IPCC Special Report LULUCF, *supra* note 17, at 2.

⁹⁰ Decision 19/CP.9, *supra* note 76, at 13.

⁹¹ IPCC Report on Good Practice Guidance for LUCF, *supra* note 54.

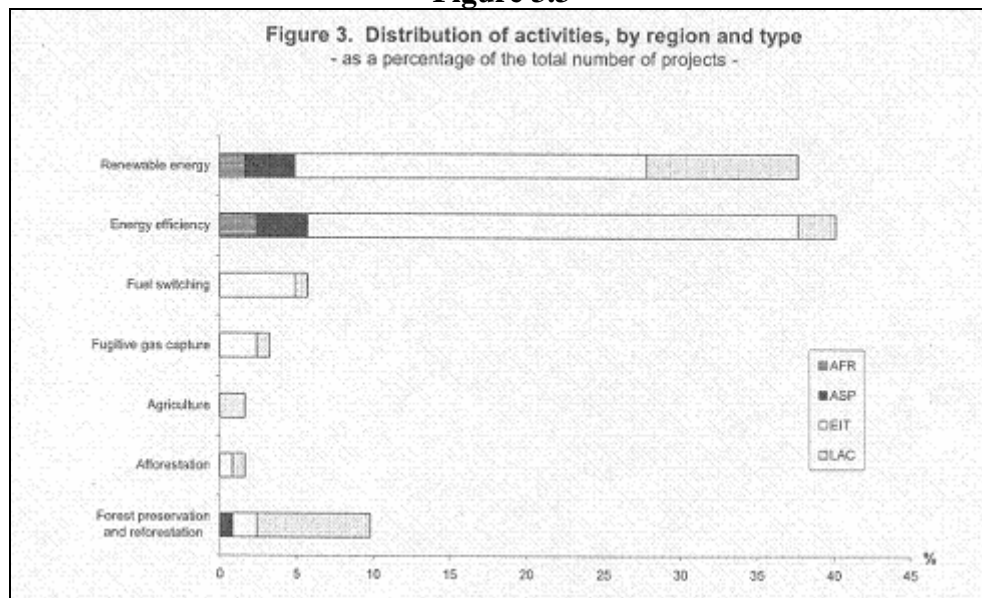
⁹² SBSTA & SBI 1999 Report, *supra* note 83, at 20.

development goals. Despite the statement made by the Subsidiary Bodies that socio-economic and environmental factors were not sufficiently addressed, specifically with respect to forest and forestry activities, the Parties reported environmental benefits on “fostering biodiversity, improving water and air quality and reducing erosion of hydrological resources”.⁹³

In the AIJ pilot phase review report, some Parties linked their development goals to forestry and land-use.⁹⁴ Indeed, Figure 3.3 demonstrates that those Parties, despite not identified in the report, are most likely to be developing countries in the Latin American region. Figure 3.3 shows that most of forest preservation and reforestation projects, and roughly half of afforestation activities were taking place in Latin America and the Caribbean region. Not surprisingly, considering that a great percentage of the remaining tropical forests in the world are concentrated in Latin America.⁹⁵

A better sense of the region’s potentials for these types of projects can be excerpted from the fact that the data presented does not list Brazil,⁹⁶ by far the country with the greater portion of remaining tropical forests.⁹⁷ In addition to the resources availability element, the costs of forest and forestry GHG abatement practices are considerably lower in developing countries, which contributed to Latin America’s share of the market in hosting preservation, reforestation and afforestation project activities.⁹⁸

Figure 3.3



Source: United Nations Framework Convention on Climate Change, *Report of the*

⁹³ SBSTA & SBI 1999 Report, *supra* note 83, at 19.

⁹⁴ *Id.*, at 8.

⁹⁵ Food and Agriculture Org. of the U.N. [FAO], *Global Forest Resource Assessment 2005*, at 15, FAO Forestry Paper 147 (2005), available at <http://ftp.fao.org/docrep/fao/008/A0400E/A0400E03.pdf> [hereinafter FAO Global Forest Resource Assessment 2005].

⁹⁶ SBSTA & SBI 1999 Report, *supra* note 83, at 16 (“Belize, Bolivia, Costa Rica, Ecuador, Honduras, Guatemala, Mexico, Nicaragua and Panama are hosting projects in Latin America.”).

⁹⁷ FAO Global Forest Resource Assessment 2005, *supra* note 95, at 15.

⁹⁸ See IPCC Third Assessment Report, *supra* note 70, at 15 (stating the abatement costs of forest and forestry activities projects).

Subsidiary Body for Scientific and Technological Advice & Subsidiary Body for Implementation on Activities Implemented Jointly Under the Pilot Phase, part two: synthesis report on AIJ under the pilot phase, Bonn, Oct. 25 – Nov. 5, 1999, 5 FCCC/SB/1999/5 (September 15, 1999) (AFR – Africa, ASP – Asia and Pacific Region, EIT – Economies in Transition, LAC – Latin America and Caribbean).

2. The Main Challenges Encountered During the AIJ Pilot Phase

The major problems encountered by the Parties during the implementation of project activities were also summarized by the AIJ pilot phase reviewing report. Highlighting common constraints during the pilot phase was a useful tool for improvements in the flexibility mechanisms of the Kyoto Protocol, particularly in the CDM that encompasses developing countries' participation.⁹⁹ Among general challenges and obstacles to all types of projects during the pilot phase, and specifically those related to forest and forestry were:

(a) differences in the investment climate; (b) cultural differences; (c) insufficient infrastructure; (d) institutional capacity; (e) relative absence of investment companies; (f) lack of policy on AIJ and of a clear and transparent set of operational rules on the part of the host country; (g) lack of awareness in the private sector in host countries on opportunities represented by AIJ; (h) variations in the degree of knowledge and acceptance of AIJ by local stakeholders; (i) lack of capacity to produce comprehensive AIJ project proposals; (j) existing preferences, driven by established business partnerships, strategic considerations and political priorities for investors for particular areas; (k) differences in GHG reduction costs and in transaction costs due to, *inter alia*, some of the above points; and (l) current exclusion of crediting for GHG reductions or removals by sinks;....
(e) high transaction costs; and (f) the uncertainty regarding two major interlinked methodological issues, the identification of the project baseline and additionality.¹⁰⁰

All in all, it is worth noticing that the AIJ pilot phase was characterized by the lack of stronger oversight mostly due to a weak regulatory regime. Therefore, even though the data presented were useful in assisting negotiators to model the regulatory framework for afforestation and reforestation practices in the CDM, and helped to indicate trends and potentials, the results lack accuracy. Nonetheless, the AIJ pilot phase was crucial in raising the Parties' concerns over the technical, scientific and socio-economic challenges related to forest and forestry project-activities, which inevitably constituted one of the leading factors to the development of a stronger and tighter regulatory regime specifically to deal with forest and forestry activities in the CDM.¹⁰¹

ii. The CDM of the Kyoto Protocol

⁹⁹ Michaelowa, *supra* note 82, at 202.

¹⁰⁰ SBSTA & SBI 1999 Report, *supra* note 83, at 6, 10.

¹⁰¹ See generally Costa, *supra* note 43, at 2 (providing further analysis on forestry projects under the AIJ pilot phase).

The outcome of the COP-3 negotiations was that project-based joint implementation launched by the UNFCCC, and implemented by the pilot phase, ended up divided by the Kyoto Protocol into Joint Implementation (JI), and the Clean Development Mechanism (CDM). Within the scope of this paper is worthy noticing that the final language of Article 12 (CDM) of the Kyoto Protocol provided the CDM with threefold objective: assist non-Annex I Parties in achieving sustainable development, contribute with the Convention's overall objective, and help developed countries in achieving their quantified emission limitation and reduction commitments.¹⁰²

iii. The Controversy Whether Forest and Forestry Activities Were Meant to be Included in the CDM

Prior to the negotiations at COP-3, in Kyoto, the Parties had before them the SBSTA synthesis report on activities implemented jointly under the pilot phase.¹⁰³ The report was noted by decision 10/CP.3¹⁰⁴, and stressed out the existence of 6 ongoing forestry preservation and afforestation activities, with ample participation of developing countries in hosting the projects.¹⁰⁵

Opponents of the inclusion of sinks in the CDM¹⁰⁶ argued that Article 12 did not provide legal support for such inclusion. Their main argument was a comparison with Article 6 (JI), in which the inclusion of “sinks” is clearly stated, as opposed to Article 12 (CDM). In addition, the opposition also included the allegation that because sink projects could not be accurately measured, they did not meet Article 12.5(b)'s requirement that certification under the CDM should be on the basis of “[r]eal, measurable, and long-term benefits related to the mitigation of climate change;”.¹⁰⁷

Indeed, whereas Article 6 (JI) of the Kyoto Protocol expressly referred to projects providing enhancement of removals by sinks, Article 12 (CDM) generally states project activities without further specifications whatsoever.¹⁰⁸ However, a closer analysis of the climate change regime did not provide for the exclusion of sink projects from the CDM.¹⁰⁹ First, because JI in the UNFCCC was the origin of the CDM, and under the pilot phase forest and forestry activities were being utilized amply by Annex I and non-Annex I Parties. Second, because Article 12 also did not specify any other type of projects, such as renewable energy, or energy efficiency. It was simply limited to stating the CDM

¹⁰² Kyoto Protocol art. 12.2, *supra* note 14.

¹⁰³ SBSTA & SBI 1997 Report, *supra* note 88.

¹⁰⁴ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Third Session, Part Two: Action Taken by the Conference of the Parties, Decision 10/CP.3, Activities implemented jointly under the pilot phase*, Kyoto, December 1 - 11, 1997, 41 FCCC/CP/1997/7/Add.1 (March 25, 1998) [hereinafter Decision 10/CP.3].

¹⁰⁵ SBSTA & SBI 1997 Report, *supra* note 88, at 4, 5.

¹⁰⁶ See Costa, *supra* note 43, at 8 (stressing out that the main opponents to the inclusion of forestry in the CDM were the EU, China and India, and that proponents were Latin American countries and the Umbrella Group – Japan, Canada, Australia, New Zealand and Iceland).

¹⁰⁷ GRUBB ET AL., *supra* note 52, at 241.

¹⁰⁸ Compare Kyoto Protocol art. 6, *supra* note 14 (expressly referring to enhancement of removals by sinks of greenhouse gases), with Kyoto Protocol art. 12, *supra* note 14 (broadly defining the clean development mechanism).

¹⁰⁹ See HUNTER ET AL., *supra* note 15, at 645 (“Both the Framework Convention and the Kyoto Protocol clearly contemplate that sinks such as forest would be within the ambit of the climate regime.”).

objectives, and setting general operational guidance.¹¹⁰ The omission only constitutes inaccuracy in the written language utilized in the Kyoto Protocol, but nothing beyond that. As per the impossibility to measure and monitor forestry projects, currently approved monitoring methodologies by the CDM Executive Board demonstrate that although harder than other types of projects, forestry activities can be monitored and measured.

A final common ground was only possible due to some degree of leverage that countries pushing for the inclusion of forestry activities (Umbrella Group) had,¹¹¹ particularly the U.S., Japan, Canada and Australia,¹¹² so that the Protocol could enter into force by achieving its required target of 55 per cent of global anthropogenic GHG emissions.¹¹³ Considering that the U.S. along with other Umbrella Group countries account for over half of the world's emissions, their engagement was crucial to the Protocol's success. Another important element relied on the fact that the EU was not going to accept the inclusion of nuclear projects in the CDM. In order to avoid any attempt from the U.S., other developed country, or even China and India to push forward the debate on the inclusion of nuclear energy projects, the EU allowed some flexibility and ended up accepting forestry activities in the CDM.¹¹⁴ The controversy was finally settled at COP-7, in Marrakech, when negotiators agreed to include forestry in the CDM, but limited to afforestation and reforestation activities.¹¹⁵

iv. COP-7, Marrakech Accords, 2001, COP-9, Milan, 2003 & COP-10, Buenos Aires, 2004

After failing to reach consensus at COP-6, and COP-6 “bis” on the issue of land use, land-use change and forestry generally, progress made during those two sessions of the conference of the Parties allowed a final agreement on the inclusion of forestry activities in the CDM at COP-7, in Marrakesh, 2001.¹¹⁶ The outcome of this meeting was called “Marrakesh Accords”.¹¹⁷ Through the Annex to a draft decision on LULUCF the Parties finally agreed on the inclusion of forestry projects in the CDM based on three pillars of eligibility and offsetting limitations, and regulatory flexibility for future commitment periods, as follow: 1) forestry in the CDM is limited to afforestation and reforestation activities; 2) addition limitation to a Parties’ assigned amount of 1 per cent of base year emissions, times five (which represents 20% of an Annex I country overall target)¹¹⁸; and 3) a regulatory regime for future commitment periods shall be decided during the

¹¹⁰ See Costa, *supra* note 43, at 2 (“Article 12 on the CDM referred only to ‘emmission reductions’ with no mention of any specifically eligible activities.”).

¹¹¹ 12 Earth Negotiations Bulletin 176, at 13 (2001), available at <http://www.iisd.ca/download/pdf/enb12176e.pdf> (last visited Apr. 5, 2007) [hereinafter ENB Final COP-6].

¹¹² Schwartz, *supra* note 75, at 456.

¹¹³ Kyoto Protocol, *supra* note 14, art. 25.

¹¹⁴ Schwartz, *supra* note 75, at 457.

¹¹⁵ Decision 11/CP.7, *supra* note 45, at 60.

¹¹⁶ See ENB Final COP-6, *supra* note 111, at 13 (“The collapse of The Hague negotiations was attributed to many observers to disagreement over LULUCF issues: ‘It was sinks that sunk The Hague.’”).

¹¹⁷ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Seventh Session, Part Two: Action Taken, Decision 1/CP.7, The Marrakesh Ministerial Declaration*, Marrakesh, Oct. 29 – Nov. 10, 2001, 3 FCCC/CP/2001/13/Add.1 (January 21, 2002) [hereinafter Decision 1/CP.7].

¹¹⁸ Costa, *supra* note 43, at 10.

negotiations on the second commitment period.¹¹⁹

Overall, and at least for the first commitment period, the EU's main interests prevailed over the ones from the Umbrella Group.¹²⁰ The EU succeeded at banning nuclear projects in the CDM (decision 17/CP.7), and at limiting not only forestry to afforestation and reforestation, but also the amount accountable against an Annex I Party's assigned amount.¹²¹ In practice, since the EU – Emissions Trading Scheme excluded carbon credits originated from LULUCF activities,¹²² and considering European countries (and their private entities) constitute the vast majority of Annex I buyers (taking into account that the U.S. has not yet ratified the Kyoto Protocol),¹²³ the inclusion of forestry in the CDM did not affect significantly EU's interests for the first commitment period. On the other hand, the Umbrella Group, if not with the desired amplitude, inserted sinks in the CDM, and left open the debate for future commitment periods.

Once forestry made it to the CDM, and the Parties had established general eligibility and offsetting limitations and flexibility on the debate for future commitment periods, an operational regulatory regime became a requirement. Without further and specific progress at COP-8, in New Delhi, 2002, the Parties would agree upon a thorough regulatory regime for forestry in the CDM at COP-9, in Milan, 2003.¹²⁴ Decision 19/CP.9 set up modalities and procedures for afforestation and reforestation project activities under the CDM.¹²⁵

Decision 19/CP.9 was also particularly important because it affirmed the principles of Decision 11/CP.7 on LULUCF, and envisioned a more flexible regulatory regime for small-scale forestry projects in the CDM,¹²⁶ following a model that the Parties had already implemented at COP-8 for other types of activities (renewable energy and energy efficiency) in the CDM (Annex II to decision 21/CP.8).¹²⁷

The forestry legal framework in the CDM was completed for the first commitment period, when the Parties at COP-10 in Buenos Aires, 2004, agreed upon decision 14/CP.10 on simplified modalities and procedures for small-scale afforestation and reforestation

¹¹⁹ Decision 11/CP.7, *supra* note 45, at 60.

¹²⁰ See 12 Earth Negotiations Bulletin 76, at 15 (1997), *available at* <http://www.iisd.ca/download/pdf/enb1276e.pdf> (last visited Apr. 6, 2007) [hereinafter ENB Final COP-7], at 15 (stressing out that with the U.S. withdrawal the leverage power of Russia and some other countries from the Umbrella Group increased, and that to strike a deal the EU and China were compelled to concede on many issues, but overall the pathway to ratification was open and the outcome for the EU was a positive one, *i.e.* compliance mechanism).

¹²¹ Decision 11/CP.7, *supra* note 45, at 60.

¹²² Directive of the European Parliament and of the Council 2004/101/EC, art. 1(2), 2004 O.J. (L338/18) [hereinafter EU Directive 2004/101].

¹²³ See UNFCCC annex I, *supra* note 7 (with the additions made pursuant to decision 4/CP.3).

¹²⁴ Decision 19/CP.9, *supra* note 76, at 13.

¹²⁵ United Nations Framework Convention on Climate Change, *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, Decision 5/CMP.1, Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol*, Montreal, Nov. 28 – Dec. 10, 2005, 61 FCCC/KP/CMP/2005/8/Add.3 (March 30, 2006) [hereinafter Decision 5/CMP.1].

¹²⁶ Decision 19/CP.9, *supra* note 76, at 13.

¹²⁷ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Eighth Session, Part Two: Action Taken by the Conference of the Parties, Annex II to Decision 21/CP.8, Guidance to the Executive Board of the clean development mechanism*, New Delhi, Oct. 23 - Nov. 1, 2002, 18 FCCC/CP/2002/7/Add.3 (March 28, 2003) [hereinafter Decision 21/CP.8].

project activities in the CDM.¹²⁸ This regulatory regime was implemented at MOP-1, in Montreal, 2005, right after the Kyoto Protocol had entered into force.¹²⁹ Table 3.1 below aims at providing a chronological overview of the general, and specific legal provisions applicable to forestry project activities under the CDM.

Table 3.1

Provision	Subject	Status	Adoption
Arts. 4.2(a)(b)(d) & 3.3 / UNFCCC	JI under the Convention	General	1992 UNFCCC
Dec. 5/CP.1	AJJ Pilot Phase	General	1995 COP-1
Arts. 3.3, 3.4 & 12 / Kyoto Protocol	LULUCF Activities & the CDM	General / Specific	1997 Kyoto Protocol
Decs. 7 & 9/CP.4	CDM & LULUCF Work Programme	General	1998 COP-4
Decs. 11, 15 & 17/CP.7	LULUCF Activities & the CDM	Specific	2001 COP-7
Dec. 21/CP.8	CDM	Specific	2002 COP-8
Dec. 19/CP.9	A/R in the CDM	Specific	2003 COP-9
Decs. 13 & 14/CP.10	Reporting A/R in the CDM & Simplified A/R Activities in the CDM	Specific	2004 COP-10
Decs. 2, 3, 4, 5, 6, 16 & 17/CMP.1	Adopting draft decisions recommended by previous COPs	Specific / General	2005 MOP-1

Source: prepared by the Author.

b. Institutional Framework

The 1992 UNFCCC launched a comprehensive institutional framework to implement measures and policies, develop guidelines and methodologies, and to coordinate and translate the scientific work into norms and decisions¹³⁰ aiming at achieving the

¹²⁸ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Tenth Session, Part Two: Action Taken by the Conference of the Parties, Decision 14/CP.10, Simplified modalities and procedures for small-scale afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol and measures to facilitate their implementation*, Buenos Aires, December 6 - 18, 2004, 26 FCCC/CP/2004/10/Add.2 (April 19, 2005) [hereinafter Decision 14/CP.10].

¹²⁹ See United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its First Session, Part One: Proceedings, Statement by the President of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its first session*, Montreal, Nov. 28 – Dec. 10, 2005, 8 FCCC/KP/CMP/2005/8 (March 30, 2006) (“The President said that there had been many remarkable achievements on the path from Kyoto to Montreal, including the steadfast efforts by many countries to promote the ratification of the Protocol, the completion of the Marrakesh Accords, and the prompt start of the clean development mechanism. National efforts to implement the provisions of the Protocol were now well under way.”).

¹³⁰ See Kenneth Hanf, *The Domestic Basis of International Environmental Agreements*, in INTERNATIONAL ENVIRONMENTAL AGREEMENTS AND DOMESTIC POLITICS 1-4 (Arild Underdal & Kenneth Hanf ed., 2000) (“[I]n a highly decentralized international system, the absence of a central government at the international level does not necessarily rule out the possibility of creating international environmental regimes and the organizations needed to implement and administer them.”).

Convention's ultimate objective: to reduce anthropogenic emissions of GHGs.¹³¹ To this end, institutions dealing with forestry in the CDM are a sub-product of a broader framework, one that relies upon the supreme bodies of the Convention and the Protocol, but also upon more specific institutions unique to the control and management of afforestation and reforestation projects in the CDM. The following two subsections break down the CDM forestry institutional framework.

i. Conference of the Parties (COPs) / Meeting of the Parties (MOPs)

With primary and exclusive decision-making power, the Conference of the Parties is the highest body on the institutional hierarchy, and from which the regulatory scheme emerges.¹³² Therefore, the legality of the decisions on forestry in the CDM is derived from the powers conferred by the Convention to the Conference of the Parties, including the decision as to whether adopt a protocol.¹³³ The 1997 Kyoto Protocol, as a result of COP-3, expanded the specific CDM forestry institutional framework,¹³⁴ and also added to the Conference of the Parties the function of serving as the meeting of the Parties to the Protocol.¹³⁵

ii. SBSTA & the CDM Executive Board.

The SBSTA is the advisory body to link the available scientific information to the decision-making process of the climate change regime.¹³⁶ It is different from the IPCC, and it was not designed to replace it.¹³⁷ Article 15 of the Kyoto Protocol determined that the subsidiary bodies created under the Convention remain in charge of providing scientific and technological advice and assistance to COPs serving as MOPs.¹³⁸ Within the CDM forestry institution framework, the SBSTA takes into account the work produced by the IPCC, FAO, International Forum on Forests, among other international institutions, and provides guidance on scientific, technical and technological matters related to afforestation and reforestation, and recommends decisions to the COP/MOP.¹³⁹

¹³¹ UNFCCC, *supra* note 7, art. 2 (stating the ultimate objective of the Convention).

¹³² See HUNTER ET AL., *supra* note 15, 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.").

¹³³ UNFCCC, *supra* note 7, art. 17.

¹³⁴ Kyoto Protocol, *supra* note 14, art. 12.

¹³⁵ *Id.*, art. 13.

¹³⁶ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its First Session, Part Two: Action Taken by the Conference of the Parties, Decision 6/CP.1, The subsidiary bodies established by the Convention*, Berlin, Mar. 28 – Apr. 7, 1995, 21 FCCC/CP/1995/7/Add.1 (June 6, 1995) (the SBSTA was created to "be 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.").

¹³⁷ GRUBB ET AL., *supra* note 26, at 2.

¹³⁸ Kyoto Protocol, *supra* note 14, art. 15.

¹³⁹ United Nations Framework Convention on Climate Change, *Report of the Subsidiary Body for Scientific and Technological Advice on its Eighth Session*, Bonn, June 2 – 12, 1998, 17, 18 FCCC/SBSTA/1998/6 (August 12, 1998) [hereinafter Report SBSTA 8th Session] (a clear example of the SBSTA work is during COP-4, the Parties had before them the SBSTA report on its 8th session on land use, land-use change and

Another important organ in the CDM forestry institutional framework is the CDM Executive Board (EB). Featured in Article 12.4 of the Kyoto Protocol, the CDM Executive Board was implemented by decision 17/CP.7 to carry out the oversight function over activities in the CDM under the guidance and authority of the COP/MOP.¹⁴⁰ Through decision 17/CP.7, the COP/MOP expanded EB's supervisory role, adding to it decision-making power over approval of Designated Operational Entities (DOEs),¹⁴¹ projects, including the final work on new methodologies, baseline and monitoring methodologies, and issuance of certified emission reduction (CER).¹⁴² In sum, the EB is the executive body in charge of handling projects undertaken pursuant to the CDM, and all related matters thereof.¹⁴³

iii. Designated Operational Entities (DOEs) & Afforestation / Reforestation, and Methodologies Working Groups

The CDM Executive Board can accredit operational entities known as Designated Operational Entities (DOEs) and recommend them to the COP/MOP for final designation.¹⁴⁴ The rationale behind the conception of DOEs is that by delegating to an independent company the validation of proposed CDM projects, and subsequent verification and certification emissions reductions, the EB preserves its oversight and decision-making role over proposed new methodologies, baselines and monitoring plans¹⁴⁵, while counting on the efficiency of outside specialized private corporations to have a more agile process.¹⁴⁶ Should the EB had to operate the technical field work of validation, verification, and certification of each proposed project, the financial and human resources necessary would make the process unfeasible.¹⁴⁷

forestry. One of SBSTA's conclusions on the topic was an interpretation of Article 3.3 of the Kyoto Protocol. Many obstacles remained on different elements of implementing Article 3.3. The SBSTA report mainly recognized that additional technical information was needed in order to fully implement LULUCF activities under the Protocol and requested IPCC to elaborate a technical report on the topic. It also requested the Parties to submit data and suggested methods, modalities, rules and guidelines on additional human-induced activities could be included in Article 3.4. The report also called for a workshop of experts aiming at exploring the issues raised by the IPCC report. Finally the workshop called for the secretariat to liaise with the secretariat of the Convention on Biological Diversity and of the Convention to Combat Desertification, International Forum on Forests, the FAO and all other international agencies and organizations that could provide helpful information on the topic).

¹⁴⁰ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Seventh Session, Part Two: Action Taken, Decision 17/CP.7, Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol*, Marrakech, Oct. 29 – Nov. 10, 2001, 21 FCCC/CP/2001/13/Add.2 (January 21, 2002) [hereinafter Decision 17/CP.7].

¹⁴¹ FAO Working Paper 3, *supra* note 87, at 9 (“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 A/R project activity.”).

¹⁴² Decision 17/CP.7 annex to draft decision, *supra* note 140, at 27.

¹⁴³ Michaelowa, *supra* note 82, at 203.

¹⁴⁴ Decision 17/CP.7, *supra* note 140, at 21.

¹⁴⁵ See generally Michaelowa, *supra* note 82, at 203 (specifying the requirements for a company to be accredited as a DOE).

¹⁴⁶ See United Nations Framework Convention on Climate Change UNFCCC, *The First Ten Years*, at 87 (2004), available at http://unfccc.int/resource/docs/publications/first_ten_years_en.pdf.

¹⁴⁷ See Costa, *supra* note 43, at 5 (“It became obvious that third-party certification was instrumental in the

In addition, by working with different and independent DOEs in the validation, verification and certification stages, the EB institutional framework is constantly being crosschecked, diminishing the margin for imprecise certified emissions reductions. This scheme is particularly important in the CDM context, considering that non-Annex I countries have no emissions limitation commitments.¹⁴⁸ The downside is that such a comprehensive process adds bureaucracy and complexity, requiring high level of multidisciplinary expertise which ends up restricting the participation of developing countries' stakeholders, despite the thorough capacity-building scheme envisioned by the climate change regime.¹⁴⁹

Finally, taken into consideration the wide range of scientific, technical and technological expertise different projects under the CDM may require, the COP/MOP conferred upon the EB the authority to "establish committees, panels, or working groups to assist it in the performance of its functions."¹⁵⁰

For forestry related projects, the EB at its fourteenth meeting agreed to establish an Afforestation and Reforestation Working Group (A&R WG).¹⁵¹ In assisting the EB, the A&R WG is responsible to comment on proposed new baselines and monitoring methodologies for forestry projects, prepare draft reformatted versions of those approved by the EB, and recommend available options to expand the applicability of approved A/R methodologies.¹⁵² In this sense, the A&G WG works closely and in consonance with the Methodologies Panel (Meth Panel) agreed upon the third meeting of the EB,¹⁵³ which is designed to provide the EB with recommendations on guidelines for methodologies and for baselines and monitoring plans, including those for afforestation and reforestation projects.¹⁵⁴

iv. Multilateral Investment Institutions

validation and credibility of these new transactions.”).

¹⁴⁸ See *id.*, at 4 (stressing out the problems inherent to a trading-scheme without commitments for developing countries, in which the commodity has value only for the buyer, but not for the seller) see also Swisher, *supra* note 27, at 58 (“This situation [lack of commitments for developing countries] makes permit trading problematic, because developing countries would have excess permits to sell to the industrialized countries, creating large North-South cash transfers in exchange for emission rights. This is easy to justify on the basis of equity, but the receipt of these transfers would stimulate economic activities that would counteract emissions reductions”).

¹⁴⁹ See United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Seventh Session, Part Two: Action Taken, Annex to Draft Decision attached to Decision 2/CP.7, Capacity building in developing countries (non-Annex I Parties)*, Marrakech, Oct. 29 – Nov. 10, 2001, 5 FCCC/CP/2001/13/Add.1 (January 21, 2002) [hereinafter Decision 2/CP.7].

¹⁵⁰ Decision 17/CP.7 annex to draft decision, *supra* note 140, at 30.

¹⁵¹ United Nations Framework Convention on Climate Change, *Report of the Executive Board of the Clean Development Mechanism at its Fourteenth Meeting*, Bonn, June 12-14, 2004, 8 CDM-EB-14 (June 14, 2004) [hereinafter EB 14th Meeting].

¹⁵² FAO Working Paper 3, *supra* note 87, at 9.

¹⁵³ United Nations Framework Convention on Climate Change, *Report of the Executive Board of the Clean Development Mechanism at its Third Meeting*, Bonn, April 9-10, 2002, 3 CDM-EB-3 (April 17, 2002) [hereinafter EB 3rd Meeting].

¹⁵⁴ See United Nations Framework Convention on Climate Change, *Report of the Executive Board of the Clean Development Mechanism at its Fourth Meeting*, Bonn, June 9-10, 2002, 3 CDM-EB-4 (June 10, 2002) [hereinafter EB 4th Meeting] (detailing the specific roles of the Meth Panel).

Multilateral investors are an important element of the CDM forestry institution framework, and also in fomenting carbon markets worldwide. Within the initiatives to launch a forestry carbon market that could be attractive to investors, and project developers in the post-Kyoto, the following are worth mentioning: the Sydney Futures Exchange for forestry-based carbon credits, the GHG tradable permit trading mechanism coordinated by UNCTAD, and the GHG emissions trading programme of the International Petroleum Exchange.¹⁵⁵ These early innovative attempts lead to “the creation of the International Emissions Trading Association, alongside the Emissions Market Association, the Chicago Climate Exchange, and country-level emission trading systems such as in the UK and Denmark.”¹⁵⁶

The World Bank launched in 2003 the BioCarbon fund, described as a public/private initiative aiming at delivering “cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation.”¹⁵⁷ The BioCarbon fund is inspired in the previous World Bank Prototype Carbon Fund established in 1999 to promote renewable energy and energy efficiency projects under the CDM.¹⁵⁸ While there are general carbon investment funds currently available worldwide,¹⁵⁹ within the CDM forestry institutional framework, the BioCarbon fund consolidates the World Bank initiative as the main multilateral investment institution, one that involves public and private investors, and is particularly sensitive to social and environmental benefits.¹⁶⁰

c. Provisions for Domestic Legal & Institutional Framework (Designated National Authority – DNA)

One of the core principles of the CDM is that participation is voluntary and dependent upon prior approval by each Party involved.¹⁶¹ Furthermore, in accomplishing one of the CDM’s objectives - assisting developing countries in achieving sustainable development – the COP/MOP requires project developers a formal evaluation issued by the host country of whether a proposed project activity meets its sustainable development goals.¹⁶² The procedural participation requirement given to a non-Annex I Party wishing to participate in the CDM and, therefore, externalize to project developers voluntariness and compliance with sustainable development goals, is by establishing a designated national

¹⁵⁵ Costa, *supra* note 43, at 7.

¹⁵⁶ *Id.*, at 7.

¹⁵⁷ The World Bank Carbon Finance Unit, *BioCarbon Fund*, <http://carbonfinance.org/Router.cfm?Page=BioCF&ItemID=9708&FID=9708> (last visited Apr. 9, 2007) [hereinafter WB Carbon Finance Unit].

¹⁵⁸ See International Bank for Reconstruction and Development, World Bank Resolution No. 99-1, *Authorizing establishment of the prototype carbon fund*, in 1 THE WORLD BANK LEGAL REVIEW: LAW AND JUSTICE FOR DEVELOPMENT 433, 433 (Ko-Yung Tung & Rudolf V. Van Puymbroeck ed., Kluwer Law International, 2003).

¹⁵⁹ See Clemens Hüttner, *Players Get Busy in CDM Markets*, Carbon In Focus, http://www.3c-company.com/fileadmin/downloads/press/pc/2007/PC_2007_03_Powernews.pdf, (last visited Apr. 9, 2007) (for instance the European Carbon Fund and other private investment carbon funds).

¹⁶⁰ See Michaelowa, *supra* note 82, at 202, 204, 205, 206 (detailing the World Bank’s carbon finance activities) see also The WB Carbon Finance Unit, *supra* note 259 (supporting the goals of promotion of biodiversity and poverty alleviation).

¹⁶¹ Kyoto Protocol, *supra* note 14, art. 12.5(a).

¹⁶² Decision 17/CP.7, *supra* note 140, at 21.

authority (DNA).¹⁶³ This provision opened up the field for the development of national legal and institutional frameworks by non-Annex I countries desiring to participate in the CDM.

4. Current Obstacles, Challenges and Impacts (Positives and Negatives) to Forestry Project Activities under the CDM

In light of its controversial nature, forestry activities in the CDM have raised over the past decade many positives and negatives assessments regarding inherent impacts of their implementation. Moreover, the expansion of forestry over afforestation and reforestation activities is also facing political, legal and technical obstacles.

a. Political, Policy and Legal Obstacles

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.”¹⁶⁴ This is the case of the U.S. refusal in ratifying the Kyoto Protocol, which added to the EU policy decision undertaken within its Emission Trading Scheme (EU ETS) of rejecting CDM forestry projects,¹⁶⁵ and the climate change forestry legal limitation to afforestation and reforestation activities, form the core obstacles examined in this section.¹⁶⁶

i. U.S. Resistance in Ratifying the Kyoto Protocol

In 1998, the U.S Congress passed Senate Resolution 98 (S.Res.98), “urging 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.”¹⁶⁷ In March of 2001, the Bush administration announced the rejection of the Kyoto Protocol,¹⁶⁸ shortly after the U.S. experienced the tragedy of September 11th. Though not totally clear if the terrorist attack influenced U.S. policies in the climate change regime, some have suggested that the lack of stronger involvement with the Kyoto Protocol over the past years indicates that the tragedy might have shifted U.S.’s focus.¹⁶⁹

For what it represents economically and politically, the U.S. is a major player in any international negotiation. Therefore, the U.S. resistance in accepting the overall provisions of the Kyoto Protocol constitutes a significant political obstacle to the development of forestry activities within the climate change regime.¹⁷⁰ By coming on board, the U.S.

¹⁶³ *Id.*, annex to draft decision, at 32.

¹⁶⁴ G. J. H. VAN HOOFF, *RETHINKING THE SOURCES OF INTERNATIONAL LAW* 122 (Kluwer Law & Taxation, 1983).

¹⁶⁵ EU Directive 2004/101, *supra* note 122, art. 1(2).

¹⁶⁶ Decision 16/CMP.1 annex, *supra* note 48, at 7.

¹⁶⁷ JOHN R. JUSTUS & SUSAN R. FLETCHER, *GLOBAL CLIMATE CHANGE*, C.R.S. DOC. NO. IB89005-108, at 10 (2004).

¹⁶⁸ *Id.*, at 11.

¹⁶⁹ Todd M. Lopez, *A Look at Climate Change and the Evolution of the Kyoto Protocol*, 43 NAT. RESOURCES J. 285, 306 (2003), *see also* Costa, *supra* note 43, at 10.

¹⁷⁰ *See* Michaelowa, *supra* note 82, at 202 (“[G]iven the absence of the US and the weakening of

would play a much greater role not only on actively pushing negotiations towards expanding eligible activities for future commitment periods, but also in fomenting the market for forestry certified emissions reductions (CERs).

ii. EU Refusal to Accept CDM Forest and Forestry Project Activities

Effectively starting on 1 January 2005, the European Union Emission Trading Scheme (EU ETS) is the world biggest GHG domestic emissions trading scheme.¹⁷¹ The market for CERs created by the EU ETS increased significantly the demand for project activities undertaken in the CDM. Although not for afforestation and reforestation, considering that the provision authorizing the use of CERs expressly excluded those from LULUCF activities.¹⁷² Because most of the countries with established commitments under the Kyoto Protocol are part of the EU,¹⁷³ the policy of excluding CERs from forestry project activities is a major obstacle for the enhancement of a stronger market in this area, which inevitably hampers the development of new forestry-based GHG mitigation projects.¹⁷⁴

iii. CDM Limitation to Afforestation and Reforestation Project Activities

One of the major obstacles to an ample expansion of land use, land-use change and forestry projects in the CDM for the first commitment period is the legal limitation imposed upon these kinds of activities to merely anthropogenic afforestation and reforestation practices. The preoccupation and over precaution in effectively imposing such limitation made the climate change negotiators to include it in at least three different decisions (Annex to the draft decision 11/CP.7, decisions 17/CP.7,¹⁷⁵ and 19/CP.9¹⁷⁶) prior to the first meeting of the Parties, and also in those adopted thereof.¹⁷⁷ Moreover, “[t]he 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

industrialized country emission targets through higher allowances for sinks, the demand for emission reductions abroad will be much lower than originally anticipated.”).

¹⁷¹ Marjan Peeters, *The Enforcement of Greenhouse Gas Emissions Trading in Europe – Reliability Ensured?* 3 (Oct. 17, 2006) (paper presented to the Fourth IUCN Colloquium on Environment Enforcement and Compliance) (on file with the author).

¹⁷² See EU Directive 2004/101/EC, art. 1(2), *supra* note 122 (“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: (b) except for CERs and ERUs from land use, land use change and forestry activities.”).

¹⁷³ See UNFCCC annex I, *supra* note 7 (with the additions made pursuant to decision 4/CP.3).

¹⁷⁴ See Costa, *supra* note 43, at 9 (referring to the fact that an environment of uncertainty affects the appetite for forestry-based GHG mitigation projects in detriment of clean energy and energy efficiency projects).

¹⁷⁵ See Decision 11/CP.7, *supra* note 45, at 54, *see also* Decision 17/CP.7, *supra* note 242, at 20.

¹⁷⁶ See Decision 19/CP.9, *supra* note 76, at 13.

¹⁷⁷ See United Nations Framework Convention on Climate Change, *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*, Montreal, Nov. 28 – Dec. 10, 2005, FCCC/KP/CMP/2005/8/Add.3 (March 30, 2006).

inappropriate.”¹⁷⁸ Therefore, such limitation constitutes a legal obstacle for the expansion and further developments of LULUCF activities within the climate change regime in future commitment periods.

b. Technical Challenges

According to FAO, the forestry sector is “technically especially challenging in terms of CDM project formulation....”.¹⁷⁹ The first substantial decision addressing accountability for domestic action on LULUCF (decision 11/CP.7) in its request to the SBSTA, called for the development of definitions and modalities for including afforestation and reforestation in the CDM, without leaving aside the issues of non-permanence, additionality and leakage.¹⁸⁰ These technical concerns were based on the IPCC work expressed in its 2000 special report on LULUCF.¹⁸¹ In addition, decision 19/CP.9’s requirement that non-Annex I countries shall opt for a definition of forest based on pre-established parameters¹⁸², added another technical challenge addressed by the FAO Forest and Climate Change Working Paper 4.¹⁸³

i. Additionality

Article 12 of the Kyoto Protocol establishes that emissions reductions from CDM projects have to be “additional to any that would occur in the absence of the certified project activity.”¹⁸⁴ The rationale behind additionality lies on the fact that “if developing nation would have undertaken the same emissions reduction projects even in the absence of Annex I investment, the world could have enjoyed the same emissions reductions without the CDM and without giving Annex I countries credits that let them emit more.”¹⁸⁵

Aiming at assisting forestry project developers, the Afforestation Reforestation Working Group (AR WG) at its fifth meeting revised a tool for demonstration and assessment of additionality.¹⁸⁶ The CDM Executive Board adopted it at its twenty first meeting as a highly recommended guideline although not mandatory,¹⁸⁷ which shows that considerable progress was made over the past decade and a half.

¹⁷⁸ Trexler et al., *supra* note 67, at 29.

¹⁷⁹ FAO Working Paper 3, *supra* note 87, at 1.

¹⁸⁰ See Decision 11/CP.7, *supra* note 45, at 54.

¹⁸¹ See generally IPCC Special Report LULUCF, *supra* note 17, at 12 (bringing to the attention of policy-makers the technical challenges related to LULUCF).

¹⁸² See Decision 19/CP.9, Item “F” of the Annex to the draft decision, *supra* note 76, at 13.

¹⁸³ See Till Neeff, Heiner von Luepke, Dieter Schoene, *Choosing a forest definition for the Clean Development Mechanism*, (FAO Forests and Climate Change, Working Paper No. 4, 2006).

¹⁸⁴ Kyoto Protocol, *supra* note 14, art. 12.5(c).

¹⁸⁵ Schwartz, *supra* note 75, at 426.

¹⁸⁶ United Nations Framework Convention on Climate Change, *Annex 16 – Tool for demonstrating the additionality of afforestation and reforestation - to the Report of the Executive Board of the Clean Development Mechanism at its Twenty First Meeting*, Bonn, September 28-30, 2005, 8 CDM-EB-21 (September 30, 2005) available at

http://cdm.unfccc.int/Panels/ar/ARWG05_repan2_Additionality_Tool_final.pdf (last visited Apr. 11, 2007).

¹⁸⁷ United Nations Framework Convention on Climate Change, *Report of the Executive Board of the Clean Development Mechanism at its Twenty First Meeting*, Bonn, September 28-30, 2005, 8 CDM-EB-21 (September 30, 2005).

Verifying whether a project activity meets the additionality requirement is crucial for the emissions trading scheme, and often constitute a technical challenge, especially in the forestry field¹⁸⁸ due to the fact that such natural ecosystems are exposed to innumerable unpredictable natural and anthropogenic factors (e.g., fires, extreme meteorological events, pests, urban sprawling, etc.).¹⁸⁹ Therefore, additionality is a necessary technical burden that needs to be properly addressed in a project-by-project basis.¹⁹⁰

ii. Domestic Definition of Forest

In the 2000 special report on land use, land-use change and forestry, the IPCC highlighted that a successful forestry carbon offset program would necessarily depend on clear definitions of forest and forestry activities. The definitions of forest varied considerably among countries based on different criteria (e.g., legal, administrative, or cultural consideration).¹⁹¹ Nonetheless, for the successful implementation of LULUCF it was crucial to harmonize the definitions for the climate change regime.¹⁹² In an attempt to harmonize domestic definitions, the annex to the draft decision attached to decision 19/CP.9 imposed as a mandatory requirement that countries define forest prior to participating in the CDM. This provision allowed some flexibility for the Parties in defining forests to opt for a minimum tree crown cover, land area, and tree height between numbers varying from 10 to 30 per cent, 0.05 to 1 hectare, and 2 to 5 meters, respectively.¹⁹³ The rationale behind this was to provide the Parties some margin to adjust their domestic definition accordantly to their natural and geographic realities. An international uniform definition would not be able to encompass the enormous variety of ecosystems around the world, and would inevitably end up favoring some countries in detriment of others.¹⁹⁴

Soon after adopted, then, the definition requirement became another technical challenge inherit to forestry activities in the CDM. In 2006, FAO issued its Forest and Climate Change Working Paper 4 specifically addressing the issue of choosing a forest definition for the CDM, and presenting recommendations for a country to choose the best parameters to the definition of forest, based on the criteria that would better serve the interests of a non-Annex I Party when participating in the CDM.¹⁹⁵ Proper selection of parameters, conceived by the Marrakesh Accords in defining forests, has a direct effect on eligible areas for afforestation and reforestation projects, and reflects the evolution of the topic, while adding another technical challenge upon participant Parties and developers.

¹⁸⁸ See GRUBB ET AL., *supra* note 52, 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.”).

¹⁸⁹ See IPCC Special Report LULUCF, *supra* note 17, at 16 (describing the risks that LULUCF projects are subject to).

¹⁹⁰ FAO Working Paper 3, *supra* note 87, at 5.

¹⁹¹ *Id.*, at 14.

¹⁹² *Id.*, at 5.

¹⁹³ Decision 19/CP.9, annex to the draft decision, *supra* note 76, at 13.

¹⁹⁴ See Neeff et al., *supra* note 183, at 7 (stressing out the importance of opting for appropriate parameters when defining forest upon participation in the CDM).

¹⁹⁵ *Id.*, at 7.

iii. Defining Baseline and Monitoring Methodologies

Complex enough by nature, baseline scenarios and monitoring methodologies¹⁹⁶ are even more challenging in the ambit of afforestation and afforestation activities than they are for renewable energy and energy efficiency projects.¹⁹⁷ The credibility of the CERs from afforestation and reforestation projects is constantly at stake due to anthropogenic and naturally-occurring phenomena that can disturb the project.¹⁹⁸ As a result, up-to-date there are just over 5 approved baseline and monitoring methodologies for afforestation and reforestation projects, against more than 50 for energy efficiency and renewable energy activities.¹⁹⁹ Thus, the regulatory development of standards for determining baselines and monitoring methodologies is a remarkable evolution in the CDM forestry legal framework, but also a major and necessary technical challenge.

iv. Non-Permanence / Reversibility & Leakage

Two additional technical challenges typical to forestry project activities are non-permanence and leakage²⁰⁰. Based on the experience provided by the AIJ pilot phase, the 2000 IPCC special report on LULUCF identified the lack of proper addressability of non-permanence and leakage by project developers.²⁰¹ Almost five years latter, the forestry legal framework adopted in Milan at COP-9 evolved by expressly incorporating “leakage” as long as it can be measured (there must be an outside damage, and it must be quantified) and attributable (causation) to the forestry project activity.²⁰² As to the reversibility issue, the Parties adopted IPCC’s second recommendation by imposing a minimum crediting period of 20 years with the possibility of being renewed twice, and a maximum of 30 years without renewal.²⁰³

c. Environmental Impacts

According to the 2000 IPCC special report on LULUCF, forestry projects in the CDM “aiming to mitigate climate change may provide socioeconomic and environmental benefits primarily within project boundaries, although they may also pose risks of negative impacts”.²⁰⁴ These impacts can be of environmental, socio-economic and cultural nature.

¹⁹⁶ Swisher, *supra* note 26, at 72 (“Long-term monitoring of forestry and land-use projects can also be complex.”).

¹⁹⁷ *See id.*, 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.”).

¹⁹⁸ IPCC Special Report LULUCF, *supra* note 17, at 10.

¹⁹⁹ UNFCCC Homepage, *supra* note 4 (providing with a list of approved methodologies, which is being constantly updated).

²⁰⁰ *See* Decision 19/CP.9, annex to the draft decision, *supra* note 76, at 16 (defining “leakage” 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 attribute to the afforestation or reforestation project activity.”).

²⁰¹ *Id.*, at 15, 16.

²⁰² Decision 19/CP.9, annex to the draft decision, *supra* note 76, at 16.

²⁰³ *Id.*, at 21.

²⁰⁴ IPCC Special Report LULUCF, *supra* note 17, at 15.

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

The expansion of allowable forestry activities could encourage replacement of mature old grown forests by fast growing tree plantations, and conversion into cropland and grazing land with higher rates of carbon sequestration potentials.²⁰⁵ While limited to afforestation and reforestation projects, the risks are diminished based on the own definitions of these activities provided by the climate change regime.²⁰⁶ The rationale for establishing a historical baseline is to avoid deforestation of mature forests for subsequent re-growth for CDM carbon credit purposes.²⁰⁷

On the other hand, if the CDM legal framework is properly used (and the practice is already demonstrating positive actions)²⁰⁸ it can provide the means to avoid harmful conversions. One possibility for subsequent commitment periods would be the inclusion in the CDM of accountability for the carbon net source of deforestation practices before any replacement and/or conversion of forested land into fast-growing tree plantation, grazing and cropland management.²⁰⁹ Another would be allowing for forest preservation and conservation projects under the CDM.²¹⁰ Mature forests do not have the same sequestration potentials, but credits could be conferred upon carbon storage.²¹¹ In this case, though, some degree of flexibility in the “human-induced” criterion would have to be provided.²¹²

In any event, preserving the role of the CDM EB, and strengthening the CDM forestry legal framework are necessary requirements to expanding the list of permissible LULUCF activities in future commitment periods.

ii. Biodiversity

Considering the abovementioned threats of harmful conversions, the impacts on biodiversity have the potential to be catastrophic. To the contrary, if actions are well articulated taken into consideration existing ecosystems protective provisions, in addition with forest conservation projects for future commitment periods, the impacts can be rather positive ones.²¹³ Therefore, the climate change regime shall be seen as an important

²⁰⁵ 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).

²⁰⁶ See Decision 11/CP.7, annex to draft decision, *supra* note 45, at 58 (they are both are defined as the human-induced conversion of non-forested areas into forested, but with a slightly difference: afforestation presupposes that the converted land into forested has not been forested for at least 50 years; reforestation is the conversion of land that once was forested into forested land, but limited to those areas that were not forested on 31 December 1989).

²⁰⁷ Bloomfield et al., *supra* note 205, at 12.

²⁰⁸ See FAO Working Paper 3, *supra* note 87, at 13 (providing that the CDM A/R project activities standards are being set high).

²⁰⁹ Bloomfield et al., *supra* note 205, at 12.

²¹⁰ See Trexler et al., *supra* note 67, at 4 (advocating against the constraints upon forestry projects to afforestation and reforestation activities).

²¹¹ Bloomfield et al., *supra* note 205, at 12.

²¹² See GRUBB ET AL., *supra* note 52, at 79 (considering some Parties did not want to confer credits for activities that were naturally occurring anyhow).

²¹³ See Costa, *supra* note 43, at 1 (“[f]orestry-based carbon offset – whether they promote direct preservation,

available tool by different stakeholders involved with biodiversity conservation, rather than an obstacle that has to be overcome.

iii. Natural Ecosystems

Either positively or negatively, CDM forestry project activities also have the potential to impact natural ecosystems. Among potential threats posed by forestry projects to natural ecosystems are introduction of invasive alien species,²¹⁴ increases in erosion processes,²¹⁵ and adverse impacts on water supplies.²¹⁶ The synthesis report on projects undertaken in the pilot phase reflected positive impacts on natural ecosystems, such as “improving water quality and reducing erosion of hydrological issues.”²¹⁷ In this sense, worth noticing that the same provisions in the climate change regime designed to protect biodiversity are extended to the protection of natural ecosystems.²¹⁸

iv. Leakage

Leakage, in addition to constituting a technical challenge for the trading scheme, also has the potential to adversely impact the environment. Taking the hypothetical example of a reforestation project in a degraded pasture land; if the replacement of the pasture land into forested area leads to the practice of deforestation elsewhere for the creation of new grazing land, the area deforested faces significant environmental impacts.²¹⁹

d. Socio-Economic Impacts

An analysis of the socio-economic impacts is required whenever deemed relevant by the host country or the project participants.²²⁰ For the purpose 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 financial public and private forestry subsidies.

sustainable forestry practices or reforestation – all have the potential to positively support the goals of the Biodiversity Convention.”).

²¹⁴ See generally Schwartz, *supra* note 75, at 421, 422 (examining the potential risks of genetically modified trees of creating invasive species).

²¹⁵ See Robert J. Zomer, Antonio Trabucco, Oliver van Straaten & Deborah A. Bossio, *Carbon, Land and Water: A Global Analysis of the Hydrologic Dimensions of Climate Change Mitigation through Afforestation/Reforestation*, (International Water Management Institute, Research Report No. 101 at 3, 2006) (“[S]ome activities may increase erosion, through disturbances caused by planting, establishment, and building of access roads.”).

²¹⁶ See *id.*, at 4 (examining the potentials impacts of afforestation and reforestation projects on water supplies).

²¹⁷ SBSTA & SBI 1997 Report, *supra* note 88, at 11.

²¹⁸ See Decision 5/CMP.1, *supra* note 125, at 64.

²¹⁹ Cf. IPCC Special Report LULUCF, *supra* note 17, at 11 (providing for “positive leakage”, when a project activity leads to new management approaches or environmental friendly technology adoption).

²²⁰ Decision 5/CMP.1, *supra* note 125, at 64.

i. Capacity-building & Transfer of Sound Technology

Due to the complexities of the CDM forestry mechanism,²²¹ and the consequent demand for high qualified technical personnel, in addition to the implementation of new technologies, forestry projects in developing country could lead to job losses, or open employment opportunities mainly for developed countries personnel instead.²²² But one important element to dissuade this premise is that for these types of project activities the involvement of local communities is a *quasi* requirement for the achievement of the desired positive effects.²²³ Consequently, and based on previous experiences undertaken during the pilot phase, the likely trend is that forestry project activities will significantly increase capacity-building and employment opportunities in developing countries, as well as benefit local communities with transfer of new and sound technologies.²²⁴

ii. 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.”²²⁵ This means that the currently allowed afforestation and reforestation project activities have little or no potential to affect international trade, because the timber products such projects are generating did not exist in the first place, adding to the fact that they have to undergo undisturbed²²⁶. Therefore, they could not possibly impact the existing timber market.²²⁷ Nonetheless, during the discussions for upcoming commitment periods on to whether or not to allow for other LULUCF activities, such as forest conservation and management, harmonized policies and actions between the climate change regime and other international forest forums are strongly recommended.²²⁸

²²¹ See Bloomfield et al., *supra* note 205, 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.”).

²²² See Michaelowa, *supra* note 82, 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.”).

²²³ See Janine Bloomfield, Marina Ratchford & Sandra Brown, *Land-Use Change and Forestry in the Kyoto Protocol*, 5 MITIGATION ADAPTATION STRATEGIES FOR GLOBAL CHANGE 3, 6 (2000) (“[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.”).

²²⁴ See SBSTA & SBI 1997 Report, *supra* note 88, at 17 (reproducing socio-economic benefits reported by the Parties).

²²⁵ Trexler et al., *supra* note 67, at 39.

²²⁶ See Decision 19/CP.9, *supra* note 76, at 13 (“Taking into account the issues of non-permanence....”).

²²⁷ See Earth Negotiations Bulletin UNFCCC SB 26, at 4 (2007), available at <http://www.iisd.ca/climate/sb26/enb0704/> (last visited May 12, 2007) [hereinafter ENB UNFCCC SB 26] (pointing to sustainable forestry practices as a solution against adverse effects in the international timber market).

²²⁸ Cf. Schwartz, *supra* note 75, at 444, 445 (2006) (“The International Tropical Timber Agreement (‘ITTA’) will not apply to CDM projects. The ITTA aims to ensure that all tropical timber products traded internationally originate in substantially managed forests. (...) [O]ther potentially applicable agreements –

iii. Local Participation & Financial Return to Local Stakeholders

Any potential interference with the needs of local stakeholders caused by a CDM forestry activity has not only to be properly assessed, but generate enough income capable of offsetting eventual losses.²²⁹ Even before the tighter regulation on modalities and procedures for forestry projects in the CDM adopted at COP.9, 2004,²³⁰ the IPCC in its 2000 special report had identified that enabling local stakeholders to share the financial benefits of CDM forestry activities was a necessary social condition.²³¹ A significant regulatory step towards the implementation of a framework that could effectively embrace profitability to local participation was the provision for small-scale afforestation and reforestation projects, targeting low-income communities and individuals.²³²

While the international legal work is already in place, added the factor that the practice is still incipient²³³, the challenges for upcoming commitment periods are promising and include: firstly, considerations over profitability sharing in forest management and conservation projects, allowing also for local participation in the decision-making process at all levels (from project conception to project implementation and management)²³⁴; and secondly, domestic policies and measures harmonized with the international legal framework so as to allow local communities to benefit from forestry project activities.²³⁵

iv. Domestic CDM Forestry Subsidies

A domestic CDM forestry subsidy scheme harmonized with the climate change international legal framework is a powerful incentive tool for current afforestation and reforestation projects, and also for other LULUCF activities eventually included in upcoming commitment periods. This harmonization should start with the elimination of conflicting domestic subsidies as directed by the Parties at COP/MOP-1,²³⁶ for example,

like the Convention on International Trade in Endangered Species of Wild Fauna and Flora ('CITIES') or the FAO Tropical Forestry Action Plan – will most likely never apply to GM tree reforestation projects.”) *see also* ENB UNFCCC SB 26, *supra* note 384, at 4 (proposing sustainable forestry as a solution to minimize the adverse effects of forest conservation and management projects in the international timber market).

²²⁹ *See* Decision 5/CMP.1, *supra* note 125, at 64 (providing for a social-economic impact assessment in case the preliminary analysis indicates the potential for an socio-economic adverse impact).

²³⁰ Decision 19/CP.9, *supra* note 76, at 13.

²³¹ IPCC Special Report LULUCF, *supra* note 17, at 17.

²³² *See* Decision 19/CP.9 annex to draft decision, *supra* note 76, at 16 (“‘Small-scale afforestation and reforestation project activities under the CDM’ are those that are expected to result in net anthropogenic greenhouse gas removals by sinks of less than 8 kilotonnes of CO₂ per year and are developed or implemented by low-income communities and individuals as determined by the host Party.”).

²³³ *See generally* Risoe CDM, *supra* note 351 (listing all CDM forestry projects that have been sent to validation/determination).

²³⁴ *Cf.* Schwartz, *supra* note 75, at 480 (making similar proposal to the debates over genetically modified forestry projects in the CDM for upcoming commitment periods).

²³⁵ *See* Sagemuller, *supra* note 12, at 236 (“[D]omestic legal regimes may allow individuals landowners to generate credits from LULUCF activities that may be traded on the international market.”).

²³⁶ *See* United Nations Framework Convention on Climate Change, *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, Decision 31/CMP.1, Matters relating to Article 3, paragraph 14, of the Kyoto Protocol*, Montreal, Nov. 28 – Dec. 10, 2005, 9 FCCC/KP/CMP/2005/8/Add.4 (March 30, 2006).

domestic legislation penalizing forest conservation and promoting land clearance (deforestation) for agricultural purposes and urban sprawl.²³⁷

Worth noticing, that public subsidies are not limit to financial support. Rather they may encompass a variety of different governmental encouragement actions such as direct payment in cash, goods or services to forest landowners for promoting carbon sequestration, purchase of land or land interests, implementation of general forest management service programmes, among others.²³⁸ Thus, national public subsidies to LULUCF project activities shall be planned not only accordantly to the international legal framework, but also to other domestic subsidies for forest management generally.

5. Overcoming Obstacles and Adverse Impacts of Forest and Forestry Project Activities Under the CDM for Upcoming Commitment Periods

Overall, if well managed and implemented, project-based forest and forestry activities in the CDM beyond just afforestation and reforestation practices can serve many environmental, social and economic purposes and benefit small rural and poor communities and individuals. The political, policies, legal and technical challenges and obstacles, and risks of forest management and conservation projects to biodiversity, watersheds or to promoting deforestation are overcome by the positives impacts.²³⁹ This section, then, is dedicated to examining trends and proposing actions for future commitment periods.

a. Potential Upcoming Trends to Overcoming Political, Policies and Legal Obstacles

In overcoming the U.S. resistance to the Kyoto Protocol, two possibilities can play a major role. First, the 2006 U.S. congressional election saw the Democratic Party take the majority from the Republicans, which could indicate a Democratic victory in the 2008 presidential election. Based on the Democratic sensibility to climate change, and considering that the Clinton administration signed the Kyoto Protocol but faced a Republican Congress, one could expect that the U.S. is much more likely to ratify the Protocol.²⁴⁰

With respect to the EU, two factors indicate that it will not easily accept forestry activities in the CDM in future commitment periods. The EU refusal to accept credits from forestry project-activities in the Emissions Trading Scheme (ETS) Directive is the first clear indication.²⁴¹ But also, should the afforestation and reforestation limitation be

²³⁷ Steven A Kennett, *Carbon Sinks and the Kyoto Protocol: Legal and Policy Mechanisms for Domestic Implementation*, 21(3) J. ENERGY NAT. RESOURCES L. 252, 273 (2003).

²³⁸ FAO Climate Change and the Forest Sector, *supra* note 18, at 46.

²³⁹ Trexler et. al., *supra* note 67, at 29.

²⁴⁰ See JUSTUS ET AL., *supra* note 167, at 11 (comparing the Clinton administration policies with the Bush administration policies toward the international climate change legal regime).

²⁴¹ See THE WORLD BANK, *Overview At Loggerheads? Agricultural Expansion, Poverty Reduction, and Environment in the Tropical Forests*, at 23 (2007) (prepared by Kenneth M. Chomitz) [hereinafter The World Bank] (“[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

maintained in the CDM in future commitment periods, the language used in the ETS suggests that is not likely that the EU will accept the expansion of allowable activities.²⁴² In the EU ETS Directive legislators used the term LULUCF instead of just afforestation and reforestation,²⁴³ what indicates that the EU, already anticipating future attempts to broadening the scope of forestry projects in the CDM, opted to exclude them all in advance from its ETS.

Finally, currently CDM forestry activities limitation to afforestation and reforestation projects can legally be overcome for future commitment periods. Decision 11.CP.7 provides that the limitation is valid for the first commitment period only, and that the Parties should decide upon new LULUCF activities for upcoming commitment periods.²⁴⁴

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

In the topic of CDM forestry activities, 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 the Liaison Group envisioned to coordinate actions amongst the Rio Conventions (UNFCCC, CBD, and UNCCD).²⁴⁵ Stronger communications channels ought to be opened with the World Bank and International Labor Organization (ILO) on the potential implications and benefits of project-based forestry activities on employment conditions and opportunities, following the example set by the Food and Agriculture Organization (FAO).²⁴⁶ On the crosscutting issues of biodiversity and CDM forestry projects, FAO has provided a paradigm to be followed in the socio-economic area by developing a specific study on the interlinkages between biological diversity and climate change.²⁴⁷ Firmer institutional cooperation beyond interconnected environmental areas would help to prevent poor social conditions such as the ones threatening the credibility of CDM biofuels and biomass project activities.²⁴⁸

Protocol and EU Emissions Trading Scheme, do not reward forestholders for reduced emissions from avoided deforestation.”).

²⁴² See Sagemuller, *supra* note 12, at 233 (noting that the EU decision not to recognize credits from LULUCF activities is based on the premise that forestry credits are obtained relatively at low price reducing emissions allowances prices and inhibiting domestic actions to curb greenhouse gases emissions).

²⁴³ EU Directive 2004/101 art. 1(2), *supra* note 122.

²⁴⁴ Decision 11/CP.7 annex to draft decision, *supra* note 45, at 61.

²⁴⁵ United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Eighth Session, Part Two: Action Taken by the Conference of the Parties, Decision 13/CP.8, Cooperation with other conventions*, New Delhi, Oct. 23 - Nov. 1, 2002, 32 FCCC/CP/2002/7/Add.1 (March 28, 2003) [hereinafter Decision 13/CP.8].

²⁴⁶ FAO Climate Change and the Forest Sector, *supra* note 18, at 31 (considering employment and local benefits in proposing guidelines to national legislations harmonized with the CDM forestry legal framework).

²⁴⁷ *Id.*, at 4.

²⁴⁸ See Inter-American Development Bank official website,

<http://www.iadb.org/NEWS/articleDetail.cfm?artid=3779&language=En> (last visited April 23, 2007) [hereinafter IADB homepage] (announcing investments in ethanol and biofuels production while closely examining questions regarding labor conditions).

c. Environmental and Socio-Economic Impact Analysis and Assessments (EIA / SEIA)

The importance of an environmental impact assessment, and in the CDM forestry context also a socio-economic impact assessment, 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 before any risk can be potentially foreseen. The first one is a legal limitation. Article 21 of the 1972 Stockholm Declaration clearly states that countries have the sovereign right to exploit their own natural resources, pursuant to their own environmental policies.²⁴⁹ In addition, Principle 17 of the Rio Declaration on Environment and Development, while embracing EIA, establishes that it shall be conducted when the proposed activity is likely to adversely impact the environment.²⁵⁰

The second factor limiting climate change negotiators to require an impact assessment as a starting pre-condition to project validation seems to be of policy nature. That is, the whole validation, verification and certification process for afforestation and reforestation projects are already overburdensome, bureaucratic, and time consuming in nature, and also present 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, policies and technical obstacles already in place.²⁵¹

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

Good governance in the CDM forestry can be achieved by supporting domestic legislation to enhance the role of sinks in the climate change legal regime,²⁵² which includes *inter alia*: developing instruments to combat corruption, regulating ownership and management of public forested areas, and reconciling the interests of private owners (land tenure), promoting education, training and public awareness, and ensuring transparency.²⁵³ Those are key elements for the success of the CDM forestry scheme for the upcoming, and most importantly, during the debates for subsequent commitment periods.²⁵⁴ The positive

²⁴⁹ See ALAN GILPIN, ENVIRONMENTAL IMPACT ASSESSMENT (EIA) CUTTING EDGE FOR THE TWENTY-FIRST CENTURY, 9 (Cambridge Univ. Press) (1995) (The UN Conference on the Human Environment, held in Stockholm in June 1972, endorsed a declaration of 26 principles, essentially about sustainable development and EIA, although these terms did not appear in the text of the declaration.”).

²⁵⁰ UNCED, *supra* note 5.

²⁵¹ See Trexler et al., *supra* note 67, 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.”).

²⁵² FAO Climate Change and the Forest Sector, *supra* note 18, at 53 (“Having a legal foundation for forest GHG mitigation projects will enable forests to play a positive role in UNFCCC compliance.”).

²⁵³ See generally THE WORLD BANK, *supra* note 241, at 19 (providing policy recommendations to maximize forest management and conservation and poverty reduction).

²⁵⁴ See generally FAO Climate Change and the Forest Sector, *supra* note 18, at 29-51 (2004) (stressing the importance of socio-economic elements in domestic decision-making processes).

interaction of the aforementioned socio-economic elements with the forestry practice is crucial in overcoming the obstacles and challenges faced by the CDM forestry activities for future commitment periods.²⁵⁵

6. Conclusion

Forest and forestry projects in the CDM were extremely controversial during the climate change negotiations, and the result was a legal limitation to only afforestation and reforestation practices. The main concerns included the fact that forest and forestry activities are difficult to monitor, provided cheap carbon credits inhibiting stronger domestic mitigation action, and the fear that those projects could lead to deforestation.

However, the fact is that CDM forest and forestry projects can provide benefits that overcome their downsides. Among the benefits, if flexibility on the human-induced requirement is allowed for future commitment periods, forest conservation projects can help fostering biodiversity, and sustainable forestry practices can provide positive revenue alternatives for local communities.

In order for that to occur, current obstacles such as the U.S. resistance in ratifying the Kyoto Protocol, the EU refusal in accepting CDM LULUCF credits, and the legal limitation on the allowable practices need to be overcome. At the same time, technical challenges, including additionality, defining baseline and monitoring methodologies, choosing a domestic definition for forest, overseeing issues of non-permanence and leakages, while extremely tight, are necessary instruments to assure the positive outcomes of forestry projects capable of softening the resistance for upcoming commitment periods.

²⁵⁵ See THE WORLD BANK, *supra* note 241, 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.”).