

Adaptation Through Voluntary Certification: A Proposal for  
Maximizing Co-Benefits in REDD

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## I. Introduction

Despite hopeful rhetoric in the lead up to climate negotiations at the 15<sup>th</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change (COP-15), the outcome of the negotiations reflected a deep divide between developing and developed countries. A primary source of the division lies in the meaning and application justice as it applies climate change, expressed in the UNFCCC and elsewhere as the principle of “common but differentiated responsibilities.” This article suggests an avenue for overcoming this divide in one issue area within climate change negotiations – tropical deforestation.

Tropical forests have gained a prominent place in negotiations under the climate regime because of the potential to eliminate nearly one-fifth of global greenhouse gas emissions by eliminating deforestation. Management of tropical forests has also been the subject of ongoing negotiations in various fora for two decades. A notable lack of success in direct forest negotiations to yield meaningful results for improving tropical forest management on a global scale raises the stakes of climate regime negotiations on forests. Climate-related mechanisms now seem to offer the best prospects for tangible results in combating deforestation.

The prominence of climate regime negotiations as an avenue to affect tropical forest management has spurred significant hope that the resulting mechanism – known as “reducing emissions from deforestation and degradation” (REDD) – will drive holistic improvements in tropical forests and yield gains in biodiversity preservation, sustainable development for forest dwellers, and

other “co-benefits.” Despite recognition of these noble aspirations, however, negotiators and commentators have produced relatively few ideas for ensuring that these co-benefits actually flow from REDD. Instead, most REDD proposals concentrate almost exclusively on carbon emissions reduction and simply assume that co-benefits will flow from even purely carbon-focused REDD projects. This assumption is faulty. Without measures to support co-benefit development, the value of REDD for forests remains speculative and, therefore, its long-term value for mitigation can be questioned.

A key to understanding why, and how, the climate regime negotiators should strive for a holistic forest mechanism lies in need to foster adaptation of forest ecosystems and the human communities dependant on them. Many tropical forest systems and associated human communities face severe threats from climate change, partially due to the relatively poor status of current forest management. This article elaborates the connection between adaptation priorities of the climate regime and key design decisions affecting the REDD mechanism, as well as the connection between adaptation and mitigation in forests. It also outlines a proposal for building economic incentives into the REDD mechanism as a means of fostering a holistic approach to sustainable forest management.

Conceived of in this way, REDD can play an important role in establishing equitable opportunities to bridge the divide between the developed countries and the Global South. The range of countries that could benefit from REDD runs the gamut from major economies such as Brazil to least developed countries, and includes at least a significant number of the nations in Africa, Latin American and Asia. A holistic REDD mechanism can enable these

countries to contribute to combating climate change in a manner that also provides them with meaningful, direct and lasting benefits.

The form of REDD proposed in this article would respect sovereignty concerns of developing countries while providing significant incentives to steer REDD projects toward a holistic and sustainable approach to forest management that yields adaptation benefits. Specifically, the article proposes (1) voluntary certification of REDD projects providing a high level of adaptation-related co-benefits and (2) a formal commitment of additional financial and technical support from the climate change regime to projects that achieve certification. At the same time, this form of REDD would continue to recognize mitigation-focused projects through a relatively streamlined procedure, allowing for flexibility in design and minimal intrusion on the sovereignty of developing countries over their natural resources while still realizing significant global climate benefits. This dual-track approach would appropriately allocate the scarce resources of the climate regime toward supporting projects that provide significant co-benefits, but also fosters the broadest possible mitigation benefits through creation of carbon credits for all projects that demonstrably reduce emissions through avoided deforestation. The article does not attempt to articulate a fully-formed description of what such a mechanism would look like in practice, but sketches the contours of a REDD mechanism that could succeed in meeting the multiple objectives associated with tropical forest protection.

The article begins with an overview of the significance of forests to adaptation – including the value of forests for human well-being, the threats to forests, and the inadequacy of existing law. In Section III, the article examines the development of the

REDD concept and its ability to provide meaningful support for adaptation. Section IV demonstrates that a poorly designed REDD mechanism could lead to situations worse than business as usual in socioeconomic and ecological terms, at global and local scales. Section V presents the core proposal of the article, making the case for voluntary certification as the best means to maximize participation and adaptation benefit, as well as providing a structural overview of how the proposal could be implemented. Section VI briefly concludes.

## II. Forests, Climate Change, Human Well-Being, and the Limits of Existing Law

Tropical forests, climate change, and the well-being of peoples living near the forests are fundamentally linked. Despite decades of efforts in various fora and the development of multiple regimes addressing aspects of these related issues, current international law addressing tropical deforestation is profoundly inadequate.

### A. Underlying Issue Linkages

Tropical forest ecosystems underlie a vast array of natural services critical for the well-being of the rural poor and others in developing countries. Roughly 350 million people depend on forests for a high degree of subsistence, including 60 million indigenous people nearly wholly dependent on forests, and more than 1 billion people rely on agro-forestry systems for their

livelihoods.<sup>1</sup> In many cases, “[t]hese people [already] lack the basic necessities to maintain a decent standard of living: sufficient and nutritious food, adequate shelter, access to health services, energy sources, safe drinking-water, education and a healthy environment.”<sup>2</sup> Such people are highly vulnerable to the impacts of climate change and poorly situated to adapt, particularly if the loss of forest ecosystem services continues at current rates or increases due to climate change impacts.

Along with core subsistence requirements of forest-dependent peoples, forests provide important ecosystem services underlying broader human well-being. Many of these services are closely linked with forest biodiversity. As the Secretariat of the Convention on Biological Diversity notes:

forest biodiversity underpins a wide ranges of goods and services for human well-being. Ecologically intact forests store and purify drinking water, they can mitigate natural disasters such as droughts and floods, they help store carbon and regulate the climate, they provide food and produce rainfall, and they provide a vast array of goods for medicinal, cultural and spiritual purposes. The health of forests and the provision of these and further forest ecosystem services depend on the diversity between species, the genetic diversity within species, and the diversity of forest types.<sup>3</sup>

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<sup>1</sup> World Bank. 2004. *Sustaining Forests: A Development Strategy*. Washington, D.C.: World Bank.

<sup>2</sup> Secretariat of the Convention on Biological Diversity, *Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide* (2009) 3.

<sup>3</sup> Secretariat of the Convention on Biological Diversity, *Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide* (2009) 5.

These non-timber products and services represent the bulk of forests' value in many areas.<sup>4</sup> Examples of the critical ecosystem services for regional well-being can be found throughout tropical forest regions.<sup>5</sup> Evapotranspiration from forests in the Congo Basin, for example, contributes approximately 17% of the rainfall in West Africa.<sup>6</sup> These forests face severe threats from human deforestation activities and climate change, while West Africa already suffers from a insufficient water to meet human needs.<sup>7</sup>

The present situation for forests, as well as the biodiversity and human populations they support, is dire in many tropical forest nations. Deforestation occurs at a rate of approximately 13 million hectares per year,<sup>8</sup> with much of the loss occurring in the tropics. Roughly 30% of the earth's land area is forested, but only one-third of this is primary forest.<sup>9</sup> Together with a some well-

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<sup>4</sup> A Millennium Ecosystems Assessment study, for example, found that in most countries studied, timber and fuelwood production provided less than one third of the total economic value of the forest ecosystem services. MEA, Synthesis Report, at 56.

<sup>5</sup>  
<sup>6</sup> Eltahir, E.A.B., Loux, B., Yamana, T.K., Bomblies, A. 2004. A see-saw oscillation between the Amazon and Congo basins. *Geophysical Research Letters* 31; *see also* Johnson Nkem et al., *Forests for climate change adaptation in the congo basin: Responding to an urgent need with sustainable practices*, CIFOR environment briefs (November 2008), at 3 (noting that these forests are also "highly strategic as a defense against advancing desertification in northern Africa and shielding water in the Congo River, which is shared by several countries, from the intense heat and accelerated evaporation resulting from climate change.").

<sup>7</sup> April 2009 study published in *Science*, lead author is Jonathan Overpeck

<sup>8</sup> FAO, *Global Forest Resources Assessment 2005 – 15 Key Findings*, at 3.

<sup>9</sup> FAO, *Global Forest Resources Assessment 2005 – 15 Key Findings*, at 3. Primary forests are defined as \_\_\_\_\_. Brazil, which has the most primary forest

managed secondary forest, these primary forests provide critical ecosystem services that are often not replicated in plantation forests, poorly managed secondary forests, or degraded forest ecosystems. Approximately 6 million hectares of primary forest are being lost each year, while plantation forests are growing.<sup>10</sup> Each of the major tropical forest regions – Africa, Asia, and Latin America – includes countries with among the ten highest rates of primary forest loss in 2000-2005.<sup>11</sup> In addition, approximately 6% of primary forests were degraded over a fifteen year period, while “many secondary forests are increasingly degraded” in ways that “may, in some cases, result in ecosystem transformation.”<sup>12</sup> Forest “degradation leads to loss of carbon and biodiversity, decreases forest resilience to fire and drought, and can lead to deforestation.”<sup>13</sup>

The drivers of deforestation run deep. For example, “the forest situation in Africa presents enormous challenges, reflecting the larger constraints of low income, weak policies and

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cover of any nation, and Indonesia suffered the most extensive loss of primary forests in the period 2000-2005. <http://news.mongabay.com/2009/1208-deforestation.html> (uses FAO data, FAO data depends upon country reporting and is incomplete because several significant tropical forest nations do not report). The highest rates of primary forest conversion, however, were in Nigeria and Vietnam, both of which lost more than half of their primary forests in a five-year period. <http://news.mongabay.com/2009/1208-deforestation.html>

<sup>10</sup> FAO, Global Forest Resources Assessment 2005 – 15 Key Findings, at 3.

<sup>11</sup> <http://news.mongabay.com/2009/1208-deforestation.html> uses FAO data  
<sup>12</sup> Levin at 540-41.

<sup>13</sup> Secretariat of the Convention on Biological Diversity (2009). Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. Montreal, Technical Series No. 41, 11, available at <http://www.cbd.int/doc/publications/cbd-ts-41-en.pdf> (last accessed December 14, 2009).

inadequately developed institutions.”<sup>14</sup> Deforestation is also predicted to continue rising in South America, while Asia presents a mixed picture including areas where some countries are likely to increase conversion of forest land to other uses.<sup>15</sup> Globally,

[t]he direct and indirect causes of forest deterioration are highly complex, including such diverse drivers as global consumer demand, poor logging practices, agricultural and pastoral expansion, rural poverty and displacement, war and civil unrest, and conflicting and/or ineffective government institutions and policies.<sup>16</sup>

“Climate change generates new pressures for increased deforestation and degradation” because of its impacts, *inter alia*, on agricultural productivity and the demand for biofuels as an alternative energy source.<sup>17</sup>

In addition to increasing anthropogenic pressures on forests, “[c]limate change is altering ecological systems at every scale throughout the world,”<sup>18</sup> Including forests. Although “[t]he potential effects of climate change on forest ecosystems are

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<sup>14</sup> FAO, State of the World’s Forests 2009, at viii.

<sup>15</sup> FAO, State of the World’s Forests 2009, at viii.

<sup>16</sup> Kelly Levin et al., The climate regime as global forest governance: can reduced emissions from Deforestation and Forest Degradation (REDD) initiatives pass a ‘dual effectiveness’ test?, 10 International Forestry Review 538, 539 (2008); *see also* Badiozamani, at 198.

<sup>17</sup> Peter Gluck et al. Governance and Policies for Adaptation, in IUFRO, Adaptaion of Forests and People to Climate Change: A Global Assessment Report (2009) 207; *see also* UN Climate Change Science Compendium, at 41 (2009).

<sup>18</sup> UN Climate Change Science Compendium, at 41 (2009).

complex and poorly understood,”<sup>19</sup> some specific predictions have begun to emerge. For example, a global average temperature rise of 2 degrees Celsius may produce significant loss of forest cover in Amazonia because of decreased precipitation.<sup>20</sup>

Where does this go? Further, “climate change is likely to cause additional inequities, as its impacts are unevenly distributed over space and time and disproportionately affect the poor.”<sup>21</sup> Impacts on forest regulating services, for example, are most likely to impact developing countries, where health impacts on the poor may be severe.<sup>22</sup> Climate change impacts will interact with existing causes of deforestation in some regions, such that poor governance and lack of SFM are likely to exacerbate socio-economic impacts of climate-driven forest changes.<sup>23</sup>

Moreover, mounting evidence demonstrates existing climate change impacts on species, causing significant disruptions for terrestrial biodiversity<sup>24</sup> and signaling future trends. Unlike

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<sup>19</sup> Jeremy S. Broadhead et al., *Climate change: will it change how we manage forests?*, in *Forests and Climate Change: Adaptation and Mitigation* (Van Bodegom et al., eds., 2009), at 59.

<sup>20</sup> Chris Jones et al., *Committed terrestrial ecosystem changes due to climate change*, 2 *Nature Geoscience* 484 (2009); *see also* UN Climate Change Science Compendium, at 37 (2009).

<sup>21</sup> IPCC Working Group II, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution to the 4<sup>th</sup> Assessment Report) (2007), at 248.

<sup>22</sup> Balgis Osman-Elasha et al., *Future Socio-Economic Impacts and Vulnerabilities*, in *Adaptation of Forests and People to Climate Change* (Risto Seppala et al., eds., 2009), at 111-12.

<sup>23</sup> *See* Balgis Osman-Elasha et al., *Future Socio-Economic Impacts and Vulnerabilities*, in *Adaptation of Forests and People to Climate Change* (Risto Seppala et al., eds., 2009), at 117-118.

<sup>24</sup> *See e.g.* Thomas E. Lovejoy & Lee Hannah, *CLIMATE CHANGE & BIODIVERSITY* (2005). Phenological changes, or changes within the timeline of certain ecological functions (including animal migration and plant pollination and blooming), are among the best understood impacts of climate change on

with prior climatic changes, human changes to the landscape (primarily through habitat destruction and fragmentation) will severely limit the ability of species to migrate in response to climatic changes.<sup>25</sup> Thus, climate change and habitat loss (particularly tropical deforestation) combine to severely threaten biodiversity. For example, one study estimates that mid-range climate change scenarios will commit roughly one-quarter of all species to extinction by 2050.<sup>26</sup> In some areas, climate change will cause range shifts that produce re-organization of entire ecological communities and may trigger loss of up to 90 percent of current species assemblages.<sup>27</sup> Thus, climate change may cause ecosystems to fragment or disappear completely.<sup>28</sup> Further effects on species – such as uncoupling of parasite-host relationships or expansion of disease vectors – may have significant direct impacts on human health, while a broad array of climate change impacts on

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biological systems. Eckerle, Kevin P. “Climate Change Affects Terrestrial Biodiversity” WorldWatch Institute May 6, 2008  
<http://www.worldwatch.org/node/5471> p. 1. Climate change has lengthened the growing seasons of certain plants since 1966 that are located at 42 to 45 degrees northern latitudes and accelerated the migration of a majority of butterfly species studied in the United Kingdom, California, and Spain by up to 15 days. *Id.* Other species whose cycles have been affected include four American frog species, migrant birds in the North Sea, American tree swallows, and European bird species. *Id.* The significance of even slight changes in species migration is that it disturbs both ecosystems being migrated to and from, and can put species in danger of dying out because when they migrate too soon their food supply may not yet be available. Chivian at p. 70.

<sup>25</sup> CC & BD, synergistic

<sup>26</sup> Chirs Thomas et al., Extinction Risk from Climate Change, 427 Nature 145, 147 (2004). In addition, range shifts of species to higher elevations and high latitudes may lead to some shifting species becoming invasive in high elevations that were long thought to have suffered relatively little from biological invasion, thus exposing these ecosystems to an additional stress. UN Climate Change Science Compendium, at 41 (2009).

<sup>27</sup> UN Climate Change Science Compendium, at 37 (2009).

<sup>28</sup> Chivian at. p. 107

terrestrial ecosystems will affect human well-being.<sup>29</sup> The loss of biodiversity due to climate change is

likely to result in a loss of the associated ecosystem services. Furthermore, the level of biodiversity contained within forests ecosystems will have implications on the impacts of climate change on the forest, as high genetic and species diversity within an ecosystem is a means of increasing the adaptive capacity of such ecosystems to climate change.<sup>30</sup>

Moreover, deforestation causes approximately 17% of global greenhouse gas emissions.<sup>31</sup> In some countries, deforestation accounts for 90% of annual GHG emissions.<sup>32</sup> Deforestation also affects global climate because intact primary tropical forests act as a carbon sink, drawing significant amounts of GHG emissions out of the atmosphere.<sup>33</sup> Further, tropical forests are particularly important for controlling emissions because they remove more carbon annually than higher latitude forests.<sup>34</sup>

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<sup>29</sup> See e.g., UN Climate Change Science Compendium, at 38, 41 (2009).

<sup>30</sup> Wildburger, Christoph, Background Document for UNFF8: Forests and Biodiversity Conservation, including Protected Areas and Unique Types of Forests Ecosystems, February 15, 2009, 12, available at [http://www.un.org/esa/forests/pdf/session\\_documents/unff8/UNFF8\\_Wildburger.pdf](http://www.un.org/esa/forests/pdf/session_documents/unff8/UNFF8_Wildburger.pdf) (last accessed November 23, 2009).

<sup>31</sup> IPCC, 4<sup>th</sup> AR

<sup>32</sup> E.g., Johnson Nkem et al., Forests for climate change adaptation in the congo basin: Responding to an urgent need with sustainable practices, CIFOR environment briefs (November 2008), at 2.

<sup>33</sup> Simon L. Lewis, Increasing carbon storage in intact African tropical forests, 457 *Nature* 1003 (2009). However, the future levels of sequestration by tropical forests is highly uncertain. *Id.* at 1006.

<sup>34</sup> Stephens, B. B. et al. Weak northern and strong tropical land carbon uptake from vertical profiles of atmospheric CO<sub>2</sub>. *Science* 316, 1732–1735 (2007).

Thus, the relationship between deforestation (and forest degradation), biodiversity loss, and climate change is synergistic.<sup>35</sup> Each may increase the effects of the other, potentially producing positive feedback loops in which increased climate changes fuel increasing deforestation, which will increase the emissions of GHGs stored in the forests and thus increase climate change. The synergistic effects of climate change and deforestation pose a profound threat to the well-being – perhaps survival – of tens of millions of people.

While forest ecosystems and the biodiversity they support provide a wide array of benefits underlying social well-being, human activity is the primary cause of deforestation.<sup>36</sup> In tropical regions, much of this deforestation is attributable to problems in social systems, such as governance inadequacies and poverty. For example, forests can be a magnet for the poor and for those fleeing social disturbance (such as war) because they may provide open-access agricultural opportunities.<sup>37</sup> Even where the forest clearing for this type of subsistence agriculture is illegal, enforcement may be weak or officials may be corrupt.<sup>38</sup> Recently, however, “the underlying causes of deforestation have shifted quite dramatically—from mostly subsistence-driven deforestation through the 1980s, to far more industrial-driven deforestation more recently.”<sup>39</sup> While this has not significantly affected the rate of deforestation, the shift in drivers could make certain types of efforts to combat deforestation more effective because, compared

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<sup>35</sup> Lovejoy & Hannah, *Climate Change & Biodiversity*

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<sup>39</sup> William F. Laurance, *Changing realities for tropical forest managers*, 4 ITTO Tropical Forest Update 6, 6 (2009).

with impoverished forest dwellers, large corporate interests can more readily respond to environmental pressures and government regulation.<sup>40</sup> Specifically, these interests appear likely to respond to international regulation established in the climate regime. This point is critical because current and previous international efforts at direct regulation of deforestation activities have, essentially, failed.

## B. The Failure of Forest Law

“[O]btaining international agreement on binding standards for the protection of forests . . . has so far proven to be an insurmountable task, despite decades of attention to the issue and the general recognition of the need to curb deforestation and other threats to the world’s forests.”<sup>41</sup> Indeed, the effort to create a legally binding forest regime serves as a case study of failure and limitation in international cooperation on environmental efforts.<sup>42</sup> The reasons for this failure not only underscore the importance of the climate regime as an avenue for affecting deforestation, but also illustrate the challenges that any international mechanism for preventing deforestation is likely to encounter. Therefore, although the literature on this failure is well-developed, a brief discussion here is necessary to illuminate key hurdles that any effort to address tropical deforestation will face.

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<sup>40</sup> See Rhett A. Butler & William F. Laurance, New strategies for conserving tropical forests, *Trends Ecol Evol.* 2008 Sep;23(9):469-72. Epub 2008 Jul 24.

<sup>41</sup> Daniel Bodansky et al., *The Oxford Handbook of International Environmental Law* (2007) 383.

<sup>42</sup> See David Hunter, James Salzman, and Durwood Zaelke, *International Environmental Law and Policy*, 3rd ed. (New York: Foundation Press, 2007), at p. 1178-79

Forests gained prominence as an international environmental issue in the 1980s and negotiations toward a binding forest treaty began in the lead-up to the 1992 United Nations Conference on the Environment and Development (UNCED).<sup>43</sup> Despite apparently strong support from developed nations such as the United States and European Union members, negotiations were abandoned in the preparatory stage. Major reasons for the failure of negotiations were developing country resistance to requirements perceived to impinge upon their sovereignty and the unwillingness of developed countries to provide financing to offset the costs to developing countries of preventing deforestation.<sup>44</sup> A series of similar negotiating efforts in the mid-1990s also failed as countries effectively refused to budge on their initial negotiating positions and the financial concerns of developing countries dominated discussions.<sup>45</sup> In 2000, after yet another round of negotiations at which at least some parties sought a binding global forest agreement, “consensus could not be reached and the final decision amounted to rejecting the

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<sup>43</sup> See e.g., Ghazal Badiozamani, “Addressing Deforestation and Forest Degradation Through International Policy”, in *Forestry and Climate Change*, supra, at 201

<sup>44</sup> Sergio Jauregui, “International Forest Policy and Options for Climate Change Forest Policy in Developing Countries”, in Peter H. Freer-Smith et al. (eds), *Forestry & Climate Change* (Wallingford: CABI, 2007), at 185; see also Levin, at 541-42 (“Tropical developing countries . . . could expect to bear the brunt of the effort, and possibly the costs, of implementing any global forest agreement. Perhaps even more important was the South’s historically rooted suspicion that multilateral environmental agreements were simply another ploy for asserting Northern control over Southern resources”).

<sup>45</sup> Sergio Jauregui, “International Forest Policy and Options for Climate Change Forest Policy in Developing Countries”, in Peter H. Freer-Smith et al. (eds), *Forestry & Climate Change* (Wallingford: CABI, 2007), at 185.

concept of a forest convention.”<sup>46</sup> These negotiations replaced pre-existing frameworks for forest policy development with the United Nations Forum on Forests, which one commentator has described as a “fourth institutionalized initiative in a series of failed efforts to create international forest policy.”<sup>47</sup> Most recently, UNFF efforts have resulted in the “Non-legally binding instrument on all types of forests,”<sup>48</sup> an instrument with, at best, questionable efficacy.<sup>49</sup>

Currently, “more than 40 international organizations and more than 20 international agreements related to forests” exist.<sup>50</sup> Nonetheless, as the preceding section demonstrates, deforestation remains a major global environmental problem with the most severe concerns existing in tropical developing nations. Within the “plethora of global, regional and bi-lateral environmental and trade negotiations” aimed at addressing global forestry issues, “national and organizational short-term self-interest [are] stalling on-the-ground impacts.”<sup>51</sup>

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<sup>46</sup> Sergio Jauregui, “International Forest Policy and Options for Climate Change Forest Policy in Developing Countries”, in Peter H. Freer-Smith et al. (eds), *Forestry & Climate Change* (Wallingford: CABI, 2007), at 186.

<sup>47</sup> Radoslav S. Dimitrov, *Hostage to Norms: States, Institutions and Global Forest Politics*, 4 *Global Environmental Politics* 1, 1 (2005).

<sup>48</sup> United Nations General Assembly, Sixty-second session, Agenda item 54 (2008), <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N07/469/65/PDF/N0746965.pdf?OpenElement>  
For an overview of some of these organizations and their efforts, see Kelly Levin et al., *The climate regime as global forest governance: can reduced emissions from Deforestation and Forest Degradation (REDD) initiatives pass a ‘dual effectiveness’ test?*, 10 *International Forestry Review* 538, 541-43 (2008).

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<sup>50</sup> Ghazal Badiozamani, “Addressing Deforestation and Forest Degradation Through International Policy”, in *Forestry and Climate Change*, supra, at 200.

<sup>51</sup> Kelly Levin et al., *The climate regime as global forest governance: can reduced emissions from Deforestation and Forest Degradation (REDD)*

Although a variety of analytical tools and approaches exist for understanding the failure of multilateral efforts at forest preservation, two basic factors undoubtedly underlie the lack of progress. First, developing countries have demonstrated a very strong resolve in resisting efforts perceived to impinge upon their sovereignty and impose the cost of deforestation on the developing world alone. Second, developed countries have repeatedly refused to meet demands for financing to pay costs of avoiding deforestation in developing nations. Both of these reflect the difficulty of addressing deforestation in a manner that comports with the principle of common but differentiated responsibility for globally significant environmental problems.<sup>52</sup>

Underlying these broad themes in forest negotiations are complex circumstances related to forest use. For example, “[s]ocioeconomic interests in forest exploitation reduce the incentives for policy coordination” among countries.<sup>53</sup> Moreover, the interests of logging industries in developed countries pushing for a forest convention in the 1990s led many environmental non-governmental organizations to change their positions and oppose a binding international forest agreement.<sup>54</sup>

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initiatives pass a ‘dual effectiveness’ test?, 10 *International Forestry Review* 538, 541 (2008).

<sup>52</sup> Sergio Jauregui, “International Forest Policy and Options for Climate Change Forest Policy in Developing Countries”, in Peter H. Freer-Smith et al. (eds), *Forestry & Climate Change* (Wallingford: CABI, 2007), at 187 (“[t]he socioeconomic costs of protective policies are high because forest utilization is a complex cross-sectoral issue that affects a number of socioeconomic realms. . . . Concerns over relative gains and losses are also acute since the geographical distribution of forests is uneven and a global treaty would impose unequal obligations”).

<sup>53</sup> Jauregui, at 187.

<sup>54</sup> Jauregui, at 186.

The added pressure that climate change places on forests makes the matter more urgent, but will not make negotiation easier. Instead, the impacts of climate change will be “compounded by the weakness of the international forest regime.”<sup>55</sup> Ultimately, there is little reason to hope that the international forest regime will effectively respond to the troubling interactions of climate change and deforestation. The interests of developing and developed countries have not converged in a way that would allow the type of extensive international cooperation required to address the issue through a forest convention. Instead, it appears likely that climate change will only increase the environmental and socioeconomic harms related to tropical deforestation and degradation unless a climate regime mechanism can effectively incentivize protection of tropical forests.

### III. Forests, the Climate Regime, and Adaptation

#### A. Consideration of Forests in the Climate Regime

In the face of new threats posed by climate change and persistent difficulties in slowing deforestation, the role of forests under the climate change regime has gained increasing importance and prominence. As one commentator has noted,

The negotiations within the international climate-change regime are of particular significance for forests and for the provision of forest ecosystem services because they aim at reducing emissions from deforestation and forest degradation and

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<sup>55</sup> Peter Gluck et al. Governance and Policies for Adaptation, in IUFRO, *Adaptation of Forests and People to Climate Change: A Global Assessment Report* (2009) 207.

simultaneously support the longstanding efforts to combat deforestation in developing countries.<sup>56</sup>

Mechanisms under the climate regime offer particular promise for combating deforestation for a variety of reasons. The climate regime represents perhaps the most highly developed set of agreements and institutions in all of international environmental law.<sup>57</sup> Participation in the regime is broad – with nearly 200 parties actively participating in the UNFCCC – and potentially very deep. To achieve the UNFCCC’s objective of “stabiliz[ing] greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”<sup>58</sup> will require significant changes in the activities of nearly all sectors of economic activity. To achieve this goal equitably, which is often understood to require economic growth in developing countries such as China and India to significantly improve the well-being of the world’s poor, represents a challenge that is likely to define more than a generation of environmental law. A serious global effort to tackle this challenge cannot escape the need to effect change activities at all scales – including the multi-scalar drivers of deforestation. Further, the cap-and-trade approach adopted by the Kyoto Protocol and widely anticipated to continue beyond 2012 lends itself to directing private financial resources toward projects that achieve relatively low cost emission reductions. Thus, revenue generated through power generation in

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<sup>56</sup> Peter Glück et al., Governance and Policies for Adaptation, in ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report (Risto Seppälä et al., eds.) (2009) at 188.

<sup>57</sup> Sands, principles of international law

<sup>58</sup> UNFCCC, Article 2.

the United States may find its way, for purely business reasons, to supporting projects that improve the quality of life of the rural poor through low emission activities.

The potential to impact forestry through climate regime mechanisms has been recognized since nearly the inception of the regime. Forests did not receive significant attention in negotiations under the UNFCCC, however, until a late stage of the negotiations leading to the Kyoto Protocol.<sup>59</sup> The potential to reduce emissions through forestry-related activities received close attention in the crafting of the clean development mechanism (CDM), resulting in complex rules established by the Marrakesh Accords. In short, this agreement allows Annex I countries to invest in afforestation and reforestation activities in developing countries as a means of generating CDM credits to offset up to 1% of their 1990 emissions in complying with the Kyoto Protocol.<sup>60</sup> The parties excluded reduced deforestation projects from the CDM, however, because of technical uncertainties, the difficulty of monitoring, and sovereignty concerns of developing nations.<sup>61</sup> These limitations have meant that the climate regime has only minimal impact on

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<sup>59</sup> Eveline Trines, History and Context of LULUCF in the Climate Regime, in Streck, *Climate Change & Forests*, at 33.

<sup>60</sup> Decision 11/CP.7, Definitions, Modalities, Rules and Guidelines Relating to Land Use, Land-Use Change and Forestry Activities Under the Kyoto Protocol, Art. 12, Annex, UN Doc. FCCC/CP/2001/13/Add.1, 10 November 2001.

<sup>61</sup> ERIN C. MYERS MADEIRA, POLICIES TO REDUCE EMISSIONS FROM DEFORESTATION AND DEGRADATION (REDD) IN TROPICAL FORESTS 26 (Adrienne Foerster & Sally Atwater eds., *Resources for the Future* 2008); Doris Fuchs, "Global Governance: An International Relations Perspective on Tropical Forests", in Sharon L. Spray and Matthew David Moran, *Tropical Deforestation* (Lanham: Rowman & Littlefield, 2006), 129, at 133; see also Farhana Yamin and Joanna Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions, and Procedures* (Cambridge: Cambridge University Press 2004),

forests. Further, an expansive definition of “forest” that easily includes plantation forestry without regard to environmental impacts generates concern that the net impact of the CDM on forests may be environmentally deleterious.<sup>62</sup>

The concept of a mechanism for rewarding avoided deforestation projects on the basis of reduced emissions was formally introduced by the Coalition of Rainforest Nations in 2005 at COP-11.<sup>63</sup> At the 2007 COP-13 meeting in Bali, the SBSTA reported favorably on the potential of such a mechanism and the concept of REDD (or REDD+) gained a prominent place on the “Bali roadmap” of negotiations toward a post-Kyoto agreement.<sup>64</sup> In essence, the negotiations center on designing a mechanism to reward verifiable avoided deforestation projects in developing countries for the reduced emissions they achieve. The leading model relies on a market-based system in which REDD projects will generate tradable carbon credits. At the same time, REDD has generated intense interest for its potential to realize ecological and socioeconomic “co-benefits.”

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<sup>62</sup> Decision 11/CP.7, Report of the Conference of the Parties on Its Seventh Session, Part Two (The Marrakesh Accords), Annex, UN Doc. FCCC/CP/2001/13/Add.1, 10 November 2001 (defining forests as “a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ.”); *see also* Yamin, *supra*, at pp. 124–125; Michael Totten, et al., Biodiversity, Climate, and the Kyoto Protocol: Risks and Opportunities, 1 *Frontiers in Ecology and the Environment* 264 (2003); Ernst-Detlef Schulze et al., Making deforestation pay under the Kyoto protocol?, 299 *Science* 1669 (2003)..

<sup>63</sup> FCCC/CP/2005/MISC.1. November 11, 2005. available at <http://unfccc.int/resource/docs/2005/cop11/eng/misc01.pdf> (last accessed December 14, 2009).

<sup>64</sup> United Nations Framework Convention on Climate Change, Bali, Dec. 3–15, 2007, *Part Two: Action Taken by the Conference of the Parties at its Thirteenth Session*, U.N. Doc. FCCC/CP/2007/6/Add.1 (Mar. 14, 2008) at 31, ¶ 5.

The REDD concept is very likely to enter a post-Kyoto agreement and has been the subject of intense negotiation. Most recently, more than 60 nations have been meeting in the “Paris-Oslo process” to negotiate \$6 billion in early funding for REDD and arrive at COP-16 with a pre-formulated vision for REDD.<sup>65</sup> As recognized by the AWG-LCA during COP-15 in Copenhagen, REDD is likely to develop in phases.<sup>66</sup> If REDD becomes a primarily market-based mechanism, it will occur only after significant international and national development to ensure “readiness” of tropical forest countries.

## B. Adaptation

The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as “[i]nitiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects.”<sup>67</sup> Since the IPCC employed that definition in 2007, increasing attention is paid to the concept of adaptation as the scientific evidence of committed climate change impacts mounts. Creating international mechanisms to support adaptation in developing countries is particularly critical, as some regions facing the most severe impacts from changing climate are

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<sup>65</sup> E.g. ELAINE GANLEY, World forest panel boosts budget to fix key climate issue, Seattle Times (March 11, 2009). {note opposition from indigenous peoples, etc: [http://news.mongabay.com/2010/0413-paris-oslo\\_process.html](http://news.mongabay.com/2010/0413-paris-oslo_process.html) }

<sup>66</sup> United Nations Framework Convention on Climate Change, Copenhagen, Dec. 7–18, 2009, *Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries*, Draft decision (addendum), -/CP.15 (Dec. 15, 2009), at 4 (paragraph 7).

<sup>67</sup> International Panel on Climate Change, Fourth Assessment Report, at p. 76 (Appendix II).

also among the least able to cope.<sup>68</sup> Despite recognition of this in the UNFCCC and Kyoto Protocol, the existing legal structure for adaptation remains profoundly inadequate. Because of the gap between adaptation need and progress, the Bali Roadmap identified “[e]nhanced action on adaptation” as one of five key areas of concentration for future negotiations.<sup>69</sup> In forests, as in other issue areas, adaptation poses a challenge every bit as pressing and difficult as mitigation and raises questions of equity embedded in the principle of common but differentiated responsibility.

## 1. Adaptation and the Climate Regime

The United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol both include provisions that reflect the need for adaptation.<sup>70</sup> UNFCCC Article 4.1 requires all parties to develop national strategies and measures “to facilitate adequate adaptation” to climate change. The Article 4.1 requirement is subject to reporting under Article 12. Likewise, Article 10(b) of the Kyoto Protocol requires parties to develop national adaptation programmes and measures for adaptation, and creates an international reporting mechanism. The UNFCCC also

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<sup>68</sup> In many cases, the victims of climate change will not only be unable to pay for measures to adapt, but are also the least historically responsible for the elevated carbon concentrations causing the damage. These two factors embody the tension reflected by the principle of common but differentiated responsibilities with respect to climate change and underlie the claims of some developing countries that developed countries should assume the primary burden of mitigation, as well as paying for a host of adaptation activities. For a useful argument that corrective justice and distributive justice arguments may justify payments by developed countries, but do not support a lack of developing country commitments, see Eric A. Posner and Cass Sunstein, *Climate Change Justice*, 96 *Geo. L.J.* 1565 (2008).

<sup>69</sup> Decision 1/CP.13, FCCC/CP/2007/6/Add.1, at 4.

<sup>70</sup>

requires that developed country parties “assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.”<sup>71</sup> Pursuant to Article 12.8 of the Kyoto Protocol, a portion of proceeds from Clean Development Mechanism (CDM) projects is directed to “assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.” As established in the Marrakesh Accords, 2% of proceeds on certified emissions reductions credits generated through the CDM are used to finance an adaptation fund managed by an Adaptation Fund Board.<sup>72</sup> The Marrakesh Accords also established a broader “financial mechanism,” managed by the Global Environmental Facility, which provides some funding for adaptation, as do several other funds established under the regime.<sup>73</sup> In addition, the UNFCCC and Kyoto Protocol encourage bilateral and regional arrangements to facilitate adaptation.

Despite the formal recognition of the need for adaptation assistance, as well as financing mechanisms to support such assistance, progress on adaptation has been slow and insufficient to meet rising challenges, largely due to funding shortfalls and political disagreements.<sup>74</sup> These delays can be partially explained by the local, rather than global, nature of adaptation benefits. Adaptation funding provided by developed nations will generally

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<sup>71</sup> Article 4.4.

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[http://unfccc.int/cooperation and support/financial\\_mechanism/adaptation\\_fund/items/3659.php](http://unfccc.int/cooperation_and_support/financial_mechanism/adaptation_fund/items/3659.php)

<sup>73</sup> <http://unfccc.int/adaptation/items/4159.php>

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not provide them with direct or immediate benefits in return.<sup>75</sup> For this reason, funding a generalized concept of adaptation is, at best, difficult to justify in terms of developed countries' economic self-interest. Instead, it must be considered in application to particular sectors, such as forests.

## 2. Adaptation and Forests

Forests serve as a key ecosystem type for realizing adaptation goals. In this context, “‘adaptation’ is understood as the adjustment of forests and people to direct and indirect climate change effects in ways which moderate harm or exploit beneficial opportunities.”<sup>76</sup> Although forests and other ecosystems face severe threats from climate change, “[a]s climatic changes occur, natural resource management techniques can be applied to increase the resilience of ecosystems.”<sup>77</sup> Of particular relevance to tropical forests, “[a] primary adaptation strategy to climate change and even current climate variability is to reduce and manage the other

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<sup>75</sup> See generally, Farhana Yamin and Joanna Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions, and Procedures* (Cambridge: Cambridge University Press 2004), at 213-47.

<sup>76</sup> Peter Glück et al., *Governance and Policies for Adaptation*, in *ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report* (Risto Seppälä et al., eds.) (2009) 187.

<sup>77</sup> IPCC Working Group II, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution to the 4<sup>th</sup> Assessment Report) (2007), at 246.

stresses on species and ecosystems, such as habitat fragmentation and destruction.”<sup>78</sup>

Adaptation in the forest context must embrace the principles of sustainable development<sup>79</sup> in order to ensure that ecosystem services are maintained over time and that peoples in developing countries can simultaneously experience improvements in their quality of life.<sup>80</sup> “Adaptation” as used in this article thus embraces the concepts of sustainable development as they apply in a time of climate change.<sup>81</sup> As others have noted, this sustainability-based vision of adaptation should guide decisions on certain key issues of forest management.<sup>82</sup> Thus, at the theoretical level, the commonly used phrase “sustainable forest management”

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<sup>78</sup> IPCC Working Group II, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution to the 4<sup>th</sup> Assessment Report) (2007), at 246.

<sup>79</sup> John Dernbach has suggested that “[s]ustainable development is among the most important ideas to come out of the 20<sup>th</sup> century – and it may be, in the long run, the most important.”<sup>79</sup> John C. Dernbach, *Sustainable Development and the United States*, in *Agenda for a Sustainable America* (John C. Dernbach, ed., 2009) at 3. In the sense that this often amorphous concept melds equity concerns with the need to wisely manage environmental resources, this statement appropriately suggests the importance that sustainable development should have in managing systems to adapt to climate change.

<sup>80</sup> The core challenge, then, is finding approaches to international environmental and socioeconomic issues that allow “development” in developing countries without the massive environmental degradation that has thus far accompanied the lifestyle improvements of developed countries throughout the 20<sup>th</sup> century. *See generally* Vandenburg, 33 *Harv Envtl L Rev* 303

<sup>81</sup> Sustainable development includes three pillars for consideration – environmental sustainability, economic sustainability, and social sustainability. These pillars relate closely with the goals of adaptation in sustaining environmental systems through climate change, facilitating economic improvements to assist developing nations avoid severe climate change impacts, and the need to maintain indigenous and other cultural rights while responding to the challenges of climate change.

<sup>82</sup> *See e.g.* M.G. Sangster and M. Dudley, *Governance and Climate Change*, in *Forestry & Climate Change*, at 219.

(SFM) should also be understood as essentially synonymous with managing forests to provide adaptation benefits, both ecologically and socioeconomically. Adaptation benefits can be understood as encompassing improvements in systems that make the system more resilient to climate change, thus lessening the severity of its impacts.

International foresters report that the practices encapsulated in the concept of SFM that have been developed over several decades are, for the most part, “functionally equivalent” to those required for maintaining mitigation benefits in forests and advancing adaptation goals in forested areas.<sup>83</sup> SFM seeks to advance a holistic approach to forest management, preservation of biodiversity, equitable benefit sharing, and collaborative governance.<sup>84</sup> This holistic approach is necessary for tackling the complex decisions concerning natural resources management, socioeconomic issues and long-term goals required for adaptation in forests. As the IPCC Working Group II has observed,

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<sup>83</sup> See Jeremy S. Broadhead et al., *Climate change: will it change how we manage forests?*, in *Forests and Climate Change: Adaptation and Mitigation* (Van Bodegom et al., eds., 2009), at 60-61; *see also* Risto Seppälä, Alexander Buck and Pia Katila. (eds.). 2009. *Adaptation of Forests and People to Climate Change. A Global Assessment Report. IUFRO World Series Volume 22.* Helsinki, 13, (“The goal of adaptation to climate change should be added to the existing economic, ecological and social goals of sustainable forest management. In this way, adaptation can be promoted without compromising the overarching commitment to sustainability that drives national forest programmes.”) available at [www.iufro.org/download/file/3580/3985/Full\\_Report.pdf](http://www.iufro.org/download/file/3580/3985/Full_Report.pdf) (last accessed November 23, 2009)..

<sup>84</sup> Peter Glück et al., *Governance and Policies for Adaptation*, in *ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report* (Risto Seppälä et al., eds.) (2009) 190.

Impacts of climate change on ecosystems also show strong interrelationships with ecosystem processes and human activities at various scales over time. Addressing these impacts requires a co-ordinated, integrated, cross-sectoral policy framework with a long-term focus; a strategy that so far has not been easy to implement.<sup>85</sup>

Given these challenges, the holistic vision of forest management expressed as SFM is, at a policy design level, well-suited to advancing both mitigation and adaptation goals.<sup>86</sup>

Even if we assume that virtually all legal industrial-scale deforestation can be halted through international law (a bold assumption), we must still embrace SFM to realize long-term carbon benefits from avoided deforestation. To illustrate this relevance of SFM for the climate regime, consider the following chain of causation. Where SFM is absent, socioeconomic and ecological systems will likely be less resilient. Thus, climate-driven pressures may drive subsistence and illegal deforestation, as well as forest die off due to changing climatic conditions. This forest loss, resulting essentially from a failure of adaptation and development measures, would undermine mitigation efforts and potentially create a significant positive feedback loop that increases the extent of both climate change and forest loss through

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<sup>85</sup> IPCC Working Group II, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution to the 4th Assessment Report) (2007), at 248

<sup>86</sup> Peter Glück et al., *Governance and Policies for Adaptation*, in *ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report* (Risto Seppälä et al., eds.) (2009) 190.

additional climate-driven die-off.<sup>87</sup> Accordingly, the post-Kyoto regime should include policies and incentives that promote SFM.<sup>88</sup>

SFM has been broadly embraced as an aspirational goal in nonbinding international agreements and the myriad international institutions that have arisen to support improved forest management.<sup>89</sup> However, its implementation varies considerably. While most developed country forests have attained a relatively high degree of SFM,

in low-income situations, sustainable forest management faces far more constraints, reflecting limited ability and willingness to pay for the additional costs involved in adhering to the social and environmental criteria. Consequently, in the tropics, the proportion of forests that are sustainably managed remains very low.<sup>90</sup>

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<sup>87</sup> UN Climate Change Science Compendium, at 40 (2009) (noting that exceptional carbon concentration growth in 2005 may have been partially caused by Amazon rainforest die-off due to drought).

<sup>88</sup> Peter Glück et al., Governance and Policies for Adaptation, in ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report (Risto Seppälä et al., eds.) (2009) 187. Given the uncertain effects of climate change on particular geographic regions and specific ecosystems, an emphasis on adaptive management in SFM appears the best strategy. John Innes et al., Management for Adaptation, in Adaptation of Forests & People . . . at 157; see also UN Climate Change Science Compendium, at 41 (2009).

<sup>89</sup> *E.g.* Peter Gluck et al. Governance and Policies for Adaptation, in IUFRO, Adaptation of Forests and People to Climate Change: A Global Assessment Report (2009) 200-202; *see also* IPCC Working Group II, Climate Change 2007: Impacts, Adaptation and Vulnerability 9Contribution to the 4<sup>th</sup> Assessment Report) (2007), at 248, 299.

<sup>90</sup> FAO, State of the World's Forests 2009, at 73.

Thus, policies aimed at offsetting the cost of SFM may have a significant impact on its implementation in tropical regions.

Committed support from the international community through UNFCCC regime mechanisms (including significant financial support) may prove critical to overcome the political and other challenges to implementing SFM that have long stymied international forest protection efforts. Political resistance to SFM in many forested countries, for example, arises from potential impacts on other land uses and benefits currently enjoyed by existing forest stakeholders, as well as a prevalence of short-term-oriented thinking in forest management.<sup>91</sup> A market-based mechanism drawing on public and private finance on a global scale, as REDD envisions, may provide the needed incentives to shift these political trends. Therefore, opportunities to leverage the momentum of the climate regime toward implementation of SFM are critically important to overcoming drivers of deforestation, and mechanisms at the climate-forest linkage must be carefully designed to holistically improve forest management to provide a realistic chance of securing sustainable preservation of carbon and ecosystems.

### C. REDD & Adaptation

Forests are regarded by many as “low hanging fruit” in efforts to reduce greenhouse gas emissions.<sup>92</sup> Most country REDD proposals thus focus primarily on mitigation without

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<sup>91</sup> See Peter Glück et al., Governance and Policies for Adaptation, in ADAPTATION OF FORESTS AND PEOPLE TO CLIMATE CHANGE – A Global Assessment Report (Risto Seppälä et al., eds.) (2009) 190.

<sup>92</sup> E.g. Stern report William F. Laurance, “Can Carbon Trading Save Vanishing Forests?”, 58 Bioscience (2008), p. 286.

significant attention to the role of adaptation considerations in REDD.<sup>93</sup> As explained in the following section, this mitigation-only form of REDD may actually worsen ecological and socioeconomic conditions, thus undermining adaptation. On the other hand, a properly designed REDD mechanism can promote adaptation because “sound management of ecosystem services provides several cost-effective opportunities for addressing multiple development goals in a synergistic manner.”<sup>94</sup> Accordingly, there is reason for hope because if REDD proves successful in creating meaningful mitigation incentives, and

[i]f REDD strategies were to also take into account non-carbon benefits, there would be gains across a breadth of sustainable forestry and conservation issues, including biodiversity protection, provision of environmental services, poverty reduction, among others. . . . Finally, successful stakeholder collaboration within the context of REDD could

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<sup>93</sup> UNEP, *Making REDD Work for the Poor*, at 32 (observing that “Cost-effectiveness of REDD projects or programmes might also have implications for overall investments in REDD and their distribution. This has been a concern in the CDM where there has been a high volume of investment in ‘low hanging fruit’ projects (i.e. low cost per unit of emissions reduction)” and “Given possible high transaction costs of REDD, investors (whether they are private sector investors investing directly in projects, or host country governments implementing national REDD systems) may also seek to exploit economies of scale. In the CDM this issue has given rise to concerns about the development of large-scale forestry projects with potential negative impacts on the environment and the poor”); *see also* Johannes Ebeling and Jan Fehse, *Challenges for a business case for high-biodiversity REDD projects and schemes* (EcoSecurities, 2008) (noting the “the business case for ‘project-blind’ compliance strategies”), at 14, 22. For a discussion of current country and organizational REDD proposals, see *The Little REDD Book*.

<sup>94</sup> IPCC Working Group II, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution to the 4th Assessment Report) (2007), at 248 (not specifically addressing REDD).

facilitate enhanced cooperation among a wide range of existing international institutions and processes.<sup>95</sup>

These types of gains are essential to enabling adaptation in many tropical forest countries.

The potential for REDD to meet multiple goals has been recognized since before REDD gained formal endorsement in the Bali Road Map<sup>96</sup> and continues to receive attention,<sup>97</sup> but country proposals for REDD generally have not progressed beyond the point of merely asserting that social and biodiversity benefits are important considerations.<sup>98</sup> This was evident, most recently, at COP-15 in Copenhagen.

The negotiations on REDD conducted by the Ad Hoc Working Group on Long-term Cooperative Action during COP-15 in Copenhagen resulted in a bracketed draft decision that

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<sup>95</sup> Kelly Levin et al., \_\_\_\_\_, at 547.

<sup>96</sup> *E.g.* UNEP-WCMC 2007. Reducing Emissions from Deforestation: A Key Opportunity for Attaining Multiple Benefits. UNEP World Conservation Monitoring Centre, Cambridge, U.K., 5, available at [http://www.unep-wcmc.org/resources/publications/unep\\_wcmc%20RED%20Feb07.pdf](http://www.unep-wcmc.org/resources/publications/unep_wcmc%20RED%20Feb07.pdf) (last accessed November 23, 2009) (“Despite their basic focus on carbon, RED efforts under the UNFCCC have strong potential to contribute towards the goals of many other multilateral environmental agreements and mechanisms and to help national governments to meet their obligations under these instruments, as well as to help assure the continued provision of vital ecosystem services by forests and to enhance livelihoods.”).

<sup>97</sup> “Regarding adaptation, there is growing convergence in the negotiations on the need for a strong adaptation framework or programme, which also needs to address synergies between adaptation and mitigation measures, including in the area of REDD.” Address by Yvo de Boer, Executive Secretary United Nations Framework Convention on Climate Change, UNCCD Land Day, Bonn, Germany, June 6, 2009, 5, available at [http://unfccc.int/files/press/news\\_room/statements/application/pdf/090606\\_speech\\_bonn.pdf](http://unfccc.int/files/press/news_room/statements/application/pdf/090606_speech_bonn.pdf) (last accessed November 23, 2009).

<sup>98</sup> *See* The Little REDD+ Book

acknowledges co-benefits of REDD.<sup>99</sup> The draft decision “affirms” several principles to “guide the implementation” of REDD, stating that REDD should “Facilitate sustainable development, reduce poverty and respond to climate change in developing country Parties” and “Be consistent with the adaptation needs of the country.” The draft “further affirms” safeguards that should be “[promoted] [and] [supported],” including “Transparent and effective national forest governance structures, taking into account national legislation and sovereignty,” “Full and effective participation of relevant stakeholders,” and,

Actions that are consistent with the conservation of natural forests and biological diversity, ensuring that [REDD activities] are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits.

The approach that emerges from this draft is one that recognizes and encourages, but neither mandates nor incentivizes, a form of REDD that maximizes co-benefits. Coming on the heels of decades of unsuccessful attempts to promote sustainable forest management through dozens of soft law instruments, this approach provides little hope for producing a REDD mechanism that actually promotes adaptation and sustainable development on the ground.

To realize maximum benefits from REDD, the mechanism should he most advantageous encompass three objectives: (1) mitigation; (2) adaptation of forests for sustaining ecosystem

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<sup>99</sup> FCCC/AWGLCA/2009/L.7/Add.6

functions, services and products, as well as the biodiversity that frequently underlies them; and (3) supporting the adaptation of human communities through improved and sustainable management of forest ecosystems.<sup>100</sup> In other words, successful REDD must promote SFM. Several REDD projects in the voluntary market are beginning to demonstrate the viability of this holistic conception of REDD.

A project proposal in Mozambique illustrates the potential use of REDD for ecologically-oriented adaptation that also produces gains for human well-being.<sup>101</sup> Mozambique has a history of damaging flood and drought events, which are expected to worsen with climate change, as well as food shortages due to crop failure. The Sofala Community Carbon Project is working to establish a project that will strengthen riverbanks and reduce vulnerability to flooding through afforestation, as well as integrating farming techniques designed to enhance food security in the region. Likewise, a verified project in Panama has provided water quality improvements and slowed erosion, partially as a strategy to promote ecosystem resilience to climate change.<sup>102</sup>

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<sup>100</sup> In conceiving of REDD as an adaptation mechanism, two related types of adaptation in forests can be identified. First, actions to facilitate or assist adaptation of forest ecosystems during climate change will be necessary in some parts of the world as conditions present new threats to already vulnerable forest ecosystems. Second, improved forest management can play a key role in reducing the impact of climate change on human populations by sustaining ecosystem services and forest products. See [http://assets.panda.org/downloads/redd\\_and\\_climate\\_change\\_adaptation\\_present\\_ation\\_by\\_jeremy\\_broadhead.pdf](http://assets.panda.org/downloads/redd_and_climate_change_adaptation_present_ation_by_jeremy_broadhead.pdf)

<sup>101</sup> <http://www.climate-standards.org/projects/files/sofala/2009-08-31-PDD-CCBA-Sofala-final2>.

<sup>102</sup> [http://www.climate-standards.org/projects/files/panama/Panama\\_CCB\\_verif\\_audit\\_07.pdf](http://www.climate-standards.org/projects/files/panama/Panama_CCB_verif_audit_07.pdf), at 45. For a similar example from Indonesia, see [http://www.climate-standards.org/projects/files/indonesia/Indonesia\\_CCB\\_verif\\_audit\\_07.pdf](http://www.climate-standards.org/projects/files/indonesia/Indonesia_CCB_verif_audit_07.pdf).

These and other demonstration projects show the potential of REDD to advance sustainable development and, by extension, aid adaptation. However, ad hoc and unsubsidized attention to adaptation or sustainable development in REDD projects is very unlikely to achieve adequate scale to change the global outlook for tropical forest nation adaptation. Thus, we must identify means to enable a scaling up of such holistic approaches to REDD.

#### IV. Challenges & Limits of Holistic Forest Protection Through REDD

As explained throughout this section, there is reason for deep concern that a REDD mechanism focused solely on carbon will produce harmful ecological and socioeconomic impacts rather than “co-benefits.” For example, leading forest policy analysts suggest that REDD may fail to provide co-benefits and even worsen the condition of forest ecosystems.<sup>103</sup> Likewise, the equity implications of REDD as currently proposed remain unclear<sup>104</sup> and raise significant concern among advocates for the rural poor in

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[standards.org/projects/files/Carbon\\_Conservation\\_FFI\\_Provincial\\_Govt\\_of\\_Nanggroe\\_Aceh\\_Darussalam\\_CCB\\_Validation\\_Audit\\_Final\\_Feb\\_08.pdf](http://standards.org/projects/files/Carbon_Conservation_FFI_Provincial_Govt_of_Nanggroe_Aceh_Darussalam_CCB_Validation_Audit_Final_Feb_08.pdf)

<sup>103</sup> See Kelly Levin et al., \_\_\_\_\_, at 546 (“If non-carbon benefits are ignored, [REDD] could adversely impact biodiversity and ecosystem function.”).

<sup>104</sup> For example, a recent UNEP report concluded: “Decisions over the rules of operation of international REDD mechanisms could have significant implications, especially in terms of equity. These include factors such as different capacities to deal with complex systems; the way that baselines are established; how or whether degradation is included; and how definitions such as ‘forest’ are set. Differences may be obvious between countries, but these are also likely to play out at national and subnational scales.” UNEP, *Making REDD Work for the Poor*, at 39.

developing countries.<sup>105</sup> This article now turns to an examination of the concerns related to socioeconomic and biodiversity impacts, then explains why the market forces that may ultimately drive REDD serve to increase the probability that the mechanism will undermine sustainable development unless protective measures are infused into the mechanism at the design phase.

#### A. Potential Negative Impacts of REDD as Proposed

##### 1. Socio-Economic Concerns with REDD

REDD cannot be expected to easily overcome the long-standing drivers of deforestation and degradation that have undermined and limited prior efforts to improve global forest management.<sup>106</sup> Instead, a realistic approach to incorporating forests into the toolbox of the climate change regime – whether for mitigation, adaptation, or both – must take stock of the factors that underlie persistently high rates of deforestation and the failure of international environmental law to adequately address them. “Addressing the underlying drivers of deforestation and degradation will require a wide variety of ecological, social and economic approaches.”<sup>107</sup> For a REDD mechanism to significantly

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<sup>105</sup> E.g., Simone Lovera, *The hottest REDD issues: Rights, Equity, Development, Deforestation and Governance by Indigenous Peoples and Local Communities*

<sup>106</sup> Jeremy S. Broadhead et al., *Climate change: will it change how we manage forests?*, in *Forests and Climate Change: Adaptation and Mitigation* (Van Bodegom et al., eds., 2009), at 64-65 (“In many areas of the world, talk of steering forest management towards adaptation and/or mitigation without adequate recognition of the major challenges still standing in the way of SFM creates highly unrealistic expectations of the forestry sector”).

<sup>107</sup> Secretariat of the Convention on Biological Diversity (2009). *Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change*. Montreal, Technical Series No. 41, 11, available at

advance climate regime goals, it must be sensitive to this multiplicity of considerations. While this analysis will ultimately be project-specific, some general observations may be useful.

Governance concerns pose fundamental challenges to designing an effective REDD mechanism. These concerns permeate discussion of REDD because, as one NGO commentator has observed, “those countries that face high deforestation rates are, by definition, struggling with good governance over forests, whether this concerns outright corruption, lack of national policy coherence or a failure to implement international commitments.”<sup>108</sup> While injection of market-based funds may address the third of these concerns, the first two pose very significant challenges. Therefore, REDD should include means of supporting governance improvements and avoiding negative impacts resulting from poor governance.

International distributional concerns also affect REDD. Because payment for REDD credits will likely come after the projects are established, initial implementation funding presents a potentially insurmountable roadblock for countries that could most benefit from adaptation-related improvements.<sup>109</sup> In the absence of design elements to overcome this concern, REDD funds could end up flowing to those tropical forest countries that have the strongest financial and governance capabilities at the outset. In such a

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<http://www.cbd.int/doc/publications/cbd-ts-41-en.pdf> (last accessed December 14, 2009).

<sup>108</sup> Simone Lovera, *The hottest REDD issues: Rights, Equity, Development, Deforestation and Governance by Indigenous Peoples and Local Communities*, at 11.

<sup>109</sup> See Thomas Legge et al., *REDD and forest governance*, (Chatham House 2008) at 6, available at: <http://www.illegal-logging.info/uploads/EAC2008REDDforestgovernance.pdf>.

scenario, REDD may still have significant mitigation benefits, but major opportunities to promote human well-being and adaptation will be missed. Indeed, existing international inequities may be exacerbated as financial and governance shortfalls leave some tropical forest nations unable to participate in benefits generated for other, relatively more well-off tropical forest countries.

Within countries, a sudden infusion of funds could potentially exacerbate existing social inequities if, for example, corrupt or indifferent elements of society appropriate REDD payments and exclude the poor from REDD project areas they traditionally used for sustenance.<sup>110</sup> Specifically, some REDD critics charge that

Resources appropriation by elites is one of the main drivers of deforestation and one of the main causes of persistent poverty. By assigning a substantial monetary value to forests, the REDD mechanism will encourage this resource appropriation. This could include rapid entitlement of forest land by elites, implementation of policies aimed at displacing smallholders [and] peasants out of forest areas, repression of traditional modes of farming considered unsustainable, such as slash-and-burn cultivation etc., social marginalization, and displaced deforestation (by peasants moving from REDD project areas to other forest land).<sup>111</sup>

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<sup>110</sup> *E.g.* Simone Lovera, The hottest REDD issues: Rights, Equity, Development, Deforestation and Governance by Indigenous Peoples and Local Communities, at 6, 10, available at: <http://unfccc.int/resource/docs/2009/smsn/ngo/117.pdf>

<sup>111</sup> Simone Lovera, The hottest REDD issues: Rights, Equity, Development, Deforestation and Governance by Indigenous Peoples and Local Communities, at 6.

In addition, “[a]t the scale of regional and global economies, REDD could reduce the availability of land for agricultural expansion, [thus] pushing food prices higher,” which would negatively affect those already facing difficulty securing sufficient food.<sup>112</sup>

A recent evaluation of UN-REDD efforts in Tanzania presents a case study of how socioeconomic conditions drive deforestation and offers suggestions for how REDD might overcome these drivers.<sup>113</sup> In the period 2000-2005, net forest loss in Tanzania ranked among the ten highest in the world at 412,000 hectares.<sup>114</sup> Deforestation in Tanzania is driven largely by demand for fuelwood to meet energy needs, and by expansion of subsistence agriculture.<sup>115</sup> The history of Tanzania is replete with failed efforts to reduce deforestation, primarily because conservation efforts sought to restrict access of local peoples to lands from which they drew sustenance.<sup>116</sup> Governance of Tanzanian forests is poor, suffering from cronyism and corruption.<sup>117</sup> Several initiatives have demonstrated that community-management of forests in Tanzania can produce a

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<sup>112</sup> Claudia M. Stickler et al., The potential ecological costs and cobenefits of REDD: a critical review and case study from the Amazon region, *Global Change Biology*, 15, 2803-2824, September 26, 2009, at 2806.

<sup>113</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009).

<sup>114</sup> FAO, *Global Forest resources Assessment 2005*, at 21.

<sup>115</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009), at 5, 49.

<sup>116</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009), at 21.

<sup>117</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009), at 28-29.

reduction in deforestation.<sup>118</sup> Funding to provide increased efficiency of energy sources and provide the expertise and technology needed to increase agricultural yield, combined with governance initiatives, would significantly reduce the drivers of deforestation and improve well-being of local populations.<sup>119</sup>

In sum, the balance between forest preservation and other concerns is delicate. While a REDD “mechanism could create a tremendous opportunity to bring a huge amount of money into the protection of forests that never existed before through traditional bilateral movement of funds” it may also negatively impact “the sovereignty and the rights of local populations with access to the forest” by “lock[ing] up forests for the use and economic development of local communities.”<sup>120</sup>

## 2. Ecological Concerns with REDD

A REDD market without adequate attention to ecological concerns would likely exacerbate existing environmental problems. Two related ecological concerns arise from the prospect of REDD. First, REDD may cause leakage that leads to deforestation and degradation in areas of critical ecological value. Leakage poses special challenges to forest adaptation because an active international REDD program may create “a risk of displaced

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<sup>118</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009), at 35.

<sup>119</sup> Filippo Chiesa et al., UN-REDD in Tanzania: Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (2009), at 45, 49.

<sup>120</sup> Brian Murray, Economics and the Climate Change Mitigation Portfolio, 29 J. Land Resources & Envtl. L. 39, 51 (2009): *see also* Simone Lovera, The hottest REDD issues: Rights, Equity, Development, Deforestation and Governance by Indigenous Peoples and Local Communities, at 11.

pressures, whereby protection of high-carbon forests leads to additional pressure to convert or degrade lower carbon ecosystems that may be important for biodiversity or flood regulation, . . . [or other ecosystem services in] low-carbon forests.”<sup>121</sup> Second, a poorly designed REDD mechanism may effectively reward countries for destroying primary forests of high ecological value and establishing plantation forests for carbon credit.<sup>122</sup> “For example, the species rich cerrado woodlands and savannas of Brazil are already being replaced by plantations of Eucalyptus species, native to Australia, and at least one project to earn carbon credits from this process is already underway.”<sup>123</sup> A recent study suggests that a REDD system designed to prioritize biodiversity preservation will yield far greater environmental benefit than a purely mitigation focused mechanism.<sup>124</sup> Thus, if REDD is going to help lay the groundwork for adaptation, it is critically important

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<sup>121</sup> Multiple Benefits – Issues and Options for REDD, May 28, 2009. UN-REDD Programme, 6, available at <http://www.un-redd.org/ProductsandPublications/tabid/587/language/en-US/Default.aspx> (last accessed November 23, 2009). This concern is tempered somewhat where factors driving deforestation are local, such as small-scale agricultural clearing or degradation to support fuelwood needs. However, closing of large forest tracts to industrial-scale international timber production or multinational agricultural expansion, may shift pressures from the closed areas to areas in which REDD is more difficult to establish. Although governance concerns may limit REDD in a region, for example, these concerns may be less relevant to agricultural expansion. Further, reduction in lands effectively used for legal international timber production may increase incentives for illegal logging for international trade.

<sup>122</sup> This concern also exists in the current CDM provisions for forest credits.

<sup>123</sup> Claudia M. Stickler et al., The potential ecological costs and cobenefits of REDD: a critical review and case study from the Amazon region, *Global Change Biology*, 15, 2803-2824, September 26, 2009, at 2806.

<sup>124</sup> Oscar Venter, William F. Laurance, Takuya Iwamura, Kerrie A. Wilson, Richard A. Fuller, Hugh P. Possingham. *Harnessing Carbon Payments to Protect Biodiversity*. 4 DECEMBER 2009 VOL 326

to build incentives for “co-benefits” essential to this groundwork into the REDD mechanism.

B. Market Interaction with Negative Effects: Intensifying REDD’s Flaws

Inevitably, “there will be areas in which the implementation of REDD activities would achieve [sustainable development and biodiversity benefits], but where the cost of reducing emissions is higher than the cost of reducing equivalent emissions in another area.”<sup>125</sup> This poses a significant equity concern, both internationally and within host countries, because it may drive investment decisions in a market-based form of REDD.<sup>126</sup> Specifically, market preference for the most cost-effective carbon credits may disincentivize REDD projects with the most potential to improve adaptation capacity.

In considering the effect of REDD on adaptation across a global scale, we can evaluate the mechanism along four vectors, two of which reflect potential adaptation value and two of which reflect the probable market forces that will drive the mechanism if projects create fungible carbon credits. Along the first axis, we will examine the impact on socioeconomic adaptation and the impact on ecological adaptation considerations. On the second axis, we must define the forces most likely to drive private market funding decision (i.e., which projects will be able to generate credits most attractive to private investors). First, the extent and concentration of carbon in a given forest are – which this article

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<sup>125</sup> Multiple Benefits – Issues and Options for REDD, May 28, 2009. UN-REDD Programme, 6, available at <http://www.un-redd.org/ProductsandPublications/tabid/587/language/en-US/Default.aspx> (last accessed November 23, 2009).at 5.

<sup>126</sup> UNEP, Making REDD Work for the Poor, at 32

refers to as “carbon value” – will be significant because projects able to generate greater quantities of carbon offsets will likely attract large investors because they offer an economy of scale that will produce the most efficient outcome for large credit purchasers by minimizing transactions costs.<sup>127</sup> Second, governance concerns that effect the probability of credit permanence (i.e., the perceived stability of the projects) will affect not only private purchasing decisions and insurance requirements, but also the ability of project proponents to secure recognition of credits to be generated from the project or even the ability to establish projects in the first place. We can refer to this group of concerns as “credit marketability” because they all reflect issues surrounding the ability to create and sell credits from a given forest area. Considering the interplay of these four factors will result in a matrix that looks like this:

	Carbon Value	Marketability of Credits
Socioeconomic Adaptation Value		
Ecological Adaptation Value		

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<sup>127</sup> See Ebeling & Yasue at 1921 (“carbon markets value carbon not biodiversity and are designed to focus on the lowest cost options for generating emission reductions”).

The blank white squares in this table must be filled in with an analysis of how the market-related factors will interact with the adaptation-related factors. This analysis will yield a prediction of the impact that market forces will have on the adaptation considerations across an international scope, particularly whether REDD funding will benefit the forested areas most in need of support for adaptation.

A study by Johannes Ebeling and Mai Yasue, published in 2008, provides data analysis that is highly relevant to the question of how these forces will interact. They conclude that “Many of the countries that could in principle achieve the highest relative incomes through RED, for example, Liberia, the Democratic Republic of Congo and Myanmar, may not have sufficiently effective governance capacities to implement effect land-use policies.”<sup>128</sup> As these and other authors note, there is evidence to support the intuitive conclusion that forested countries with poor governance will be more likely to have higher deforestation rates than countries with more effective governance.<sup>129</sup> Ebeling and Yasue observe, “RED could provide the necessary incentives and funds to tackle corruption and improve governance structures which in itself may have far-reaching indirect benefits for poverty alleviation and environmental protection.”<sup>130</sup> Accordingly, the tropical forest countries with the poorest governance indicators are likely to be the countries with both high deforestation rates and the greatest potential to benefit from governance-related adaptation

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<sup>128</sup> Ebeling & Yasue, at 1920.

<sup>129</sup> Ebeling cites: Smith, R. J., Muir, R. D. J., Walpole, M. J., Balmford, A. & Leader-Williams, N. 2003 Governance and the loss of biodiversity. *Nature* 426, 67–70. (doi:10.1038/nature02025)

<sup>130</sup> Ebeling & Yasue at 1920 (citing the example of Bolivia).

support, but only if resources reach them in a manner that promotes correction of existing governance problems. There is little reason to believe that a private market concerned only with cost-effective carbon credits would appropriately target resources toward the greatest needs. Such a market may instead disfavor countries with poor governance indicators because they are risky investments. Accordingly, the extent of actual beneficial impact of REDD on countries with the poorest governance remains highly speculative. Rather than aiding in governance improvements, aversion to investment in countries with poor governance may produce an inverse correlation between the socioeconomic adaptation potential as it relates to governance and marketability of REDD credits.

Also relevant to socioeconomic adaptation, Ebeling and Yasue analyzed the relationship of REDD income potential and “human development potential.” The results of their analysis “suggest that a pure market approach might produce few synergies between emission reductions through RED and development benefits on a national level.”<sup>131</sup> Further, as the authors note, their national-level analysis does not include assessment of the likelihood that REDD payments would reach the rural poor within countries and, therefore, the actual impact of a purely mitigation-focused REDD mechanism may have even less benefit for the poor. This analysis suggests an inverse correlation between the socioeconomic adaptation potential of REDD in a given area and the carbon value of forests. Considering the impact of both carbon value assessment and marketability, we may predict that a purely mitigation-focused REDD mechanism is unlikely to have significant positive socioeconomic adaptation benefits in the

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<sup>131</sup> Ebeling & Yasue at 1921.

countries with the greatest need. In fact, if a thriving REDD market leads to increased pressures on forests in non-participating countries, REDD may negatively affect the likelihood of preserving key forest ecosystem services in the countries with the greatest socioeconomic and governance needs.

Ebeling and Yasue also assess the relationship between REDD income potential and biodiversity significance. The results here are similarly disconcerting. At a national level, at least, the study suggests that countries considered the highest biodiversity priorities (often because of the imminence of extinction threats) are less likely to benefit significantly from REDD.<sup>132</sup> Similarly, another study using models to determine the likely beneficiaries of REDD funding concluded that in the model “if REDD focuses solely on cost effectively reducing carbon emissions, its benefits for biodiversity are low.”<sup>133</sup> These results reflect the reality that high carbon value forests often do not correlate with high biodiversity priorities because the “biodiversity hotspot” forests tend to be less extensive and more fragmented, along with possible variation in forest types. Further, marketability of credits from biodiversity priority forests is also likely to be lower for the same reasons, and because the forces behind the fragile state of biodiversity hotspot forests will frequently be the same governance concerns that undermine marketability of credits.

Although there is apparently no scientific work directly testing the likely impacts of REDD on adaptation considerations, the available literature does raise some troublesome implications of REDD for adaptation. A purely carbon-focused market-oriented REDD is unlikely to significantly benefit countries with poor

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<sup>132</sup> Ebeling & Yasue, at 1921.

<sup>133</sup> Venter et al., 326 Science 1368.

governance or high biodiversity indexes, and such benefits are unlikely to reach the rural poor. Recalling the discussion earlier in this article that demonstrates the significance of governance and poverty to socioeconomic adaptation, as well as the relevance of biodiversity to ecological adaptation, we can conclude that current research suggests the currently proposed form of REDD is unlikely to benefit adaptation. While not empirically tested, and probably not testable, the evidence may allow us to infer the following relationships into our tabular representation of the interaction between market considerations and REDD's potential adaptation value:

	Carbon Value	Marketability of Credits
Socioeconomic Adaptation Value	Inverse Correlation	Inverse Correlation
Ecological Adaptation Value	Inverse Correlation	Inverse Correlation

If these inferences are correct, REDD does not hold significant promise for co-benefits in its current form. Instead, it is likely to sacrifice the ecological and socioeconomic underpinnings

of adaptation in forested areas (not to mention well-being and globally important biodiversity) for the sake of cost-effective mitigation.

## V. Designing REDD for Mitigation and Adaptation: Holistic Forest Protection through Voluntary Certification

Despite the potential for negative socioeconomic and ecological impacts of a market-based REDD mechanism, REDD offers tremendous promise for successfully reducing deforestation on a global scale.<sup>134</sup> A transformation in forest policy throughout the tropics will require market-based financing and a significant commitment to emissions reductions by developed countries, as others have noted, but it will also require that the mechanism is designed to incentivize holistic SFM and counteracts the potential negative effects of a solely carbon-focused market-driven forestry mechanism.

To effectively incentivize this type of holistic REDD that advances both mitigation and adaptation goals, this article proposes a voluntary certification protocol constructed within the REDD mechanism and tied directly to the availability of financial support from the climate regime. The certification arrangement sketched below requires market-based REDD and fully fungible carbon offset credits. Projects that satisfy criteria established by

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<sup>134</sup> Note Ebelson quote, maybe others, praising REDD (or do I already have this elsewhere enough)

the COP or a REDD executive board would be designated as “adaptation-oriented” and receive specific, defined financial benefits from an international fund.

This approach will incentivize countries to integrate co-benefits into the core design of REDD projects, and ensure that such holistic projects are at least cost-competitive with carbon-only REDD credits. Below, I explain the rationale for using a market-based approach with voluntary certification, in light of the concerns described above, and then sketch the basic contours of the mechanism as redesigned to incorporate voluntary certification to promote adaptation-related co-benefits.

#### A. Financing: Benefits of a Structured REDD Offset Market

Given the significant concerns surrounding market-based REDD, a debate has emerged regarding whether REDD should be transformed from its original conception as a market-based mechanism into a fund-based mechanism (not unlike existing demonstration projects for the voluntary market) that can avoid risks created by market-orientation.<sup>135</sup> G-77 + China, for example, have advocated a fund-based approach relying entirely on developed country contributions.<sup>136</sup> Further, some have suggested that concerns over the rights or indigenous peoples warrant exclusive reliance on a fund-based approach.<sup>137</sup> However, fully implementing REDD to eliminate deforestation will require tens of

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<sup>135</sup> K. Levin \_\_\_\_

<sup>136</sup> Little Climate Finance Book,

[http://www.threddesk.org/sites/default/files/resources/pdf/2009/lcfb\\_en.pdf](http://www.threddesk.org/sites/default/files/resources/pdf/2009/lcfb_en.pdf)

<sup>137</sup> Hottest red issues

billions of dollars annually – a sum that developed countries are unlikely to donate solely for the purpose of ending deforestation.<sup>138</sup> Even if such funding could be obtained, it would undoubtedly be a drain on the resources available for other climate related priorities (such as promoting adaptation in least developed countries).<sup>139</sup> It appears highly probable, however, that private financing through market-based REDD will raise needed revenues if countries adopt a sufficiently stringent cap on overall global emissions.

A review of existing literature suggests that a market-based REDD mechanism will produce greater mitigation benefits than a fund-based mechanism because leveraging private funds will produce greater financial inflows and, thus, incentives to avoid deforestation.<sup>140</sup> Accordingly, major economic reviews of the issue, such as the Eliasch Review, favor a market-based system supplemented by public funds as necessary.<sup>141</sup> Models used in the Eliasch Review predict that a market-based credit system alone would produce sufficient funds to reduce deforestation emissions 22% by 2020 and eliminate 75% of potential forest sector emissions by 2030.<sup>142</sup>

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<sup>138</sup> G-77 + China, for example, seeks \$\_\_\_\_\_ funding from developed countries in its proposal.

<sup>139</sup> Johan Eliasch, *Climate change: financing global forests* (2008) (The Eliasch Review, Office of Climate Change, UK) at 95.

<sup>140</sup> *E.g.* David Freestone, *Forward*, in *Climate Change and Forests: Emerging Policy and Market Opportunities* (Charlotte Streck et al., eds. 2008), at xi.

<sup>141</sup> Johan Eliasch, *Climate change: financing global forests* (2008) (The Eliasch Review, Office of Climate Change, UK) at xiv (“The forest sector should be fully included in any post-2012 deal at Copenhagen, with market access provided by emissions trading schemes.”).

<sup>142</sup> Johan Eliasch, *Climate change: financing global forests* (2008) (The Eliasch Review, Office of Climate Change, UK) at 182-83.

A fully fungible market-based REDD mechanism would enable parties to make deeper emissions commitments on the basis of cost-effectiveness that the forest offset credits will provide. Likewise, market-based REDD may create other cost-reductions across the climate regime. As the Eliasch Review urges, inclusion of all relevant emissions reductions sectors within the trading regime maximizes the efficiencies and cost-saving gains of the cap-and-trade system.<sup>143</sup> This suggests that so long as cap-and-trade remains a centerpiece of the climate regime, REDD's inclusion in the market will provide additional cost savings for forest credits and other sectors.

In addition, many argue that a market-based form of REDD is most likely “to encourage and reward successful innovation and technical progress in forest management.”<sup>144</sup> This long-recognized basis for preferring market mechanisms<sup>145</sup> may have special

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Some scholars have argued that the costs of establishing and policing a globalized trading regime may undercut the value of trading as a cost-effective regulatory method, *See* David M. Driesen, *Linkage and Multilevel Governance*, 19 *Duke J. Comp. & Intl. L.* 389, 410-11 (2009), but the argument carries little force in this instance. A fund-based effort to reward avoided deforestation would also be very expensive. Halving deforestation by 2030 is expected to cost up to \$33 billion per year. Johan Eliasch, *Climate change: financing global forests* (2008) (The Eliasch Review, Office of Climate Change, UK) at 80; *see also* Georg Kindermann et al., *Global cost estimates of reducing carbon emissions through avoided deforestation*, 105 *PNAS* 10302 (2009) (reaching similar conclusions).

<sup>143</sup> Johan Eliasch, *Climate change: financing global forests* (2008) (The Eliasch Review, Office of Climate Change, UK) at 95.

<sup>144</sup> Peter Gluck et al. *Governance and Policies for Adaptation*, in IUFRO, *Adaptation of Forests and People to Climate Change: A Global Assessment Report* (2009) 207.

<sup>145</sup> *E.g.* Stavins, \_\_\_, 1997 *U Chi Legal F* 293; *but see* David M. Driesen, *Does Emissions Trading Encourage Innovation?*, 33 *ELR* 10094 (2003).

application in the relatively young context of forest carbon measurement because new projects may quickly adopt the best and least expensive technology for verification of carbon stocks and forest change, and additional opportunities for adoption will arise with monitoring and periodic re-verification. This supposition is supported by the available evidence – technology related to forest monitoring and carbon measurement have grown rapidly since the REDD concept gained attention in 2005 and demonstration projects have begun.

Moreover, a holistic REDD mechanism will provide incentives for technological innovation that beyond forest monitoring technology, such as small-scale energy production to reduce the need for fuelwood or improved agricultural products and techniques to reduce the need for forest clearing. These opportunities may provide not only adaptation and mitigation benefits, but also wealth creation opportunities in relevant sectors.<sup>146</sup>

Given the advantages of a market-based REDD system, the better approach to potential negative consequences of market-orientation is to incorporate design elements that will incentivize REDD projects to provide significant benefits beyond mitigation.<sup>147</sup> Recognizing this, some have suggested that the climate regime should impose strict requirements that all REDD

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<sup>146</sup> Although beyond the scope of this article, it seems probable that in some instances new technology used in holistic market-based projects would generate opportunities to receive payments for intellectual property rights, or to earn public good will through donation of such rights.

<sup>147</sup> Others have recognized a need to provide mechanisms for going beyond minimum requirements for mitigation-focused REDD. *E.g.* Thomas Legge et al., REDD and forest governance, (Chatham House 2008) at 8, available at: <http://www.illegal-logging.info/uploads/EAC2008REDDforestgovernance.pdf>.

projects ensure benefits such as stable governance and significant poverty alleviation to create a socio-economic groundwork for successful adaptation. That mandatory approach, however, may ultimately undercut the potential mitigation and adaptation value of the REDD mechanism by making the qualification process too intrusive, complex or costly for potential participants.<sup>148</sup> Therefore, mandating optimal social standards as a readiness element could produce a system that ultimately fails to significantly impact deforestation because developing countries opt not to participate.<sup>149</sup>

Others have suggested that funding outside of the climate regime – such as funding by the NGO community – could provide a supplemental source of income that may encourage projects to consider more than carbon.<sup>150</sup> However, the funding available from these sources is small compared to the potential value of a REDD market and, thus, any added incentive would also be small. Further, actors that would create REDD projects without co-benefits would do so because it is cheaper. Accordingly, supplemental funding would have to be sufficient to offset the cost of adding co-benefits into a project. Further, if the supplemental

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<sup>148</sup> For example, Brazil, which has the largest amount of primary deforestation in the world, has regularly resisted international efforts perceived to impinge on its sovereignty over forests and, thus, might opt not to participate if social requirements are too stringent. Other nations with high deforestation rates, such as Malawi, face extreme resource constraints that might make stringent certification requirements for REDD unattainable without significant international aid.

<sup>149</sup> See e.g. M.G. Sangster and M. Dudley, *Governance and Climate Change*, in *Forestry & Climate Change*, at 217.

<sup>150</sup> Karousakis, K. (2009), "Promoting Biodiversity Co-Benefits in REDD", OECD Environment Working Papers, No. 11, OECD Publishing, © OECD.  
doi:10.1787/220188577008

funding were to be arranged on a case-by-case basis, potential project sponsors would have little certainty regarding the available funds and substantial transaction costs would likely be involved in locating such funding. Thus, while this option has some viability, it is inferior to building incentives into the climate regime and REDD mechanism itself, where incentives can be clearly defined in advance to maximize certainty and minimize transaction costs.

Even a very active REDD market will require supplemental public funding to make major progress on deforestation by 2030.<sup>151</sup> Thus, the “market-based” approach advocated here is in fact a hybrid approach.<sup>152</sup> Recognizing the benefits of primary market orientation, the key question becomes not whether public funding should supplant the market, but how public funding can supplement the market in a manner that encourage maximum benefit from REDD. Two criteria make are of primary importance here, as explained in more detail below: adaptation benefits of a project and need for support. Further, it is critically important that all aspects of co-benefit assessment be voluntary to encourage the broadest participation and resulting mitigation benefits.<sup>153</sup>

#### B. Tiering REDD through Voluntary Certification

Two types of REDD projects should be recognized under the post-Kyoto climate regime: projects certified for providing

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<sup>151</sup> Eliasch Review

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<sup>153</sup> Addition of voluntary certification for adaptation-oriented REDD projects aligns the mechanism with the concept of equity micro-offsets, and perhaps points toward larger transformative approaches, as discussed in Michael P. Vandenbergh et al., *Micro-Offsets and Macro-Transformation: An inconvenient View of Climate Change Justice*, 33 HARV. ENVTL. L. REV. 303 (2009). The additional adaptation element, as discussed below, significantly expands the equity-related benefits, along with the other benefits discussed below.

adaptation-related benefits and all other projects. As explained in this section, certification should carry defined benefits offsetting the costs of the certification process and making the resulting credits cost competitive with noncertified (i.e., mitigation only) projects. In other words, all public funding of REDD should be directed toward projects that achieve (or will achieve) certification for adaptation-related benefits,<sup>154</sup> although mitigation-only projects should be allowed to create fully marketable credits, just as certified projects would.

Numerous benefits will flow from this tiered approach. The approach embraces maximum flexibility in order to avoid intrusion on the sovereignty of forested nations, while targeting the most beneficial projects for support. This will have both mitigation and adaptation benefits by encouraging broad participation, which not only enhances mitigation but also reduces the likelihood of international leakage, while incentivizing adaptation-related activities. Such activities are also likely to enhance the permanence of mitigation benefits achieved.

The approach has the potential to significantly reduce the amount of future adaptation funding needed in forested areas because the adaptation-oriented REDD projects will provide sustainable benefits and reduce the extent of future climate change impacts. Further, by combining mitigation and adaptation goals in the same projects, the approach will promote a more holistic and efficient approach to meeting the regime's dual goals. In this respect, the tiered form of REDD proposed here could lay the groundwork for a new model of international environmental

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<sup>154</sup> This is likely to include, inter alia, least developed countries that may otherwise be unable to participate in REDD.

mechanisms.<sup>155</sup> This tiered approach offers the most promising mechanism yet proposed for counteracting the misalignments between regulatory market investment considerations and the potential to meet adaptation needs through REDD.

### C. Mitigation-Only REDD Projects

To provide flexibility and encourage participation, the mitigation-only option for REDD should enable countries to access the carbon market by satisfying only essential requirements for demonstrating mitigation benefit and avoiding a demonstrable negative impact on adaptation.<sup>156</sup> For certification benefits to be

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<sup>155</sup> The potential to enhance international environmental regulation through such a model will be explored in a future article.

<sup>156</sup> There are several other issues that must be addressed before REDD can become reality. Literature on some of these points – such as additionality, leakage, and permanence – is extensive and well-developed. Most of the options currently being debated would be adequate to establishing the dual-track REDD approach outlined in this article. For a thorough discussion of baselines, leakage, and permanence from a design perspective, see Erin C. Myers, *Policies to Reduce Emissions from Deforestation and Degradation (REDD) in Tropical Forests: An examination of the issues facing the incorporation of REDD into market-based climate policies* (Resources for the Future, 2007) available at: <http://www.rff.org/RFF/Documents/RFF-DP-07-50.pdf>. An alternative approach to the additionality question, which warrants careful consideration, has been advanced in several studies. Danilo Mollicone et al. “An Incentive Mechanism for Reducing Emissions from Conversion of Intact and Non-Intact Forests”, 83 *Climatic Change* (2007), pp. 477 et seq., at p. 479; Gustavo A. B. da Fonseca et al., *No Forest Left Behind*. 5 *PLoS Biology* 1645, 1645 (2007); Fredric Achard et al., *Accounting for avoided conversion of intact and non-intact forests: Technical options and a proposal for a policy tool* (European Joint Research Council, undated), available at: <http://www.cifor.cgiar.org/NR/rdonlyres/D0207F59-8D5D-4362-A706-46AEE48619AA/0/JRCProposal.pdf>. Another threshold issue that must be resolved before REDD can be expected to provide net incentives for adaptation is the definition of “forest” to be used within the mechanism. See Andrew Long, *Taking Adaptation Value Seriously: Designing REDD to Protect Biodiversity*, 3 *Carbon & Climate Law Review* 314, 318, 321-22 (2009).

meaningful, mitigation-only projects should not receive direct project-level assistance from a climate regime fund. Mitigation-only projects would be required to meet appropriate verification and monitoring, as well as demonstrating sufficient governance capability.<sup>157</sup>

Mitigation-only projects should not be permitted to undercut adaptation, including adaptation in surrounding areas. For example, projects should not lead to replacement of ecologically and socioeconomically important forests with monocultural plantation forests of nonnative species.<sup>158</sup> Likewise, projects that will clearly remove ecosystem goods and services from peoples who depend upon them for sustenance, without providing adequate replacement sustenance opportunities, may raise significant adaptation concerns warranting denial of carbon credits.<sup>159</sup>

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<sup>157</sup> For example, countries may need to combat illegal logging, which stands as a major barrier to REDD in many heavily-forested developing nations. *E.g.*, Daviet, Florence. 2009. “Legally REDD: Building Readiness for REDD by Supporting Developing Countries in the Fight Against Illegal Logging.” WRI Working Paper. World Resources Institute, Washington DC. Another example may be land tenure considerations. Chiesa F., Dere M., Saltarelli, E., Sandbank, H., 2009. UN-REDD in Tanzania. Project on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries. Johns Hopkins School of Advanced International Studies, Washington DC and UNEP World Conservation Monitoring Centre, Cambridge, UK. 7, available at <http://www.unep-wcmc.org/pdfs/SAIS-TanzaniaLowRES.pdf> (last accessed November 23, 2009) (“REDD can both be affected by and be an agent of change of land tenure systems. Unclear land tenure systems (especially large amounts of open access land) are detrimental to the REDD framework. At the same time, REDD can provide the presently-missing monetary incentives for local communities to bring open-access forests under a regime of commonality and sustainable forest management.”).

<sup>158</sup> Reference Brazilian example

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Nonetheless, the mitigation-focused option should provide an opportunity for host countries to access carbon markets with minimal transaction costs and regulatory burdens. This relative simplicity is necessary to provide real choice and offer avenues for countries to avoid international intrusion into sovereign decisions regarding management of their natural resources, while still providing globally significant climate benefits.

D. Adaptation-Oriented REDD Projects:  
Voluntary Certification & Financial  
Assistance to Maximize REDD Benefits

In many respects, the mitigation-only component of the proposed tiered REDD mechanism aligns with the current tract of REDD negotiations, as exemplified by the AWG-LCA draft decision on REDD policies. The real progress that could be realized by the proposal in this article, therefore, lies in the incentivization of adaptation-oriented projects. In essence, the goal is to ensure that a market-based form of REDD can build upon the model of effective holistic REDD projects that have been developed with organizational support and for the voluntary market.

Two components are necessary to ensure that the adaptation-oriented option under a dual-track REDD mechanism effectively realizes the potential benefits discussed above. First, in order to qualify as adaptation-oriented, projects must demonstrate that they will provide benefits that will reduce the harm caused by anticipated climate change impacts in the project area or in surrounding areas. Second, international funding must be provided to make these projects cost-competitive in the carbon market and attractive to project planners, despite higher transaction costs due

to certification requirements and potentially higher implementation costs than many mitigation-only projects.

### 1. Activities Qualifying for Certification

The exact nature of project activities that qualify as adaptation-oriented will depend on the circumstances of the project, including socioeconomic characteristics, ecology, and the anticipated climate change impacts in the area. However, several general types of activities can be defined as guidelines for what should qualify a project as adaptation-oriented. For example, improvements in governance structures to improve capacity to respond to climate change could qualify as an adaptation-related activity supporting certification. Likewise, creation of sustainable livelihoods that relieve pressure on forest resources could qualify as a socioeconomic adaptation activity supporting certification. In addition, projects that enhance or maintain ecosystem services important for adaptation would generally support certification. Each of these three categories of qualifying activities is elaborated briefly below.

#### a. Socioeconomic Activities: Governance & Livelihoods

With regard to the social and economic significance of forests, it has been suggested that “adaptation to climate change essentially involves altering and adjusting governance structures.”<sup>160</sup> Thus, projects may qualify as adaptation-oriented where they include activities aimed at improving forest governance in areas where the governance situation would otherwise undermine adaptation. In many instances, this will require

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<sup>160</sup> Chapter 4, IUFRO, *Adaptation of Forest & People to Climate Change*, at 116.

building governance structures that empower the people who actually use the forest resources (bottom-up governance), while also imposing adequately enforced mandates to ensure that management decisions ultimately produce SFM (top-down governance). Factors such as the project's ability to improve community participation, access to information, and decision-making authority may serve as indicators of improvements in governance that warrant certification. At the same time, the design of certification criteria on these topics must be flexible enough to enable sensitivity to legitimate local traditions and governance frameworks.<sup>161</sup>

Improving governance may also be closely linked with establishing sustainable livelihoods. Even if REDD generates large financial flows into developing countries, prior resource-based economic inflows suggest that the wealth can serve to exacerbate inequities and negatively affect the status of the poor.<sup>162</sup> Some scholars suggest that ensuring that benefits of REDD are equitably distributed requires a devolution of authority and income away from central governments.<sup>163</sup> Likewise, experience with protected areas management suggests that community-managed areas and indigenous reserves have had success in reducing deforestation and meeting livelihood goals.<sup>164</sup> Thus, tying community-management with livelihoods derived from intact forests can promote forest management that not only stores carbon, but also facilitates adaptation of the human and ecological communities.

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<sup>162</sup> See UNEP-WCMC, *Making REDD Work for the Poor* (2008) 29-30.

<sup>163</sup> See UNEP, *Making REDD Work for the Poor*, at 35.

<sup>164</sup> Campbell et al., *Protecting the Future: Carbon, Forests, Protected Areas and Local Livelihoods*, \_\_\_\_\_ (2007).

Projects creating sustainable livelihoods that support maintenance of intact forests hold significant potential to reduce the human toll of climate change and to directly address drivers of deforestation that undermine adaptation. Creating livelihoods compatible with intact forests will reduce the need for forest clearing to support subsistence agriculture in the Amazon, for example.<sup>165</sup> Further, providing sustainable livelihoods can counter the demand for income from industrial-scale agriculture and logging for the international market. To illustrate, one study noted that selective logging, supplemented by REDD-credit income, offers a potential means of resisting the demand for palm oil plantations in nations such as the Democratic Republic of Congo.<sup>166</sup> Along with providing income to counter deforestation drivers, establishment of sustainable livelihoods can directly enhance the ability of local populations to adapt to climate change. Thus, integration of sustainable agriculture with REDD projects in appropriate areas can help to offset potential impacts of REDD on food prices while also reducing regional demand for environmentally-destructive industrial agriculture.<sup>167</sup>

It is worth re-emphasizing that for socioeconomic co-benefits to take hold, projects must ensure that benefits reach the poor. While poverty reduction will frequently be closely linked with governance or livelihood improvements, this type of benefit

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<sup>165</sup> For example, a community in Kenya established a sewing industry as an alternative to traditional slash-and-burn agriculture and seeks carbon credit funds to increase the long-term sustainability of the project. The Kasigau Corridor REDD Project Phase I – Rukinga Sanctuary, Wildlife Works Carbon LLC, December 2008, available at [http://www.climate-standards.org/projects/files/taita\\_taveta\\_kenya/rukinga\\_ccb\\_pdd.pdf](http://www.climate-standards.org/projects/files/taita_taveta_kenya/rukinga_ccb_pdd.pdf) (last accessed December 16, 2009.)

<sup>166</sup> UNEP Making REDD Work for the Poor at 28.

<sup>167</sup> See if “making REDD work for the poor” supports this

may qualify as an adaptation benefit in and of itself. However, in many regions, REDD benefits cannot be expected to reach the poor unless mechanisms to ensure poverty alleviation are built into the project's design.<sup>168</sup> Therefore, projects in areas where poverty impedes adaptation or is expected to exacerbate climate change impacts should be eligible for adaptation-oriented REDD certification if they secure equitable benefit distribution and sustainable livelihoods.

b. Enhancing and Maintaining Ecosystem Services

Projects should be eligible for adaptation-oriented REDD certification and support if they enhance or maintain ecosystem services that are anticipated to experience significant additional stress or disruption due to climate change. Protection of ecosystem services in areas likely to face significant climate change impacts will directly support adaptation of natural systems and, in many cases, the human populations that benefit from them. In addition, protection of forest ecosystem services will require maintenance of the forests in a manner that provides additional insurance against emissions due to climate change-caused deterioration of forest ecosystems.

One recent study provides evidence that specifically designing REDD projects for biodiversity or ecosystem services benefits can increase the ecological co-benefits associated with the project. Examining several REDD projects in Brazil, a recent study found that projects imposing significant restrictions aimed at protecting ecological features realized substantially greater

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<sup>168</sup> See UNEP, *Making REDD Work for the Poor*, at 51.

ecological co-benefits than projects with lesser restrictions.<sup>169</sup> Further, modeling evidence suggests that targeting REDD projects to biodiversity hotspots would yield significantly greater biodiversity benefits than a system of preference built on cost-effectiveness alone.<sup>170</sup> Accordingly, the proposed certification scheme within REDD should provide meaningful incentives develop projects in ecologically sensitive areas to ensure that they are at least cost-competitive with mitigation-only projects.<sup>171</sup>

In light of the critical role biodiversity plays in underlying ecosystem services essential to human well-being,<sup>172</sup> projects aimed at ecological benefit through biodiversity protection can realize a dual adaptation benefit of by enhancing the resilience of natural systems that, in turn, underlie the resilience of human communities. Therefore, along with projects aimed a preservation of specific ecosystem services, certification should be available to those projects that provide specific and identifiable biodiversity benefits.

Certification on the basis of ecological benefits may be justified for a fairly broad range of activities where the risks to forest ecosystems from climate change are severe. Possible qualifying activities include creation of significant wildlife corridors through reforestation designed to redress habitat

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<sup>169</sup> Claudia M. Stickler et al., The potential ecological costs and cobenefits of REDD: a critical review and case study from the Amazon region, *Global Change Biology*, 15, 2803-2824, September 26, 2009, at 2815.

<sup>170</sup> Ventner

<sup>171</sup> By permitting both types of projects, the form of REDD proposed in this article could realize the biodiversity benefits cited by Ventner et al. without requiring the sacrifice in mitigation benefits those authors suggested may be necessary.

<sup>172</sup> See section \_\_\_, supra.

fragmentation, creation of protected areas to preserve ecosystem services or threatened species, or establishment of ecologically sustainable agricultural practices where they replace or prevent unsustainable practices.

## 2. Administering the Tiered Approach

Verifying adaptation benefits and assigning a monetary value to them in a manner that can equitably enable direct financial rewards will be a major task if incentives are to effectively promote adaptation-oriented co-benefits. It must be recognized that the administrative demand on the climate regime could easily dwarf the demands imposed by implementation of the CDM. Nonetheless, the task is achievable and the administrative body charged with this undertaking will be able to draw upon a long and largely successful track-record of international forest certification experience developed under the Forest Stewardship Council and other forest certification entities. The work must include three elements: (1) developing standards to against which activities can be assessed to qualify for certification; (2) establishing an auditing protocol to conduct the actual assessment of specific projects seeking certification; and (3) creating rules to govern the amount of financial support and schedules for its distribution. The decision or agreement that formally incorporates REDD into the climate regime should therefore create an administrative body and charge it with completing these tasks on a schedule compatible with the timeline for moving REDD into a primarily market-based system.

### a. Developing Standards

The initial step toward realizing certification of adaptation-oriented REDD projects will be development of standards creating an agreed upon range of activities that will qualify for certification. These standards will fall into two categories, natural systems adaptation and human community adaptation. Within these general categories, it will be necessary to specify the measures and associated adaptation benefits that will qualify for certification. Ultimately, the administrative body should produce a description of project features that is adequate to support a detailed checklist of measures and benefits that can form the basis of project auditing and assignment of financial support.

This task will be largely scientific, but may draw upon achievements of existing nonstate entities that certify forestry activities. Thus, the procedures used by the Forest Stewardship Council (FSC) may be instructive. FSC is governed by an international Membership body comprised of a Social Chamber, an Environmental Chamber, and an Economic Chamber.<sup>173</sup> The FSC Membership has created ten broad principles that form the basis of more specific criteria which provide the framework for creating very specific standards used to create an auditing protocol for assessing specific forest management operations seeking certification.<sup>174</sup> These more specific standards are developed at the national level in compliance with FSC requirements and subject to FSC Membership approval.

Along with the well-developed track-record of FSC in creating forest certification at the international level, the work of the Climate, Community and Biodiversity Alliance (CCBA) in developing specific standards for certifying REDD projects can

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<sup>173</sup> [http://www.fsc.org/membership\\_chambers.html](http://www.fsc.org/membership_chambers.html)

<sup>174</sup> <http://www.fsc.org/pc.html>

provide a starting point for an administrative body of the climate regime to analyze the substance of standards for certification. CCBA, as well as several other nonstate organizations,<sup>175</sup> has created specific standards for certifying REDD projects based on the level and type of co-benefits provided.<sup>176</sup> These existing frameworks, which include a category of certification for adaptation benefit, demonstrate the feasibility of creating a system for certifying adaptation-related co-benefits in REDD projects. A detailed review of these systems, therefore, could provide a starting point for developing an intergovernmental system of certification to support adaptation-oriented REDD projects.

#### b. Auditing

With standards in place, it will of course be necessary to establish a protocol of assessing claims regarding projects' adaptation-related benefits. Here again, the experience of the FSC and other forest certification entities will be relevant to the work of a climate regime administrative body. In general, auditing must include an assessment of the projects' plans and some degree of on site verification. Most likely, audits will be conducted by independent third-parties. Therefore, the administrative body will need to develop a means of assessing the qualifications of potential

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<sup>175</sup> Other well-developed certification systems include the Voluntary Carbon Standard (VCS) standards, the Plan Vivo System and Standards, and the CarbonFix Standard. *See generally*, Merger, Eduard. 2008. Forest Carbon Standards 2008, A comparison of the leading standards in the voluntary carbon market and the state of climate forestation projects. Carbon Positive (<http://www.carbonpositive.net/>).

<sup>176</sup> CCBA certification is conducted in the voluntary market according to \_\_\_\_\_. Further, CCBA is actively developing a policies and substantive standards for certification of co-benefits in REDD projects for a regulatory market. See \_\_\_\_.

auditing firms. While this element of the task is essential to success of the program, it is primarily a technical element that will involve primarily a balance of best practices in forest management auditing and cost, along with establishment of adequate safeguards to avoid corruption of auditors.

c. Providing Incentives:  
Distribution & Extent of  
Financial and Technical  
Support

If adopted, the success of the proposed certification system to promote holistic REDD projects in a market-based mechanism will depend on effectively scaling and delivering financial and technological support from the international climate regime to the specific REDD projects qualifying for certification. Accordingly, the payments should be structured to support the development of adaptation-related capacity and delivery of benefits that actually enhance resilience to climate change. To be politically viable, the payment structure should be designed in a manner that is likely to avoid or reduce the future need for more costly investments and more difficult adaptation measures as impacts from changing climate increase. Therefore, the level of benefits should be established relative to (1) the need to offset the additional cost of creating adaptation benefits (the market-related factor) and (2) the anticipated level of adaptation benefits as quantified in terms of the level of future public investment for adaptation that can be avoided through the project (the political factor).

The market-related factor in setting benefits requires making adaptation-oriented projects cost-effective to encourage private investment in adaptation-oriented projects. This, in turn,

requires addressing two concerns: cost and demand. The financial and technical rewards of certification must be sufficient to make implementation affordable to host countries while producing credits that are sufficiently cost-competitive to promote investment by compliance-driven investors despite the availability of mitigation-only credits that may be less expensive to generate.<sup>177</sup>

The formula for determining the amount of financing given to any particular project must be sufficiently flexible to meet the cost-competitiveness concerns while accounting for the diverse array of circumstances that will face projects aimed at adaptation throughout the tropics. Thus, exact levels of funding and appropriate distribution schedules cannot be recommended in this proposal, but should be developed to correlate with the specific benefits to be audited during the certification application process. These values could then be adjusted based on a formula that accounts for the value delivered in terms of the anticipated need for future adaptation funding avoided by the project. Further, the aggregate of pre-defined values of the specific benefits provided may be adjusted through a formula accounting for opportunity costs and implementation costs specific to the project. This adjustment may be necessary because where forest conversion is driven by large-scale agriculture and similar global economic forces, opportunity costs will be relatively high. In remote areas where the drivers of deforestation are poverty and governance failures, the opportunity costs would presumably be low, but the implementation costs would be substantially higher.<sup>178</sup>

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<sup>177</sup> In a regulatory market, private investment decisions will presumably be driven primarily by cost-competitiveness. Eberling article (which one?).

<sup>178</sup> See e.g., Stefano Pagiola and Benoît Bosquet, Estimating the Costs of REDD at the Country Level (Forest Carbon Partnership Facility, Version 2.2, Sept.

Along with benefit levels, the administrative body implementing the proposed adaptation-oriented certification system must address distribution questions, including the timing of delivery and safeguards to ensure financial gains are not appropriated by corrupt regimes. These two considerations are related.

A significant barrier to many socioeconomic-adaptation-oriented projects will be initial implementation costs of establishing the project. Therefore, the administrative body should evaluate options for providing an up-front benefit to project developers upon certification of projects in the early stages of creation.<sup>179</sup> For example, where a REDD project includes poverty eradication goals, expenses incurred in establishing community economic activities should be substantially offset through international support. Thus, expenses related to establishing non-timber forest products operations, or ecologically sound selective timber harvesting or small-scale agriculture, could be eligible for support from certification-related adaptation funds.

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2009), available at:

<http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/REDD-Costs-22.pdf>

The drivers of deforestation are relevant to the cost and feasibility of establishing REDD projects. Deforestation driven by industrial-scale logging or agriculture, for example, will result in higher opportunity costs but can be more easily prevented through establishment of new legal requirements and, therefore, incur lower implementation costs. Where deforestation is driven primarily by poverty and poor governance, however, the opportunity cost may be extremely low, but implementation will pose much greater challenges and require significant socio-economic changes to avoid exacerbating existing inequities. It may require bolstering governance to the extent necessary to control activities in project areas and creating sustainable alternatives to economic drivers of deforestation (such as the need for fuelwood or forest clearing to expand subsistence agriculture).

<sup>179</sup> This could supplement or supplant current proposals for readiness funding.

In determining the schedule of benefit distribution, the administrative body must be sensitive to both equity considerations and accountability concerns. There is a delicate balance between conditioning payment on prior demonstration of performance to enhance accountability and avoiding potential negative consequences of such conditioning for the poor within host nations.<sup>180</sup> Moreover, a carefully structured system of staggered payments may have important social benefits by providing a stable source of income over time.<sup>181</sup> On balance, therefore, it seems that a system of staggered payments designed to ensure accountability and continual benefit is preferable. Interim benchmarks and payments could be designed to work in tandem with carbon market income, thus providing sustainable income and necessary support while projects are in critical early stages.

Accountability concerns can most effectively be addressed through governance improvements. Many tropical forest countries face several governance shortfalls that will require extensive initial improvements just to prepare for REDD. For example, some nations have adopted legislation aimed at supporting community-based forestry for the benefit of local peoples, but significant challenges remain in implementing these structures.<sup>182</sup> Thus, adequate financing to support development of effective local institutions will be necessary to make the adaptation-oriented REDD option serve as a catalyst for effectuating genuine and lasting governance improvements. Such improvements on the local

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<sup>180</sup> See UNEP, Making REDD Work for the Poor, at 31-32.

<sup>181</sup> See UNEP, Making REDD Work for the Poor, at 41.

<sup>182</sup> Anne Rosenbarger, Community-based forestry in Kalimantan: An assessment of authority, policy, and capacity (2009), available at: [http://dukespace.lib.duke.edu/dspace/bitstream/10161/1371/1/Rosenbarger\\_MP\\_PDF.pdf](http://dukespace.lib.duke.edu/dspace/bitstream/10161/1371/1/Rosenbarger_MP_PDF.pdf)

level can be coupled with national accountability for implementation and, perhaps, repayment of any initial benefits in any instances of project failure.

Following assessment of specific adaptation-related activities and of the specific financial needs of a project, financing arrangements may also account for the adaptation benefits provided by the project in terms of a monetary value reflecting the extent to which they are expected to reduce or eliminate the need for additional adaptation funding in the project areas and beyond. This calculation may provide a basis for adjusting the level of support, particularly where it yields a suggested figure significantly in excess of what would otherwise be awarded. Projects with benefits significantly in excess of the costs of implementation should receive financing at least in the range of incremental implementation costs (compared to projects without adaptation benefits). Where the benefits are lower, financing should also be lower.

### 3. Financing the Incentives

Financing for certification-based incentives attached to adaptation-oriented REDD projects should come from an international fund that is at least partially market-linked. The funding may be generated through a tax on all carbon trading, a tax only on non-certified REDD credit trading, direct contributions from developed countries to a specific forestry adaptation fund, and/or from a general adaptation fund. Initial sales of adaptation-oriented credits could be exempt from any tax imposed for this purpose, to increase their cost competitiveness. Each of the options has benefits and risks. A tax exclusively on non-certified

REDD credit trades would further incentivize projects that comply with and obtain certification requirements, but may be insufficient as a primary financing mechanism. A tax on all credit trading would likely generate significant funding, but may be more difficult to secure because similar taxes will likely be sought for broader adaptation funding (as with the current use of a tax on CDM projects to support the Adaptation Fund).<sup>183</sup> A similar balance exists regarding the choice of whether public funds to support certification benefits should be housed in a separate forest adaptation fund or drawn from a general adaptation fund. In any event, the preferable mechanism for funding would be a mix of taxes on trades (i.e., private funding) and a publically-supported fund. This would allow the fund to grow with increasing volume of credit trading, while providing a safety net of public monies to meet shortfalls.

#### E. Viability of the Proposal

The proposal set forth in this section provides a viable option for ensuring that, as a whole, REDD has a beneficial impact on adaptation. Some observers may charge that the mechanism adds complexity to an already difficult series of negotiations to establish a REDD mechanism. They might also suggest that co-benefit incentives should be added at a later time, after the

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[http://unfccc.int/cooperation\\_and\\_support/financial\\_mechanism/adaptation\\_fund/items/3659.php](http://unfccc.int/cooperation_and_support/financial_mechanism/adaptation_fund/items/3659.php)

mechanism is firmly established. These and related concerns miss the mark, however. Although certification will add some complexity to the creation of the REDD mechanism, it may also facilitate agreement by providing several options for countries wishing to move forward with REDD and placating the voices of criticism that have been raised. Further, a “wait-and-see” approach to co-benefits poses significant dangers because if the biodiversity and socioeconomic concerns expressed above come to pass – such as exclusion of indigenous peoples from their traditional forest lands, of intensified pressures on tropical forest biodiversity hotspots – some of the damage will be irreversible and the negotiation dynamics will have changed by creating vested interests in maintaining an unsustainable status quo. Instead, incentives for co-benefits should become a key aspect of REDD negotiations as such incentives can, as demonstrated above, focus the REDD market toward support of adaptation-related activities.

More broadly, the REDD proposal advanced here offers a test case for developing new mechanisms in international environmental law. The climate regime is already perhaps the most complex and fully developed international environmental legal regime.<sup>184</sup> In light of the urgency of climate change threats, the international momentum toward action, and the deep linkages to other issues, the climate regime is an ideal setting for experimentation with more broadly focused international market mechanisms that embrace a holistic vision of sustainability. Further, the proposal advanced here offers an opportunity to expand the impact of climate mechanisms into related areas (e.g., biodiversity preservation) in a way that indisputably supports the core missions of the regime.

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<sup>184</sup> Sands, *Principle of International Environmental Law*

At a practical level, evidence exists for the viability of the proposed approach to REDD. Demonstration projects are beginning to show the potential for REDD to integrate a variety of sustainable land uses in a manner that meets mitigation and other environmental goals while improving the economic prospects of the local population. For example, the Ankeneny-Zahamena-Mantadia Biodiversity Conservation Corridor and Restoration Project (Mantadia), is located in the Eastern portion of Madagascar between two national parks, the Analamazaotra Special Reserve and Mantadia National Park complex, that represent the “core” of the Malagasy rainforest. This project is “designed to reduce deforestation and degradation in a very large forest area surrounding the reforestation corridors.”<sup>185</sup> The project involves “restoration of 3,000 hectares of natural forest to reconnect biologically isolated forests and protected areas, the promotion of sustainable cultivation systems . . . across 2,000 hectares, and protection of 425, 000 hectares of native forest by reducing deforestation driven by unsustainable agricultural expansion and fuelwood harvesting.”<sup>186</sup> The project includes sustainable forest and community gardens, fuelwood plantations, and clarification of land tenure, all of which meet community needs in a manner that promotes environmental sustainability and significantly reduces overall carbon emissions.<sup>187</sup> The Mantadia project shows that “a landscape-scale project that designs multiple benefits can effectively tap a mix of carbon offset financing and philanthropic and development funding.”<sup>188</sup> Future carbon offsets will generate

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<sup>185</sup> Forest Carbon Partnership Fund p. 5.

<sup>186</sup> Jeannicq Randrianarisoa et al., *Case Study: Creative Financing and Multisector Partners in Madagascar*, in *Climate Change and Forests: Emerging Policy and Market Opportunities* (Charlotte Streck et al., eds. 2008) at 206.

<sup>187</sup> Streck at 208. (more cite needed?)

<sup>188</sup> Streck at 206-07.

one third of the project's revenue, while additional funds are expected from groups investing in biodiversity restoration and from aid for community development.<sup>189</sup> The core question in designing a regulatory REDD mechanism is whether the market can be shaped to support this holistic approach without the need for ad hoc arrangements to enlist funding of a variety of donors. If so, holistic projects will become far more efficient and, presumably, common.

Under the proposed certification system, the Mantadia project should receive initial funding from the national government, the international fund, and perhaps outside investment if necessary and available. Development of cultivation and other sustainable economic enterprises would receive fund support as they are developed. Demonstrated improvements in governance structures could trigger additional funding to support, *inter alia* acquisition of expert knowledge or core skill sets necessary to improving governance functioning, economic sustainability and ecosystem services. Market sales of mitigation credits would provide a substantial source of funds that could be used, at least in part, for long-term investment aimed at community improvements and to provide resilience for economic elements of the project.

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<sup>189</sup> Initial funding comes from Madagascar government, International Development Association, and Conservation International, while the BioCarbon Fund, has purchased a percentage of emissions reductions to be generated by 2017. The World Bank provides funding to “tackle deforestation and promote sustainable development.” It has created ten carbon funds over the last seven years valued at \$2 billion, that mostly assist parties to meet their commitments under Kyoto. The BioCarbon Fund is one such fund involving afforestation and reforestation projects as well as financing REDD activities in Columbia, Honduras, and Madagascar. It has “developed a specific methodology for REDD projects, peer-reviewed by world experts in forestry.” FCPF p. 4-5.

## VI. Conclusion: Voluntary Certification as a Middle Way

Considering the pressing need to reduce deforestation and biodiversity loss while addressing socio-economic issues that partially underlie these seemingly intractable problems, a strong argument exists that the ideal form of REDD will directly address these issues in every project, and that developed countries will provide adequate funding to facilitate readiness. The reality, however, is that negotiations are far more likely to produce an agreement on REDD with only minimal and non-binding co-benefit provisions as well as significant under-funding of adaptation needs in developing countries. The proposal developed here should be thought of as a middle way between the ideal and the inadequate, but realistic outcome of current negotiations.

The voluntary certification proposal outlined here allows countries that are “ready” to proceed with REDD for mitigation with relatively minimal intrusion on their sovereign decision-making authority regarding design of projects and distribution of benefits, and includes no guarantees of international financial assistance for such projects. At the same time, it encourages development of projects with more careful adaptation-oriented design by providing a direct financial benefit, beyond the market price of carbon credits, as well as additional commitments for international assistance. The assistance will be directly tied to the value of the project in meeting a broad array of adaptation-related environmental and socio-economic goals that developed nations have long professed to support. Thus, this middle way proposal offers an opportunity to channel financial assistance to those projects most in need and most beneficial, while supporting additional mitigation projects and associated forest-based carbon credits.