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The Effectiveness of the International Climate Regime: An  
Analysis of the Legal and Practical Challenges to the  
Implementation of 'Additionality' in the Kyoto Protocol  
Flexibility Mechanisms and REDD

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## **INTRODUCTION**

It is estimated that between 2001 and 2012, the Kyoto Protocol's Clean Development Mechanism (CDM) will produce approximately 1.5 billion tonnes in carbon dioxide (CO<sub>2</sub>) emission reductions.<sup>1</sup> Nevertheless, considerable debate has evolved around the CDM, and by association other international climate regimes such as Reducing Emissions from Deforestation and forest Degradation (REDD) projects, due to their inclusion of the concept of 'additionality'. In the context of climate change, an activity is considered 'additional' if it reduces greenhouse gas (GHG) emissions below those that would have occurred in the absence of the activity.<sup>2</sup> Accordingly, additionality necessitates the creation of a 'business-as-usual' baseline for emissions to be measured against.

This paper will provide a critical analysis of the concept of additionality by: first, providing a background of the concept's application to the Kyoto Protocol and REDD; second, discussing the legal challenges to additionality, including its definition, the assessment of an unobserved scenario, perverse incentives and inconsistency in the assessment of applications; third, highlighting the practical challenges to additionality, including high transaction costs, long delays and a shortage of qualified personnel; and finally, addressing the significance of additionality in the context of the international climate change regime, including its contribution to environmental integrity, financial integrity and investor confidence. Ultimately, this paper will show that while additionality is by no means a perfect concept, it is nevertheless a necessary and indispensable element of both the CDM and REDD.

## **BACKGROUND**

In order to understand the problems associated with the notion of additionality, it is first necessary to gain a background in its application and relevance in the international climate regime. Although this paper acknowledges that additionality is not a concept wholly restricted to commitments under the Kyoto Protocol or REDD schemes, these activities will nevertheless be the central focus of the ensuing discussion.

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<sup>1</sup> World Bank, *World Development Report 2010: Development and Climate Change* (2010) <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARC/EXTWDRS/EXTWDR2010/0,,contentMDK:21969137~menuPK:5287816~pagePK:64167689~piPK:64167673~theSitePK:5287741,00.html> at 2 June 2011.

<sup>2</sup> United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005*, UN Doc FCCC/KP/CMP/2005/8/Add.1. 30 March 2006 3/CMP.1, Annex, para 43 (30 March 2006) (UNFCCC).

## UNFCCC and Kyoto Protocol

The first major international agreement to address climate change was adopted at the Rio Earth Summit on 9 May 1992 in the form of the *United Nations Framework Convention on Climate Change* (UNFCCC).<sup>3</sup> Based on the pillars of intergenerational equity<sup>4</sup> and common but differentiated responsibilities,<sup>5</sup> the UNFCCC urges developed states to take immediate action on climate change. The *Kyoto Protocol to the UNFCCC* (Kyoto Protocol) was adopted on 11 December 1997 and has since been ratified by 192 parties, including Australia.<sup>6</sup> Unlike the UNFCCC, the Kyoto Protocol imposes binding targets, requiring 37 developed states to reduce GHG emissions by an average of five per cent against 1990 levels over the five-year period of 2008-2012.<sup>7</sup> The detailed rules for the implementation of the Protocol are contained within the *Marrakesh Accords*, which were adopted at the 7<sup>th</sup> Conference of the Parties (COP-7) in Marrakesh in 2001.<sup>8</sup> Despite the December 2009 drafting of the *Copenhagen Accord* at the UNFCCC COP-15,<sup>9</sup> the Kyoto Protocol continues to remain the most 'meaningful and sustained policy response to climate change' today.<sup>10</sup>

Under the Kyoto Protocol, states must meet their respective targets through principally national measures.<sup>11</sup> However, the Protocol provides flexibility and assistance in meeting such obligations by way of three market-based mechanisms, namely: emissions trading; joint implementation; and the CDM.<sup>12</sup> The CDM, defined in Article 12 of the Kyoto Protocol, allows those states committed under the Treaty to implement an emission-reduction project in a developing state in return for saleable certified emission reduction (CER) credits, each equal to one tonne of CO<sub>2</sub>.<sup>13</sup> Such CER credits can be counted towards a state's emissions target, thus allowing that state to pollute more than they committed to under the Kyoto Protocol.<sup>14</sup> The CDM allows developed countries to reduce their costs of compliance by way of investing in emissions reductions wherever it is cheapest to do so, specifically in developing states where the marginal cost of emission reduction projects is lower

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<sup>3</sup> UNFCCC, opened for signature 9 May 1992, 31 ILM 849 (entered into force on 21 March 1994).

<sup>4</sup> Intergenerational equity was defined by the World Commission on Environment and Development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' WCED, *Our Common Future: Report of the World Commission on Environment and Development* (1987) 8.

<sup>5</sup> The UNFCCC recognised that: 'the largest share of historical and current global emissions of greenhouse gases originated in developed countries; per capita emissions in developing countries are still relatively low; and the share of global emissions originating in developing countries will grow to meet social and development needs.' Above n 3.

<sup>6</sup> UNFCCC, *Status of Ratification* (2011) [http://unfccc.int/kyoto\\_protocol/background/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/background/status_of_ratification/items/2613.php) at 2 June 2011.

<sup>7</sup> *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, opened for signature 11 December 1997, 37 ILM 22 (entered into force on 16 February 2005) ('*Kyoto Protocol*') Article 3(1).

<sup>8</sup> UNFCCC, *The Marrakesh Accords and the Marrakesh Declaration* (1994) [http://unfccc.int/cop7/documents/accords\\_draft.pdf](http://unfccc.int/cop7/documents/accords_draft.pdf) at 2 June 2011.

<sup>9</sup> UNFCCC, *Copenhagen Accord* (2009) <http://unfccc.int/resource/docs/2009/cop15/eng/107.pdf> at 2 June 2011 ('*Copenhagen Accord*').

<sup>10</sup> Drew, J. and Drew, M. (2010) 'Establishing additionality: fraud vulnerabilities in the clean development mechanism', *Discussion Papers in Finance*, no. 201006, Department of Accounting, Finance and Economics, Griffith University [http://www.griffith.edu.au/\\_data/assets/pdf\\_file/0017/214433/2010-06-establishing-additionality-fraud-vulnerabilities-in-the-clean-development-mechanism.pdf](http://www.griffith.edu.au/_data/assets/pdf_file/0017/214433/2010-06-establishing-additionality-fraud-vulnerabilities-in-the-clean-development-mechanism.pdf) at 2 June 2011.

<sup>11</sup> *Kyoto Protocol* art 2.

<sup>12</sup> UNFCCC, *Mechanisms under the Kyoto Protocol* (2011) [http://unfccc.int/kyoto\\_protocol/mechanisms/items/1673.php](http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php) at June 5 2011.

<sup>13</sup> *Ibid* art 12.

<sup>14</sup> *Ibid*.

than in developed states.<sup>15</sup> Developing states can also independently initiate CDM approved projects and then sell their CER credits on the global carbon market to developed states. The expectation, highlighted Wara and Victor, was that ‘by putting a price on CO<sub>2</sub> emissions in the developing world and linking that price to developed world markets for CO<sub>2</sub>, costs of CO<sub>2</sub> emission reductions in the developed world would be reduced.’<sup>16</sup>

The objective of the CDM is twofold: first, to assist industrialised states in meeting their emission reduction or limitation targets; and second, to stimulate sustainable development in developing states, whose emissions are expected to increase over this century.<sup>17</sup> Through the CDM, developing states become engaged in climate mitigation and can benefit from technology transfers, financial assistance and the reduction of non-GHG emissions.<sup>18</sup> As noted by Wara and Victor, the CDM represents ‘the first attempt to address a global atmospheric commons problem using a global market.’<sup>19</sup> The CDM has experienced enormous growth since the first project was registered in 2004. There are currently over 3,000 CDM registered projects, which have produced almost 700 million CER credits.<sup>20</sup>

The CDM is supervised and administered by the CDM Executive Board under the direction of the UNFCCC COP.<sup>21</sup> Additionality is a prerequisite for the registration of a CDM project by the Executive Board. Article 12(5) of the Kyoto Protocol provides that in order to qualify under the CDM, emission reductions resulting from a project must be ‘additional to any that would occur in the absence of the certified project activity’<sup>22</sup> and that the project will be assessed on the basis of its ‘real, measurable and long-term benefits related to the mitigation of climate change’.<sup>23</sup> Accordingly, project proponents must demonstrate that GHG emissions following the introduction of the CDM project are less than what would have occurred in the most plausible alternative scenario without such a project.<sup>24</sup> The alternative scenario is considered to be the ‘business-as-usual’ baseline that emission reductions can be measured against.

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<sup>15</sup> As noted in Johannes Alexeew et al, *An analysis of the relationship between the additionality of CDM projects and their contribution to sustainable development* (2010) <http://www.kfe.uzh.ch/teaching/KfEKonferenz/Text%20Workshop%20Stadelmann.pdf> at 2 June 2011.

<sup>16</sup> Michael Wara and David Victor, ‘Measuring the Clean Development Mechanism’s Performance and Potential’ (Working Paper #56, Center for Environmental Science and Policy, Stanford University, 2006) 2 – 3.

<sup>17</sup> UNFCCC, *Clean Development Mechanism* (2011) [http://unfccc.int/kyoto\\_protocol/mechanisms/clean\\_development\\_mechanism/items/2718.php](http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php) at 7 June 2011.

<sup>18</sup> Alexeew et al, above n 15, 233.

<sup>19</sup> Wara and Victor, above n 16, 2.

<sup>20</sup> UNFCCC, *CDM Projects* (2011) <http://cdm.unfccc.int/> at 2 June 2011.

<sup>21</sup> UNFCCC, above n 17.

<sup>22</sup> *Kyoto Protocol* art 12(5)(b).

<sup>23</sup> *Ibid* art 12(5)(c).

<sup>24</sup> UNFCCC, *Revision to the methodological tool: Combined tool to identify the baseline scenario and demonstrate additionality* (2011) <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v2.1.pdf>.

In 2004, the Executive adopted the *Tool for the Demonstration and Assessment of Additionality* (Additionality Tool), an overarching framework for the demonstration and assessment of additionality.<sup>25</sup> While it is not mandatory to apply the Additionality Tool to CDM project applications, it is almost exclusively used in practice.<sup>26</sup> The Additionality Tool consists of four steps:

- 1) Identification of alternatives to the project activity;
- 2) Investment analysis;
- 3) Barrier analysis; and
- 4) Common practice analysis.

Step 1 considers: (a) the realistic and credible alternatives to the project scenario; and (b) compliance with mandatory laws and regulations. Regarding the latter of these sub-steps, the Additionality Tool notes that national and local policies that are not legally binding or not widely complied with will not be considered in the analysis. Accordingly, where there is widespread non-compliance with a country's law, then a baseline involving non-compliance with that law may be deemed valid. Step 2 will be satisfied if it can be show that the proposed project is economically or financially unattractive or unfeasible in the absence of CDM incentives. Step 3 considers barriers that exist for the proposed project that do not exist for an alternative to the project. Step 4 analyses the extent to which the proposed project type is already being observed within the applicable sector and region. If the relevant technology or practice is common to the developing country, it is unlikely that the proposed project would be 'additional'. After obtaining permission from the developing country hosting the project and establishing additionality by way of the abovementioned Additionality Tool, a third party agency called a Designated Operational Entity (OE) validates the applicant country's case.<sup>27</sup> The Executive Board then assesses the project and decides whether or not to approve and register it. Upon registration and implementation of the project, the Executive Board will issue CER credits based on the difference between baseline and actual emissions.<sup>28</sup>

## **REDD**

The seeds of REDD were originally planted within the Kyoto Protocol. Article 2 of the Treaty notes that:

1. Each Party included in Annex I, in achieving its quantified emission limitation and reduction commitments in order to promote sustainable development, shall:

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<sup>25</sup> Ibid.

<sup>26</sup> As noted in Charlotte Streck, *The Concept of Additionality under the UNFCCC and the Kyoto Protocol: Implications for Environmental Integrity and Equity* (2010) [http://www.ucl.ac.uk/laws/environment/docs/hong-kong/The%20Concept%20of%20Additionality%20\(Charlotte%20Streck\).pdf](http://www.ucl.ac.uk/laws/environment/docs/hong-kong/The%20Concept%20of%20Additionality%20(Charlotte%20Streck).pdf) at June 4 2011.

<sup>27</sup> UNFCCC, above n 17.

<sup>28</sup> Ibid.

- (a) Implement and/or further elaborate policies and measures in accordance with its national circumstances, such as:
  - (ii) Protection and enhancement of sinks and reservoirs of greenhouse gases, promotion of sustainable forest management practices, afforestation and reforestation; and
  - (iii) Promotion of sustainable forms of agriculture in light of climate change considerations.<sup>29</sup>

Article 3 of the Kyoto Protocol also highlights that:

The net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article of each Party included in Annex I. The greenhouse gas emissions by sources and removals by sinks associated with those activities shall be reported in a transparent and verifiable manner.<sup>30</sup>

While the Kyoto Protocol encourages states to promote sustainable forest management practices and sustainable forms of agriculture and allows a state to engage in afforestation to meet their commitments under the Treaty, specific policies regarding avoided deforestation and forest degradation were specifically excluded from the Kyoto Protocol due to concerns regarding first, the role that Land Use, Land Use Change and Forestry (LULUCF) should play in achieving commitments; and second, the lack of information and technology available to guide measurement, reporting and verification for LULUCF activities.<sup>31</sup> Ultimately, the difficulty in proving additionality for ecosystems and land use changes meant that the pressing issues of deforestation and forest degradation – which are estimated to account for up to 18% of annual global GHG emissions<sup>32</sup> – were largely left behind.

At the 2005 COP-11, the Coalition of Rainforest Nations – an intergovernmental organisation composed of forested tropical countries – introduced an appeal to consider 'reducing emissions from deforestation in developing countries'.<sup>33</sup> REDD's objective is to 'create an incentive for developing countries to protect, better manage and wisely use their forest resources, contributing to

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<sup>29</sup> *Kyoto Protocol* art 2.

<sup>30</sup> *Ibid* art 3.

<sup>31</sup> As noted in Intergovernmental Panel on Climate Change, *The Special Report of the Intergovernmental Panel on Climate Change* (2000) <http://www.ipcc.ch/pdf/special-reports/spm/srl-en.pdf> at 30 May 2011.

<sup>32</sup> UNFCCC, *The History of REDD* (2009) Carbon Planet White Paper, 3 [http://unfccc.int/files/methods\\_science/redd/application/pdf/the\\_history\\_of\\_redd\\_carbon\\_planet.pdf](http://unfccc.int/files/methods_science/redd/application/pdf/the_history_of_redd_carbon_planet.pdf) at 4 June 2011.

<sup>33</sup> María J. Sanz, *Reducing Emissions from Deforestation in Developing Countries* (2007) [http://unfccc.int/files/meetings/intersessional/awg\\_4\\_and\\_dialogue\\_4/press/application/pdf/awg4\\_com\\_plus\\_red.pdf](http://unfccc.int/files/meetings/intersessional/awg_4_and_dialogue_4/press/application/pdf/awg4_com_plus_red.pdf) at 2 June 2011.

the global fight against climate change.’<sup>34</sup> REDD aims to create a financial value for the carbon stored in forests through an offset system that offers incentives for developing countries to reduce their emissions through investment in low-carbon avenues for sustainable development.<sup>35</sup> By making trees ‘more valuable standing than they would be cut down’, REDD hopes to help curb GHG emissions caused by deforestation and forest degradation and, as a co-benefit, alleviate poverty and conserve biodiversity.<sup>36</sup> Two years later at the Bali COP-13, an agreement was reached on ‘the urgent need to take further meaningful action to reduce emissions from deforestation and forest degradation’.<sup>37</sup> The Bali Action Plan mandated Parties to negotiate a post-2012 instrument, including potential economic incentives for forest-based emission reduction actions in developing states.<sup>38</sup> COP-13 also adopted *REDD: Approaches to Stimulate Action*, which encouraged Parties to address deforestation in their own state and, for those Parties in the position to do so, support developing countries to estimate and reduce their emissions from deforestation and forest degradation.<sup>39</sup>

At the 2009 COP-15, the Parties agreed to the *Copenhagen Accord*, recognising in section 6:

*...the crucial role of reducing emissions from deforestation and forest degradation and the need to enhance removals of greenhouse gas emission by forests and agree on the need to provide positive incentives to such actions through the immediate establishment of a mechanism including REDD-plus, to enable the mobilization of financial resources from developed countries.*<sup>40</sup>

Section 8 also highlighted that:

*The collective commitment by developed countries is to provide new and additional resources, including forestry and investments through international institutions, approaching USD 30 billion for the period 2010 – 2012 with balanced allocation between adaptation and mitigation.*<sup>41</sup>

REDD-plus aims to expand on the original REDD Programme by including efforts related to conservation, sustainable management of forests and enhancement of forest carbon stocks.<sup>42</sup> REDD is expected to play an important role in the post-Kyoto climate change forum, however continues to be plagued by complexities regarding additionality. By implementing measuring and monitoring systems compliant with the Measuring, Reporting and Verification (MRV) concept agreed upon by

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<sup>34</sup> UN-REDD, *About REDD* + (2011) <http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx> at 5 June 2011.

<sup>35</sup> *Ibid.*

<sup>36</sup> UN-REDD, *Frequently Asked Questions* (2011) <http://www.un-redd.org/AboutUNREDDProgramme/FAQs/tabid/586/Default.aspx> at 10 June 2011.

<sup>37</sup> UNFCCC, *Bali Action Plan* (2007) UN Doc FCCC/CP/2007/6/Add.1.

<sup>38</sup> *Ibid.*

<sup>39</sup> UNFCCC, *Reducing emissions from deforestation in developing countries: approaches to stimulate action* (2009) UN Doc FCCC/SBSTA/2009/L.9.

<sup>40</sup> *Copenhagen Accord* s 6.

<sup>41</sup> *Ibid* s 8.

<sup>42</sup> UN-REDD, above n 34.

the UNFCCC COP, the UNFCCC hopes that countries will be able to assess the amount of carbon stored in their forests as well as other benefits from REDD.<sup>43</sup> Currently, the UN-REDD Programme is supporting countries to establish economically efficient and comprehensive measuring and monitoring systems in order to overcome the additionality obstacle.<sup>44</sup> Ultimately, developing the ability to credibly measure the impact of REDD-plus activities in reducing emissions will be the most critical element for the initiative's success.

## LEGAL CHALLENGES TO ADDITIONALITY

Having discussed the link between the concept of the additionality and the Kyoto Protocol and REDD Programme, this paper will now turn to the concept's main legal challenges. These are: first, defining additionality; second, estimating an unobserved scenario; third, perverse incentives; and finally, inconsistency in the assessment of applications.

### Defining additionality

'Despite a decade of attempts to define additionality,' notes Gillenwater (2011) 'the concept continues to be poorly understood and its application contested.'<sup>45</sup> The concepts of environmental, financial and investment additionality are commonly confused and incorrectly interpreted as synonymous.<sup>46</sup> Gillenwater has highlighted that the language to describe 'additionality' and 'baseline' is 'imprecise, varied, and often internally inconsistent, thereby leading to confusion when policy makers, program administrators, and other stakeholders attempt to interpret and apply the concept.'<sup>47</sup> The current language, continues Gillenwater, is also built upon a circular definition.<sup>48</sup> Consequently, assessments of additionality and baselines have been left to 'politics and ad hoc justifications'.<sup>49</sup>

Previous COPs have repeatedly emphasised that the current Additionality Tool employed in the assessment of the concept is not mandatory criteria for CDM applications and that project proponents have the right to apply alternative interpretations of the concept.<sup>50</sup> In obedience to the COP (but not necessarily in agreement with the COP), the Executive Board has also encouraged

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<sup>43</sup> UN-REDD, above n 34.

<sup>44</sup> UN-REDD, *About the UN-REDD Programme* (2011) <http://www.un-redd.org/AboutUNREDDProgramme/tabid/583/Default.aspx> at 2 June 2011.

<sup>45</sup> Streck, above n 26, 1.

<sup>46</sup> Michael Gillenwater, *What is Additionality? Part 1: A long standing problem* (2011) Discussion Paper No. 001, Woodrow Wilson School of Public and International Affairs, Princeton University [http://ghginstitute.org/wp-content/uploads/2011/03/AdditionalityPaper\\_Part-1\\_ver2\\_FINAL.pdf](http://ghginstitute.org/wp-content/uploads/2011/03/AdditionalityPaper_Part-1_ver2_FINAL.pdf) at 27 May 2011.

<sup>47</sup> *Ibid.* 8.

<sup>48</sup> Gillenwater, above n 46, 1.

<sup>49</sup> *Ibid.*

<sup>50</sup> See for example, above n 2, Decision 7/CMP.1, paras 25-28, The COP 'Confirms that, as stipulated in decision 12/CP.10, the use of the "tool for the demonstration and assessment of additionality" is not mandatory for project participants, and that in all cases the project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board, including those cases where the "tool for the demonstration and assessment of additionality" is attached to an approved methodology.'

proponents to present new and clear methodologies for establishing additionality.<sup>2</sup> However, project proponents have been historically reluctant to risk an alternative interpretation and accordingly, the Additionality Tool has been interpreted as a mandatory set of criteria for the majority of CDM projects proponents.<sup>51</sup> The limited progress in developing a precise understanding of additionality likely inhibits consensus on environmental policy.<sup>52</sup> Gillenwater argues that while defining additionality and baselines is an ostensibly conceptual matter, it is nevertheless a serious issue.<sup>53</sup> If policymakers and the public perceive these concepts as uncertain and problematic, ‘then political support for emission offset policies, and potentially environmental markets more generally, could further dissipate.’<sup>54</sup>

A lack of explicit or rigorous criteria may also result in false positives and false negatives, in that some projects will receive an excess of carbon credits and some business-as-usual activities may be wrongly registered and credited. Such outcomes limit the CDM in both its environmental and financial integrity. A number of studies have questioned whether the majority of registered CDM projects are in fact contributing to real emission reductions.<sup>55</sup> A study by Schneider based on the evaluation of 93 randomly selected CDM projects found that approximately 40 per cent of projects presented little additionality value because they would have likely been implemented without the CDM mechanism.<sup>56</sup> Similarly, Wara and Victor held that ‘experience with the CDM suggests that many CDM projects do not reflect real reductions in emissions.’<sup>57</sup> Comparing additionality to the balance of evidence in a legal system, Carbon Trust found that certainty in additionality was rare.<sup>58</sup> However, they also noted that the higher the standard of proof required in order to demonstrate additionality, the greater the risk that good and actually additional CDM projects would be rejected, creating a ‘false negative’.<sup>59</sup> The alternative is a ‘false positive’ scenario, where a project is registered even though it would have happened despite the CDM.<sup>60</sup> The net effect of a false positive

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<sup>51</sup> Streck, above n 26.

<sup>52</sup> Gillenwater, above n 46, 1.

<sup>53</sup> Ibid.

<sup>54</sup> Ibid 1.

<sup>55</sup> See for example Umamaheswaran, K., and Michaelowa, A., *Additionality and sustainable development issues regarding CDM projects in energy efficiency sector* (2005) HWWA Discussion Paper 346, Hamburg Institute of International Economics; Cames, M., Anger, N., Bohringer, C., Harthan, R. O., and Schneider, L., *Long-term prospects of CDM and JI* (2007) Climate change, German Federal Environmental Agency; Haya, B., *Failed mechanism—how the CDM is subsidizing hydro developers and harming the Kyoto Protocol* (2007) International Rivers [http://www.internationalrivers.org/files/Failed\\_Mechanism\\_3.pdf](http://www.internationalrivers.org/files/Failed_Mechanism_3.pdf) at 2 June 2011; Michaelowa, A., and Purohit, P., *Additionality determination of Indian CDM projects: Can Indian CDM project developers outwit the CDM executive board?* (2007) University of Zurich; Schneider, L., *Is the CDM fulfilling its environmental and sustainable development objectives? An evaluation of the CDM and options for improvement* (2007) Report prepared for WWF, Oko Institute; Lohmann, L., *Toward a different debate in environmental accounting: The cases of carbon and cost-benefit* (2008) Accounting, Organizations and Society.

<sup>56</sup> Schneider, above n 55, 5.

<sup>57</sup> Michael Wara and David Victor, ‘A Realistic Policy on International Carbon Offsets’ (Working Paper #74, Center for Environmental Science and Policy, Stanford University, 2008) 12.

<sup>58</sup> Carbon Trust, *Global Carbon Mechanisms: Emerging lessons and implications* (2009) 56 <http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTC748andrespos=2andq=global+carbon+marketand=Rankand=ascandpn=0andps=10> at 2 June 2011.

<sup>59</sup> Ibid.

<sup>60</sup> Ibid.

is an actual increase in global emissions because the allocated CER credits from that project can be used to allow developed countries to emit at a higher level.

The main example of the problems presented by false positives and negatives is that of China, where coal-fired power plants generate the majority of the country's electric power. Many of China's coal power plants are old and inefficient in the face of an increasing demand for power by a rising Chinese middle class.<sup>61</sup> The huge strain on the state's coal plants are evidenced by the frequent blackouts experienced in certain regions of the state.<sup>62</sup> After a long history of exporting coal, China is now a net importer.<sup>63</sup> The dirty technologies employed by China's older plants are also causing large-scale air pollution and widespread health concerns, including escalating rates of childhood asthma.<sup>64</sup> Accordingly, the country is seeking to upgrade to larger, cleaner and more modern and efficient plants. Today, the country is 'building new power plants at a truly astonishing rate'.<sup>65</sup> In fact, the rate of growth is equal to constructing the entire fleet of United States power plants in under a decade.<sup>66</sup>

China has introduced a series of policy changes that aim to not only lower the state's reliance on coal, but also to limit the country's environmental impacts from electricity generation. China is encouraging and supporting investment in hydro, nuclear, wind and natural gas-fired power and has already completed an almost 4,000 km long east-west gas pipe.<sup>67</sup> Since 2004, the country has built the equivalent of 10 GW of hydropower capacity annually.<sup>68</sup> In 2006, China imposed a renewable energy law setting goals for the expansion of the wind sector and providing large economic incentives for the creation and investment into Chinese wind farms.<sup>69</sup> All such projects have applied to claim tradeable CER credits under the CDM.<sup>70</sup> Individually, such projects appear to meet the additionality criteria. Without the CDM, China argues that such projects could not compete with coal-power.<sup>71</sup> However, taken together it is clear that not all of these projects have been developed purely due to the CDM incentive, particularly given China's increasing demand for power, their over-reliance on coal and their need for cleaner sources of energy. In fact, it is estimated that approximately 55 per cent of wind power projects were build without CDM assistance, raising

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<sup>61</sup> As discussed in Wara and Victor, above n 57, 12.

<sup>62</sup> Ibid.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid 12-13.

<sup>65</sup> Wara and Victor, above n 57, 12.

<sup>66</sup> Ibid 12.

<sup>67</sup> Ibid 13.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid 13.

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

concerns over additionality.<sup>72</sup> Accordingly, China is a prime example of the problem with false positives. The Executive Board has started to catch up to China, increasing its rejections of CDM applications for projects that are ambiguous in terms of their additional benefit to emission reductions.<sup>73</sup> One proposal for overcoming additionality problems as seen in China is to provide CER credits for broad policy reforms or clusters of projects within a particular sector, rather than allocating on an individual project basis.<sup>74</sup> Proponents of this idea may argue that it will limit countries that are engaging in large-scale policy shifts from exploiting the CDM regime where there is limited additional environmental return.

However, it should be noted that even those who appear to benefit from the lax definition of additionality in the short-term would eventually suffer in the long run. In their study on lax additionality criteria, Asuka and Takeuchi demonstrate that while in the short-term recipient countries may benefit from excessive or undeserved credits, in the end they will be financially worse off due to the lowering of market prices for credits.<sup>75</sup> However, it should be noted that an overly strict interpretation of additionality and baselines would defeat the very purpose of initiatives such as the Kyoto Protocol and REDD by reducing the supply of offsets and sustainable development in developing states.<sup>76</sup> Ultimately, without a clear and balanced definition, additionality will remain a problematic concept. Accordingly, the concept requires greater analysis and elaboration in the post-Kyoto climate regime.

### **Estimating an unobserved scenario**

Unlike the cap-and-trade emissions trading system, the CDM employs a baseline-and-credit programme.<sup>77</sup> The amount of CER credits allocated to a Party is dependent on the level of emissions that would have been generated but for their CDM project. Accordingly, a hypothetical scenario in the form of a business-as-usual baseline must be established for measurement purposes. In the context of offsets, notes Gillenwater, a baseline is the ‘amount of good or harm produced by the behaviour of the entities proposing and affected by the proposed activity in the absence of one or more policy interventions, holding all other factors constant’.<sup>78</sup> Such a baseline may be assessed by reference to emissions prior to the implementation of the CDM or to the state’s estimated emission levels from comparable activities and technologies.<sup>79</sup> The baseline for some kinds of

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<sup>72</sup> As noted in Junjie Zhang and Can Wang, ‘Co-Benefits and Additionality of the Clean Development Mechanism: An Empirical Analysis’ (2010) *Journal of Environmental Economics and Management*, 21 – 22.

<sup>73</sup> Ibid.

<sup>74</sup> Wara and Victor, above n 57, 15.

<sup>75</sup> Asuka, J. and K. Takeuchi, ‘Additionality reconsidered: lax criteria may not benefit developing countries’ (2004) *Climate Policy* 4, 177-192.

<sup>76</sup> Streck, above n 26, 1.

<sup>77</sup> Alexeev et al, above n 15, 233.

<sup>78</sup> Gillenwater, above n 46, 2.

<sup>79</sup> UNFCCC, above n 17.

projects, such as the installation of equipment to remove hydrofluorocarbons and nitrous oxide from industrial projects, have an easily calculable baseline and are clearly additional as they would not have occurred without the incentives of the CDM.<sup>80</sup> However, most other projects are much less straightforward.

Ultimately, assessing additionality presents a challenge in that it is an estimation of an unobserved scenario. Such estimation, notes the Carbon Trust, is an Achilles' heel in that quite simply, 'the future is uncertain and decision makers are human.'<sup>81</sup> Chan argues that at its very core, the notion of 'proving' additionality is not theoretically possible.<sup>82</sup> Similarly, note Wara and Victor, 'offset schemes are unable to determine reliably whether credits are issued for activities that would have happened anyway'.<sup>83</sup> The United States Government Accountability Office agrees, stating that 'it is not possible to ensure that every [CDM] credit represents a real, measurable, and long-term reduction in emissions.'<sup>84</sup> An assumption grounded in the notion of additionality is that human behaviour is not random and that policy interventions cause behaviour changes.<sup>85</sup> However, emphasises Gillenwater, behaviours are often a function of random variables inherent in natural and social systems.<sup>86</sup> Also, 'actual behaviour of an actor is likely to be a function of multiple variables, including, but not limited to, variables affected by a policy intervention.'<sup>87</sup> Likewise, it should be noted that actors vary in their goals and expectations of future risks and performance.<sup>88</sup> Accordingly, the development of a standardised and simple model of predicting behaviour can be very challenging.<sup>89</sup>

Practically, it is also difficult to determine long-term project viability when such viability is established by 'confidential projections of costs and performance, and inherently unknown prices'.<sup>90</sup> The Carbon Trust notes that the economic test for additionality – which states that the more cost-effective a project is, the more unlikely it is to be additional – is subject to a 'vicious paradox'.<sup>91</sup> That is, 'any project that would only require a small incremental benefit (such as a CER at low cost) to make it proceed would also only require a small shift in market conditions to make it

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<sup>80</sup> Carbon Trust, above n 58, 55.

<sup>81</sup> Ibid.

<sup>82</sup> Chan, M., 'Lessons Learned from the Financial Crisis: Designing Carbon Markets for Environmental Effectiveness and Financial Stability' (2009), *Carbon Climate and Law Review* 3, 152-160.

<sup>83</sup> Wara and Victor, above n 57.

<sup>84</sup> US Government Accountability Office, *International Climate Change Programs: Lessons Learned From The European Union's Emissions Trading Scheme And The Kyoto Protocol's Clean Development Mechanism* (2008) <http://www.Gao.Gov/New.Items/D09151.Pdf> at 4 June 2011.

<sup>85</sup> Gillenwater, above n 46, 2.

<sup>86</sup> Ibid 6.

<sup>87</sup> Ibid 6.

<sup>88</sup> Ibid 6.

<sup>89</sup> Ibid 6.

<sup>90</sup> Carbon Trust, above n 58, 55.

<sup>91</sup> Ibid.

viable without crediting.<sup>92</sup> The financial barriers test of the Additionally Tool presents a further problem in the context of certain states such as China. The logic behind the test is that businesses will invest in the CDM projects with the highest projected internal rate of return.<sup>93</sup> Project proponents must demonstrate that their project is not the most financially viable model and that without CDM incentives the activity could not remain competitive. The issue in the case of China is that the additionality test assumes profitability to be the main investment driver when in fact China's power industry is not wholly market-oriented.<sup>94</sup> Ultimately, government policy dictates the path for China's future energy industry, 'which often supersedes profit logic.'<sup>95</sup> For countries such as China, a financial barriers model based on the internal rate of return will not accurately represent the country's position.<sup>96</sup>

Complexity in establishing additionality is not only restricted to financial and economic assessments. As previously discussed, the development of REDD activities has been plagued by difficulties in determining baselines and additionality. The United Nations Collaborative Initiative on REDD has noted that the challenges to REDD 'have proven to be considerable', particularly in relation to measurability issues regarding data uncertainty, land cover classification, land cover change and carbon stock and flux monitoring.<sup>97</sup> The credibility and reliability of scientific methods to estimate emission savings in complex scenarios such as avoided deforestation presents a major concern for REDD.<sup>98</sup>

It is also recognised that markets are subject to continuous evolution. In a world moving towards more sustainable development and greater cost-efficiency for energy-efficient technologies, 'one would expect lower-emitting projects to become intrinsically more attractive over time.'<sup>99</sup> For example, notes the Carbon Trust, the price of natural gas and renewable energy is gradually declining relative to coal power.<sup>100</sup> Therefore, 'most that can be said in many cases is that crediting under the CDM might enable certain kinds of projects to proceed earlier than they otherwise would have.'<sup>101</sup> A key example of this is the evolution of energy efficient technologies. The Executive Board has rejected a number of CDM energy efficiency projects, such as cement blending, as they argue that is likely they would have happened without the CDM.<sup>102</sup> The Carbon Trust argues that

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<sup>92</sup> Carbon Trust, above n 58, 55.

<sup>93</sup> Gang He and Richard Morse, 'Making Carbon Offsets Work in the Developing World: Lessons from the Chinese Wind Controversy (Working Paper #90 Freeman Spogli Institute for International Studies, 2010).

<sup>94</sup> Ibid 4.

<sup>95</sup> Ibid 4.

<sup>96</sup> Ibid 6.

<sup>97</sup> UNFCCC, above n 32, 3.

<sup>98</sup> Chan, above n 82, 152-160.

<sup>99</sup> Carbon Trust, above n 58, 55.

<sup>100</sup> Ibid.

<sup>101</sup> Ibid.

<sup>102</sup> Ibid 34.

this presents a limitation to the CDM because while energy efficiency projects – which present both huge emissions savings and are highly cost-effective – account for only a small portion of the total portfolio of CDM project applications, they are disproportionately rejected.<sup>103</sup> The paradox, notes the Carbon Trust, ‘is that the sheer cost-effective nature of many energy efficiency projects makes them harder to justify as additional to what would have happened otherwise.’<sup>104</sup>

The evolving nature of markets is also demonstrated by the changes perceived in Brazil.<sup>105</sup> Many Brazilian CDM projects employ bagasse – a waste by-product of the sugar cane trade – to fuel highly energy-efficient cogeneration plants.<sup>106</sup> The incentives presented by the CDM have proved to be so successful that this practice is now considered to be the norm in Brazil.<sup>107</sup> Accordingly, the ‘common practice’ element of the Additionality Tool is called into question for forthcoming bagasse projects. Overall, the assessment of additionality becomes a matter of predicting causation<sup>108</sup> in which one must employ a probabilistic approach to analysis.<sup>109</sup> Unavoidably, the assessment of additionality involves judgement calls that can be easily challenged. And, argues the Carbon Trust, ‘experience suggests that the task of “proving additionality” is getting more difficult over time, not less.’<sup>110</sup>

### **Perverse incentives**

Another key challenge to the effectiveness of the international climate change regime is that of the perverse incentives that the concept of additionality creates. The Executive Board requires information from CDM project developers in order to assess additionality and to calculate a baseline and the amount of associated CER credits generated by the project. ‘Environmentally sustainable projects are least likely where the policy environment is least encouraging to them,’ notes the Carbon Trust.<sup>111</sup> Therefore, ‘additionality is greatest, and most easy to prove, in the worst policy environments’.<sup>112</sup> Accordingly, project developers have an incentive to exaggerate business-as-usual baseline emissions and how much the project will lower emissions in order to obtain a better baseline and consequently maximise credits.<sup>113</sup>

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<sup>103</sup> Carbon Trust, above n 58, 34.

<sup>104</sup> Ibid.

<sup>105</sup> Ibid 56.

<sup>106</sup> Ibid.

<sup>107</sup> Ibid.

<sup>108</sup> Gillenwater, above n 46, 2.

<sup>109</sup> Alexeew et al, above n 15, 240.

<sup>110</sup> Carbon Trust, above n 58, 6.

<sup>111</sup> Ibid 55.

<sup>112</sup> Ibid 55.

<sup>113</sup> Drew and Drew, above n 10, 5; Zhang and Wang, above n 72, 2.

Third party verification is supposed to prevent this issue. However, practical barriers often prevent such verification occurring in an open and honest fashion. As the regulator, the Executive Board does not have the time or resources to seek and analyse all the information necessary to make a wholly informed decision on the additionality of a CDM project. Accordingly, the Board relies heavily on the third-party verifiers, termed Designated Operational Entities (DOEs), to validate the accuracy of the information provided. However, note Wara and Victor, ‘these verifiers, who are paid by the project developers, have strong incentives to approve the projects they check.’<sup>114</sup> Bachram highlights that some DOEs ‘are acting as both accountants for and consultants to polluting firms, and as verifiers of emission reduction projects.’<sup>115</sup> This problem is compounded by the fact that DOEs are operating in a very competitive market for verification services and accordingly, ‘prices are dropping and are allowing DOEs to only work for a very limited amount of time on each project.’<sup>116</sup> Further, there is a blatant lack of resources to oversee the operation of the DOEs on the behalf of the Executive Board.<sup>117</sup>

In recent years the UN has actually temporarily suspended two large clean-energy auditor DOEs due to concerns over audit anomalies and the effectiveness of the CDM project selection process.<sup>118</sup> Overall, note Wara and Victor, ‘asymmetries of information are rampant’ and the incentives mostly align in favour of approval.<sup>119</sup> Accordingly, the process of establishing and verifying additionality of CDM projects in the ‘key element within the CDM that may be susceptible to fraud and/or deception.’<sup>120</sup> However, it should be recognised that the CDM has legislated that the DOE validating a project application cannot then go on to conduct that project’s verification upon successful registration.

A key example of the problem of perverse incentives involves Chinese wind power. At the heart of this controversy is the Chinese power tariff for wind. The Executive Board observed that China’s National Development and Reform Commission was granting less power tariffs to wind power projects than other alternative power projects.<sup>121</sup> As such, the Board became concerned that China was purposefully lowering power tariffs so as to artificially reduce the financial appeal of wind projects, thus improving the additionality case and baseline.<sup>122</sup> Similar perverse incentives have

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<sup>114</sup> Wara and Victor, above n 57, 14.

<sup>115</sup> Bachram, H., ‘Climate Fraud and Carbon Colonialism: The New Trade in Greenhouse Gases (2004) *Capitalism Nature Socialism*, 4.

<sup>116</sup> Schneider, L., *Is the CDM Fulfilling its Environmental and Sustainable Development Objectives: An Evaluation of the CDM and Options for Improvement* (2007) <http://www.oeko.de/oekodoc/622/2007-162-en.pdf> at 20 May 2011.

<sup>117</sup> *Ibid.*

<sup>118</sup> For a discussion, see Danny Fortson and Georgia Warren, *Carbon-trading market hit as UN suspends clean-energy auditor* (2009) Sunday Times [http://business.timesonline.co.uk/tol/business/industry\\_sectors/natural\\_resources/article6832259.ece](http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article6832259.ece) at 12 June 2011.

<sup>119</sup> Wara and Victor, above n 57.

<sup>120</sup> Drew and Drew, above n 10, 3.

<sup>121</sup> UNFCCC, above n 17.

<sup>122</sup> *Copenhagen Accord*3, 2.

been discussed with regard to the REDD Programme. There was a fear that states would threaten to deforest an area simply to gain emissions credit for avoiding to do so.<sup>123</sup> Ultimately, perverse incentives erode the integrity of the CDM process and limit the extent to which stakeholders can obtain a meaningful and sustained response to climate change.<sup>124</sup>

## **Consistency**

Given the largely undefined nature of the concept of additionality, there is naturally an issue with the consistency in approach taken by the Executive Board in assessing baselines and additionality.<sup>125</sup> The Executive Board has been criticised for employing a political<sup>126</sup> and prejudiced approach to decision-making,<sup>127</sup> however it is argued that even with a wholly standardised approach to the assessment, by its very nature, additionality is a concept that involves at least some degree of subjectivity on the part of the assessor. There will always be room for interpretation on how a business-as-usual scenario would have looked, and just how much of a difference a project will actually make.

## **PRACTICAL CHALLENGES TO ADDITIONALITY**

Due to the difficulties in defining and estimating additionality and baselines, programmes that employ such systems will necessarily suffer from a range of practical challenges, including: firstly, high costs; secondly, lengthy delays; and thirdly, a shortage of appropriately skilled personnel.

## **Cost**

Burniaux has commented that establishing additionality necessarily involves large transaction costs that place a heavy burden on the project's proponent.<sup>128</sup> The costs are primarily associated with the complex and lengthy assessment process.<sup>129</sup> However, research indicates that these costs are unlikely to exceed the economic benefits from the CDM.<sup>130</sup> Further, the Executive Board is subject to limits on the level of costs it can impose on projects, as discussed below.

## **Delays**

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<sup>123</sup> Carbon Trust, above n 58, 60.

<sup>124</sup> Drew and Drew, above n 10, 4.

<sup>125</sup> Gillenwater, above n 46, 6.

<sup>126</sup> Charlotte Streck, *The Concept of Additionality under the UNFCCC and the Kyoto Protocol: Implications for Environmental Integrity and Equity* (2010) 2 [http://www.ucl.ac.uk/laws/environment/docs/hong-kong/The%20Concept%20of%20Additional%20\(Charlotte%20Streck\).pdf](http://www.ucl.ac.uk/laws/environment/docs/hong-kong/The%20Concept%20of%20Additional%20(Charlotte%20Streck).pdf) at 2 June 2011.

<sup>127</sup> Zhang and Wang, above n 72, 5.

<sup>128</sup> Burniaux, J-M. et al, 'The Economics of Climate Change Mitigation: How to Build the Necessary Global Action in a Cost-Effective Manner' (Working Papers No. 701, Economics Department, OECD, 2009).

<sup>129</sup> Gillenwater, above n 46, 4.

<sup>130</sup> *Ibid.*, 6.

Despite registering approximately one CDM project each day, the Executive Board has partially become a victim of its own success due to the lengthy procedural delays and large backlog associated with assessing additionality.<sup>131</sup> These delays are partly associated with the complex and time-consuming assessment process, which takes a project-by-project approach. However, the delays are also associated with a lack of skilled staff and resources.<sup>132</sup> However, in recent years the Executive Board has made significant inroads into responding to applications in a more timely fashion, in part due to the limits placed on transactional costs that the Board can impose on any given project.<sup>133</sup> By minimising the amount of resources the Board can employ to assess a project, one is necessarily minimising the amount of time that can be spent on that project. Cost limits are particularly important for small carbon offset projects that cannot afford the Board's bill for an extensive examination.<sup>134</sup> Ultimately, this issue remains a balancing act between a lengthy but comprehensive assessment process and an efficient but basic analysis. The Carbon Trust argues that 'an honest political debate is required based on recognition that project-by-project additionality is an imperfect art with an unavoidable trade-off between administrative costs and the level of assurance.'<sup>135</sup>

## Personnel

The CDM Executive Board is largely under-staffed.<sup>136</sup> 'With an expanding scale of operation,' notes the Carbon Trust, 'the CDM cannot efficiently deliver its mission without greater professionalisation of staffing – rather than relying on government secondees – and its structures.'<sup>137</sup> However, the need for qualified personnel is not limited to the Executive Board. Kruger and Egenhofer note that it is essential that third-party verifiers are also appropriately qualified.<sup>138</sup> The European Union has stressed the need for consistency in accreditation, however Kruger and Egenhofer note that of greater concern is simply competence.<sup>139</sup> Likewise, the Framework Document for the UN Collaborative Programme on REDD noted that in many countries there are 'insufficient technical capacity and resources for establishing national reference scenarios against which to assess REDD emissions reductions, for the monitoring and assessment of changes in forest carbon and for developing and implementing REDD strategies and field activities'.<sup>140</sup>

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<sup>131</sup> Carbon Trust, above n 58, 6.

<sup>132</sup> Ibid, 54.

<sup>133</sup> Ibid, 54.

<sup>134</sup> Wara and Victor, above n 57, 14.

<sup>135</sup> Carbon Trust, above n 58, 6.

<sup>136</sup> Wara and Victor, above n 57, 14.

<sup>137</sup> Carbon Trust, above n 58, 6.

<sup>138</sup> Kruger, J. and C. Egenhofer., 'Confidence Through Compliance in Emissions Trading Markets' (Workshop presented at Confidence Through Compliance in Emissions Trading Markets for The International Network for Environmental Compliance and Enforcement, 17-18 November 2005, Washington DC).

<sup>139</sup> Ibid.

<sup>140</sup> UNFCCC, above n 32, 4.

Chan also raises the need to ensure that not only personnel are qualified, but also that they are independent.<sup>141</sup> Drew and Drew argue that ‘allowing consultants or project developers to verify projects is neither an ideal approach nor regulatory best practice’.<sup>142</sup> Ensuring that verifiers and validators are truly ‘third-party’ will minimise or at least limit the opportunities available to act fraudulently.<sup>143</sup> Drew and Drew argue that it is essential for post-Kyoto market-based mechanisms to incorporate lessons from the recent history of the Global Financial Crisis (GFC) by ensuring independent analysis of future climate change design philosophy.<sup>144</sup>

## **THE IMPORTANCE OF ADDITIONALITY**

This paper has discussed the various major legal and practical challenges that the concept of additionality presents to the international climate regime, with particular reference to the CDM and REDD Programmes. Nevertheless, it is important to acknowledge that additionality is an indispensable element of such programmes. Accordingly, this paper will now present the main reasons for maintaining the requirement of additionality, with these being: firstly, environmental integrity; secondly, financial integrity and viability; and finally, investor confidence.

### **Environmental Integrity**

The CDM is an offset mechanism and accordingly, a ‘zero sum game’ in the sense that emissions reductions made in developing states allow developed states to emit more than what was provided for them under their Kyoto Protocol commitments. Additionality is crucial to prevent projects that would have occurred without the CDM from taking credit under the Programme. If such projects are not adequately monitored, the outcome is an overall rise in global GHG emissions,<sup>145</sup> thus defeating the very purpose of the Kyoto Protocol.<sup>146</sup> As discussed by Bauhr, ‘...since credits are used as offsets, non-authentic credits mean a net-increase in emissions. In other words, as the emissions reductions that are certified can be bought and used to offset emissions in developed countries, total emissions will increase if the system fails to determine that the CDM project is indeed additional’.<sup>147</sup> Implementing a programme such as the CDM or REDD without addressing what would have happened without it is to proceed ‘with an unwavering faith in the connection between interventions and outcomes and without a plan to judge the effectiveness of such

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<sup>141</sup> Chan, above n 82, 152-160.

<sup>142</sup> Drew and Drew, above n 10, 12.

<sup>143</sup> Chan, above n 82, 152-160.

<sup>144</sup> Drew and Drew, above n 10, 12.

<sup>145</sup> Alexeev et al, above n 15, 235.

<sup>146</sup> US Government Accountability Office, above n 84.

<sup>147</sup> Bauhr, M., ‘Corruption in the Carbon Market? International Organisations, Transparency and the Clash of Values’ (Working Paper Series 15, Quality of Government Institute, University of Gothenburg, 2009) 12.

interventions.’<sup>148</sup> Without the concepts of additionality and baselines, the CDM essentially amounts to an income transfer to developing states<sup>149</sup> and the environmental legitimacy of the programme is compromised.<sup>150</sup> ‘Effective and robust strategies for monitoring, verification and reporting of emissions, offsets and targets’, explain Kruger and Egenhofer, ‘are indispensable for meeting the environmental objectives of a climate change initiative.’<sup>151</sup> These same arguments apply to REDD.

A case example of the benefits of additionality is that of the Costa Rican Payment for Environmental Services (PES) Programme, under which forest owners collect payments to conserve, rehabilitate or better manage their forests.<sup>152</sup> The programme does not incorporate an additionality requirement and accordingly, many of those participating in the programme and collecting payments would have protected their forests anyway.<sup>153</sup> There is a large demand to participate in the project, and many of those who wish to partake cannot be accommodated.<sup>154</sup> Such a scenario presents a major problem because many forest holders who would not preserve their land but for the PER incentive are missing out, while others who would always have conserved are paid for doing something they would have done all along. ‘If funding was targeted at those who would not conserve or plant forests but for the PES program,’ notes Karen Bennet, ‘then additional forestland could be preserved and created through payments.’<sup>155</sup> Imposing an additionality test in such a situation would allow the programme’s funding to be spent on real emission reductions, as opposed to using the limited resources available to the project to fund activities that would have always occurred.<sup>156</sup>

‘Given that the additionality and baseline for a proposed activity are grounded on a prediction of behaviour in an alternate future,’ acknowledges Gillenwater, ‘the ability of offset program administrators to determine them is inherently imperfect in most cases.’<sup>157</sup> Nevertheless, continues Gillenwater, this does not mean that additionality is impractical to implement.<sup>158</sup> Gillenwater highlights that there are at least some activities in which one can have high levels of confidence in predicting baselines and additionality, such as activities that only benefit emissions reduction.<sup>159</sup> An example of such an activity is the capturing and flaring of methane from an unused and isolated

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<sup>148</sup> Paul J. Ferraro, Subhrendu K. Pattanayak, *Money for Nothing? A Call for Empirical Evaluation of Biodiversity Conservation Investments* (2006) <http://www.icuc-iwmi.org/files/Publications/Ferraro%20counterfactuals.PDF> at 10 June 2011.

<sup>149</sup> Burniaux, above n 128, 40.

<sup>150</sup> Carbon Trust, above n 58, 6.

<sup>151</sup> Kruger and Egenhofer, above n 138.

<sup>152</sup> For an elaborate discussion, see Karen Bennett and Norbert Henninger, *Payments for Ecosystem Services in Costa Rica* (2008), <http://www.eparl.net/eparlimages/general/pdf/090422%20e-Parliament%20Forests%20Initiative.pdf> at 2 June 2011.

<sup>153</sup> *Ibid.*

<sup>154</sup> *Ibid.*

<sup>155</sup> Karen Bennett, ‘Additionality: The Next Step for Ecosystem Service Markets’ (2010) 20 *Duke Environmental Law and Policy* 418.

<sup>156</sup> *Ibid.* 424.

<sup>157</sup> Gillenwater, above n 46, 4.

<sup>158</sup> *Ibid.*

<sup>159</sup> *Ibid.*

coalmine.<sup>160</sup> In such scenarios, no other actor besides the project proponent benefits from the activity. While Gillenwater does acknowledge that the instances of such examples are quite limited, they state that the ‘the point is that additionality is not impractical to apply in all cases.’<sup>161</sup> Regardless, Gillenwater argues that policymakers should simply abandon offsetting as a policy option if they believe its application is wholly impractical because the concept of additionality is central to the very definition of an offset.<sup>162</sup> Instead of focusing on absolutes, ‘the question should be reframed as whether we have sufficient confidence in our ability to predict future behaviour within the classes of activities included in an offset program to meet our policy objectives.’<sup>163</sup>

### **Financial integrity and viability**

‘One of the many lessons from the GFC’, highlight Drew and Drew ‘was that the heady mix of leverage, complexity and under-supervision had the ability to bring the global financial architecture to its knees’.<sup>164</sup> Financial innovation presents both an opportunity and a risk to carbon market mechanisms.<sup>165</sup> Ultimately, stress Drew and Drew, ‘it is vital for all stakeholders to take the lessons regarding system-wide risk from the GFC and apply them to the current carbon-offset debate.’<sup>166</sup> A lack of assessment and verification of additionality would threaten the financial integrity and viability of both the CDM and REDD. Accordingly, greater measures are necessary in order to ensure adequate verification and the future feasibility of the CDM. Drew and Drew note that it is time for more research into how to develop greater fraud detection systems, with particular regard to ‘bespoke baseline data and more coordinated approaches to quantitative and qualitative screening of the claims of additionality’.<sup>167</sup>

Additionality is also necessary in order to distinguish an offset scheme from simple economic subsidies, a less economically efficient policy alternative.<sup>168</sup> Further, additionality is essential for constraining the supply of CER credits to the market, thus affecting the price of those credits. ‘In an environmental commodity market,’ notes Gillenwater, ‘a mechanism is needed to create a scarcity, since the underlying commodity is likely to be a public good with no natural constraints on consumption.’<sup>169</sup> In the case of the CDM and REDD, scarcity is generated by way of the additionality assessment process, limiting the number of credits being issued.<sup>170</sup>

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<sup>160</sup> Gillenwater, above n 46, 4.

<sup>161</sup> Ibid, 4.

<sup>162</sup> Gillenwater, above n 46, 4.

<sup>163</sup> Ibid.

<sup>164</sup> Drew and Drew, above n 10, 13.

<sup>165</sup> Ibid.

<sup>166</sup> Ibid.

<sup>167</sup> Ibid.

<sup>168</sup> Gillenwater, above n 46, 3.

<sup>169</sup> Gillenwater, above n 46, 3.

<sup>170</sup> Ibid.

## Investor Confidence

Finally, additionality plays a key role in maintaining investor confidence in the relevant system. Most people, explains Bennett, ‘assume additionality in the carbon market and expect that their funding will alter “business as usual” in some way’.<sup>171</sup> Without confidence, investment will slump.<sup>172</sup> *The Framework Document for the UN Collaborative Programme REDD* supports this position, noting that ‘if there are doubts about the ability to deliver actual, lasting, achievable, reliable and measurable emission reductions, REDD investors will remain risk adverse.’<sup>173</sup>

## CONCLUSION

The concept of additionality gives rise to a number of major legal and practical challenges. Additionality is flawed by its very definition, resulting in widespread confusion as to how to understand and apply it. Likewise, the estimation of additionality and a respective baseline presents large conceptual problems in that one is being asked to compare a position against an unobserved and hypothetical scenario. Because the market is constantly evolving and due to the fact that a wide range of factors influences human behaviour, observations of such scenarios are largely subjective. A further issue presented by the concept of additionality is that it can perversely encourage the falsification of baseline and other information, thus undermining the whole credibility of the scheme. Furthermore, additionality can result in problems with the consistency of application analyses. In a practical sense, additionality can create high transaction costs, long delays and issues regarding appropriately skilled personnel. Nevertheless, additionality is an indispensable concept. Without it, schemes like the CDM and REDD would lack environmental and financial credibility and viability and would suffer with investor confidence.

To quote the Carbon Trust, ‘the dilemma of assessing additionality is a bit like the balance of evidence in a legal system: certainty is rare; a high standard of proof risks letting some criminals go free, but lower standards risk innocent people being convicted.’<sup>174</sup> In approaching the concept of additionality, one must balance a range of competing interests, including environmental integrity, financial costs, social fairness and ultimately, political reality. Naturally, the assessment of additionality and baselines will never work perfectly. However, as noted by Gillenwater, ‘it is important to remember that other policy mechanisms will have their own problems, errors, and

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<sup>171</sup> Alexeew et al, above n 155, 424.

<sup>172</sup> Ecosystem service markets, 424.

<sup>173</sup> UN-REDD, *Framework Document for the UN Collaborative Programme* (2008)

[http://www.unredd.net/index.php?option=com\\_docman&task=doc\\_download&gid=4&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=4&Itemid=53) at 11 June 2011.

<sup>174</sup> Carbon Trust, above n 58, 56.

transaction costs.<sup>175</sup> Accordingly, one must not compare a realistic option such as the CDM or REDD to a romanticised alternative. While this paper does recognise that the entire additionality process requires substantial reforms, it is nevertheless argued that additionality assessments do not need to be entirely perfect for schemes such as the CDM or REDD to be deemed a practical and viable policy option in the fight against climate change. Quite simply, additionality only needs to be accurate enough to affect emission reductions better than a competing policy alternative.<sup>176</sup>

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<sup>175</sup> Gillenwater, above n 46, 5.

<sup>176</sup> *Ibid.*

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