The Clean Development Mechanism: Is it Sustainable? Challenges for the CDM and Where its Future May Lie

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The Clean Development Mechanism (CDM), established under the Kyoto Protocol, is the primary international offset programme, generating carbon offsets through investments in greenhouse gas reduction (certified emission reductions (CERs)), avoidance, and sequestration projects in developing countries. Developed countries can use CERs to cost-effectively achieve their emission reductions targets under the Kyoto Protocol. The CDM is therefore seen as "innovative", bridging the gap between developed and developing countries. While CDM has grown into an important instrument of the Kyoto Protocol, it has also posed a number of considerable challenges for the future in terms of its framework and functionality, as well as its lack of financial resources, together plaguing it since inception. This continues to give rise to questions around the CDM's longevity in its current state. With tremendous growth since the first project was registered on 18 November 2004, the CDM has become an immense global market. It continues to expand, with the United Nations Framework for Convention on Climate Change projecting 2,394,075,697 CERs will be issued by the end of 2015. The analysis in this article highlights the operational issues within the CDM, demonstrating its perverse incentives and ambivalent attitude towards poverty and poverty-ridden countries. The analysis

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concludes that, ultimately, the CDM in its current form is unsustainable, and has fallen short of effectively achieving its objectives — to promote sustainable development in developing countries and to assist countries in achieving compliance with their emission reductions commitments, and to mitigate climate change. Therefore, the future of the CDM, its objectives, implementation and framework must be taken into account when assessing the future of the Kyoto Protocol and a new climate change treaty at Paris 2015.

1. INTRODUCTION

1.1 What is the Clean Development Mechanism?

The Clean Development Mechanism was set up under the Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), committing its Parties by the establishment of internationally binding emission reductions targets. The Kyoto Protocol, signed in December 1997, was introduced given the recognition that developed countries are principally responsible for the current high levels of greenhouse gas emissions in the atmosphere as a result of more than 150 years of industrial activity.

The CDM, established under the Kyoto Protocol, is the primary international offset programme — it generates offsets through investments in greenhouse gas reduction (certified emission reductions), avoidance, and sequestration projects in developing countries. Developed countries can use CERs to more cost-effectively achieve their emission reductions targets under the Kyoto Protocol. The CDM is seen as "innovative" as it bridges the gap between the developed and developing countries.

The CDM has grown into a very important instrument of the Kyoto Protocol. It has also posed a number of considerable challenges in terms of its framework and functionality, as well as its lack of financial resources. This has impeded the CDM concept from its inception, and continues to give rise to questions around the CDM's longevity in its current state. This concern is currently at the forefront given the need for a post-2012 agreement.¹ Commentators suggest

¹ The Kyoto Protocol (signed in December 1997) first commitment period expired at the end of 2012, with an Ad Hoc Working Group established in 2011 to develop a new protocol, or legal instrument, or an agreed outcome with legal force. The group is to complete its work as early as possible, but no later than 2015 in order to be implemented by 2020. The Conference of the Parties will be meeting in Lima, Peru at the end of 2014 and Paris, France at the end of 2015.

the initial lack of financial resources resulted in the CDM Executive Board (EB) having limited flexibility. This was a "clear bottleneck"² when the scheme commenced. Given its tremendous growth since the initial 18 November 2004 registration, the CDM has become an immense global market and continues to expand with the UNFCCC projecting 2,394,075,697 CERs will be issued by the end of 2015.³ Despite its challenges, the CDM remains an important tool for involving the global community in addressing climate change.

1.2 Overview of Research

This article outlines the challenges facing the CDM today, providing possible future options in a post-Kyoto era. In particular, it assesses whether the CDM in its current form is sustainable long term by considering whether it meets its objectives. Where failures to meet the CDM's objectives are noted, this article provides practical suggestions on how we can manage this moving forward.

The remainder of the article is structured in six parts. Part 2 details the history of the CDM, including the international push for environmental protection that commenced in the 1970s and the events leading to the Kyoto Protocol. Part 3 details the CDM in its current form, and the challenges it has faced, and continues to face, pending substantial changes anticipated to be made at the Paris Conference of the Parties to the Kyoto Protocol (COP) at the end of 2015. These challenges include a range of economic issues, such as perverse incentives that the framework has unintentionally created; the low-hanging fruit dilemma; operational issues with additionality and leakage; and the concept of sustaining environmental integrity. Part 4 assesses whether the CDM actually promotes the notion of sustainable development: its role within poverty, and poverty-ridden countries, as well as the unequal spread of CDM projects around the world. Part 5 addresses the concept of harmonising international law, and what role the judiciary might play in enforcing obligations under the CDM. Part 6 focuses on the future of the CDM, proposed concepts for change, and what we are to expect in a post-Kyoto world in 2015 - will it be any different, and what hope is there for change?

In part 7 the article ultimately comes to the conclusion that the CDM in its current form is unsustainable, and has fallen short of effectively achieving its objectives — that is to promote sustainable development in developing countries and to assist countries in achieving compliance with their emission

² Lambert Schneider *Options to Enhance and Improve the Clean Development Mechanism (CDM)* (European Topic Centre on Air and Climate Change, ETC/ACC Technical Paper 2008/15, December 2008) http://acm.eionet.europa.eu/docs/ETCACC_TP_2008_15_future_CDM.pdf> at 43.

³ UNFCCC "CDM Insights" http://cdm.unfccc.int/Statistics/Public/CDMinsights/index.html>.

reductions commitments, and to mitigate climate change. Therefore the future of the CDM, its objectives, implementation and framework must be taken into account when assessing the future of the Kyoto Protocol and a new climate change treaty in Paris 2015.

2. THE INTERNATIONAL PUSH FOR ENVIRONMENTAL PROTECTION

2.1 UNFCCC

The CDM was established under art 12 of the Kyoto Protocol in 1997. The Kyoto Protocol was the result of an international political push for environmental protection, beginning in the 1970s,⁴ some 27 years before Kyoto was signed. The 1970s consisted of the Stockholm meeting, convened 20 years before the Rio Conference, which would lead to the guiding principles that form Kyoto. It was not until the 1980s that real progress was being made with the addition of the Montreal Protocol on Substances that Deplete the Ozone Layer 1987,⁵ addressing the concept of greenhouse gases with climate change slowly gaining international recognition as a global environmental threat.⁶

In 1992 the United Nations held the Conference on Environment and Development (UNCED) in Rio de Janeiro. Some 172 governments attended this conference, with the intention of producing an "Earth Charter". Though the conference failed to produce the charter it wanted, it did create five documents in relation to environmental protection, which included the UNFCCC. The UNFCCC recognised the need to work together to radically change the way humans use our planet. This recognition gave rise to the UNFCCC's overall objective that persists today.⁷

The UNFCCC was adopted on 9 May 1992 in New York after some 15 months of protracted negotiations. Within a year, 165 countries and the European Community had signed the document. The UNFCCC, however,

- 4 Matthew Rimmer *Intellectual Property and Climate Change: Inventing Clean Technologies* (Edward Elgar, Cheltenham (UK) and Northampton (MA), 2011) at 40.
- 5 Adopted and opened for signature 16 September 1987 and brought into force on 1 January 1989.
- 6 M Doelle From Hot Air to Action? Climate Change, Compliance and the Future of International Environmental Law (Thompson Canada Limited, Toronto, 2005) at 13.
- 7 The UNFCCC's overall objective is the stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.

set no binding limits on greenhouse gas emissions and contained within it no enforcement mechanisms on the various government signatories. Similar to the Montreal Protocol, the UNFCCC provides the framework to negotiate further treaties, ones that might contain "hard" obligations in the future, unlike the UNFCCC itself.⁸ The UNFCCC also identified additional complexities of developing countries aside from its other main principles,⁹ and as such, imposes unequivocal obligations on developed countries¹⁰ to take the lead. There are unknown effects of climate change, and it is therefore appropriate that developed countries assist the future requirements of developing countries that are acknowledged to be the most vulnerable to the effects of climate change.¹¹ Among other outcomes, new and additional financial resources were available to developing and vulnerable countries.¹²

The UNFCCC has been heavily criticised¹³ for its "soft law" approach (given the previous approach of direct regulation), yet the final product allows for greater flexibility¹⁴ and encourages the overall goals of the UNFCCC. The UNFCCC has been in effect since 21 March 1994¹⁵ and the overall decision-making body, the COP, has met annually since April 1995.

2.2 The Kyoto Protocol

At the end of 1997 the parties to the UNFCCC agreed on a new protocol — one that would set a quantified emission limitation, including reduction commitments, in an attempt to promote sustainable development.¹⁶ The

- 8 BJ Richardson "Legislation and Treaty Notes: Kyoto Protocol to the United Nations Framework Convention on Climate Change" (1998) 2 NZJEL 249 at 250.
- 9 The two other main principles besides differentiated responsibility are: sustainable development taking into account the needs of the current generation without compromising that of future generations; and precautionary implying a need for states to take action even when science is uncertain, especially if irreversible damage could be caused.
- 10 The UNFCCC has essentially three groups of states Annex I countries, which includes developed countries, some with economies in transition; Annex II countries, which are OECD countries and those responsible for the reduction of emissions for developing countries; and non-Annex I countries, or "developing countries", ones that have no obligations under the UNFCCC.
- 11 See Doelle, above n 6, at 14.
- 12 See UNFCCC "Kyoto Protocol" http://unfccc.int/kyoto_protocol/items/2830.php>.
- 13 No specific targets were put in place under the UNFCCC for individual states to reduce their greenhouse gas emissions, resulting in criticisms that the UNFCCC was lacking in stimulating real and obtainable change.
- 14 S Blustein "From the Bottom Up: Redesigning the International Legal Response to Anthropogenic Climate Change" (2011) 32 Adelaide Law Review 305 at 309.
- 15 UNFCCC "Essential Background, The Convention" http://unfccc.int/essential_background/items/6031.php>.
- 16 Kyoto Protocol, art 2.

international reaction to Kyoto was mixed, and quickly garnered criticism from environmental groups. Concerns were voiced around the weak incentives to comply with the obligations, as well as around hot air.¹⁷ It was very clear from the outset that Kyoto left unfinished business and further negotiations would be required.¹⁸

The Kyoto Protocol entered into force courtesy of Russia's ratification in 2004.¹⁹ Kyoto provided a global cap that would reduce the overall greenhouse gas emissions by five per cent (at least) below 1990 levels during the first commitment period of 2008 to 2012.²⁰ Three different flexible mechanisms were implemented to help achieve this objective,²¹ with the mechanisms considered market-based tools and promoting a technology-neutral and cost-effective reduction on greenhouse gas emissions. These mechanisms were based on the rationale that all greenhouse gases have identical impacts on the atmosphere, irrespective of their source, and parties should be able to implement reductions wherever they can at the lowest cost.²² A brief overview of the flexible mechanisms is as follows:

1. Clean Development Mechanism

The CDM reflects the position of developed countries where it may be more cost-effective to reduce emissions in a developing country rather than their own. This mechanism allows for Annex I countries to implement emission-reducing projects in non-Annex I countries in return for CERs. The Protocol includes a requirement that the reduction must go beyond business as usual, ensuring that developing countries are benefiting and maintaining a role as part of the global emission reductions efforts.²³

- 17 Gas emissions from Russia and the Ukraine were likely to be well below their Protocol commitments due to the shutting down of inefficient industries since the breaking up of the Soviet Union and the move towards market-based economies. In the absence of emissions, these excess emissions or hot air would not be emitted, and total emissions for those countries would drop to below their 1990 levels.
- 18 Further negotiations at Buenos Aires (COP 4) and The Hague (COP 6) failed, only to be resumed at Bonn eight months later. The United States refused to agree to Kyoto and its binding obligations, stating it would cause "serious harm to the US economy".
- 19 Only those countries that ratify the agreement are bound by it, and the UNFCCC currently confirms 192 Parties (191 states and 1 regional economic integration organisation) have ratified; see http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php for the most up-to-date figure.
- 20 Kyoto Protocol, art 3.1.
- 21 Excluding the joint fulfilment mechanism under Kyoto Protocol, art 4 applying to the European Union, or the "EU Bubble".
- 22 Andrew Schatz "Discounting the Clean Development Mechanism" (2008) 20 GIELR 703 at 709.
- 23 The conditions for being awarded CERs under the CDM are set out in the Protocol, specifically art 12.5(a), 12.5(b) and 12.5(c). These relate to voluntary nature, the "real,

2. Joint implementation

Joint implementation (JI) allows an Annex I country to implement a project designed to reduce emissions (or increase removals by sinks) in another Annex I country by acting as financial and/or technical support, therefore obtaining emission reduction units (ERUs).

3. International emissions trading

Annex I countries can trade emission units (assigned amount units (AAUs))²⁴ with each other, assigned under the Protocol. The scheme can also trade CERs and ERUs acquired through the CDM and JI mechanisms, though the Protocol imposes minimum levels of AAUs, ERUs and CERs during the commitment period that cannot be traded.

2.3 CDM in the Kyoto Protocol

Article 12 of the Kyoto Protocol establishes the CDM and sets out its three goals:

- 1. Mitigate climate change;
- 2. Assist developed countries attain emission reductions commitments; and
- 3. Assist developing countries achieve sustainable development.

Unfortunately, the Protocol provides little guidance on the definition of sustainable development, leaving developing nations to determine whether it meets their requirements, also known as a designated national authority (DNA). There have been several attempts to try and define sustainable development; yet no common international interpretation has been established. The World Commission on Environment and Development provides the most wellknown definition: "Development that meets the need of the present without compromising the ability of future generations to meet their own needs", built on principles of social, economic and environmental sustainability²⁵ read in light of the UNFCCC's objectives. In addition, the role that climate change mitigation itself plays in sustainable development must be considered so that

measurable, and long-term benefits", and reductions that are additional to any other emission-reducing activity.

- 24 Annex I parties are allowed an amount of AAUs equal to five times the level of their 1990 emissions http://www.mfe.govt.nz/publications/climate/projected-balance-emissions-jun06/html/page11.html>.
- 25 Report of the World Commission on Environment and Development: Our Common Future A/42/427 (1987) <www.un-documents.net/ocf-02.htm>.

any overall assessment of the CDM looks to the wider role of the project as a catalyst for the host country's own sustainable development.²⁶

2.4 CDM and the Marrakesh Accords

COP 7 was held in Marrakesh, Morocco in 2001. It was there that the modalities and procedures for the CDM were agreed, as well as the adoption of a compliance regime for Kyoto.²⁷ This included the monitoring of other factors like additionality of CDM projects, and rules on verification, certification and the issuance of CERs. The role that the CDM would play with its contribution to sustainable development was of considerable debate at COP 7, with host countries being at risk of a different concept of sustainable development being imposed on them, as well as a loss of sovereignty.²⁸ These risks are addressed later in this article. These concerns must be assessed under a DNA, and it seems that we are still left with only a vague idea of what sustainable development actually is. This will be elaborated on further as part of the current challenges for the CDM.

2.5 CDM Projects Currently

As of October 2014, 7,570 CDM projects were registered with the UNFCCC.²⁹ While all projects vary in size and scope, they generally fall within the following categories:³⁰

- energy saving and efficiency improvements
- renewable energy and fuel substitutes
- methane recovery and utilisation
- chemical pollutants reduction
- landfill-burning power regeneration
- afforestation and reforestation project activities.
- 26 Christina Voigt "Is the Clean Development Mechanism Sustainable? Some Critical Aspects" (2008) 8 Sustainable Development Law & Policy, Climate Law Reporter 2008, Article 6, accessed via http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1173&context=sdlp>.
- 27 Decision 3/CMP.1 <http://unfccc.int/resource/docs/2005/cmp1/eng/08a01.pdf#page=6>.
- 28 Voigt, above n 26, at 18.
- 29 See UNFCCC "Project Activities" https://cdm.unfccc.int/Projects/index.html (accessed 19 October 2014). Note, as at 30 September 2014 (most up-to-date figures available at time of access), this has resulted in 1,492,173,776 CERs being issued.
- 30 See Clean Development Mechanism in China: CDM Project Database Project Search <<u>http://cdm-en.ccchina.gov.cn/NewItemList.aspx</u>> (use dropdown bar to "Scope") (accessed 21 November 2014).

The vast majority of these projects have been implemented in China and India, leading to an unbalanced allocation of CDM projects. Investments are mainly made in countries with a high GDP and fast-growing economies, with drivers relying on favourable political environments for foreign investments, efficient institutions and well-developed regulations.³¹ Notably, the majority of the CDM projects in China are developed domestically, as only a small number of international economies have the capabilities to fulfil the CDM obligations. China, of course, is one of those countries with high capabilities both financially and technologically.³²

Because of the vast number of projects in some of the largest developing economies, the CDM has been heavily criticised. The fact that the CDM seemingly focuses on these economies while ignoring the development requirements of poorer nations shows that only a handful of the wealthiest developing countries are benefiting. Other countries, particularly African, are in desperate need of sustainable development and foreign aid, yet they are being left behind.

2.6 The CDM Executive Board

The CDM EB supervises the CDM and all proposals made for potential CDM projects. The Board comprises 10 members and 10 alternate members from Parties to the Kyoto Protocol who are nominated by the COP/MOP (Meeting of the Parties). The day-to-day operational tasks of the CDM, however, are carried out by the EB.³³

The individual members themselves on the CDM EB play essential roles in governance of the CDM. In particular, their transparency and consistency in their decision-making, as well as impartiality, are obvious requirements for such decisions. As such, there is a requirement that none of the CDM members of the EB have any financial or pecuniary interest in a CDM project activity.³⁴ Any national interests should not drive the EB, but inevitably "discussions within the CDM Executive Board are sometimes driven by national interests". In addition, while the "EB is strongly committed to quality criteria ... at the same time, political-economic variables also drive decisions".³⁵ The subjective nature of the EB is further discussed in this article, though ultimately remains an unresolved problem. Human-made decisions can never *truly* be objective and

31 Wei Shen "Understanding the Dominance of Unilateral CDMs in China: Its Origins and Implications for Governing Carbon Markets" (Tyndall Centre for Climate Change Research, Working Paper 149, 2011) at section 1.

- 33 Kyoto Protocol, art 12.4.
- 34 Decision 3/CMP.1, above n 27, Annex, para 8(f).
- 35 Schneider, above n 2, at 9.

³² At section 1.

therefore cannot realistically be factored into a discussion of the sustainability of the CDM.

3. CHALLENGES FOR THE CDM

Due to its inherent challenges, a number of criticisms have been levelled at the CDM. There is a current lack of quantitative mitigation commitments in CDM host countries and more of an interest in the maximum number of CERs that can be achieved for the highest price. For the investor country, this is true too; however, it must be for the least effort and more importantly, at the least cost. The project, rather than promoting environmental change or upholding the objective of the UNFCCC to stabilise greenhouse gas concentration in the atmosphere at safe levels, must be of financial value. Further, for high-emissionproducing nations it must be able to offset the excessive units incurred.

The CDM project overall must have the ability to reach its objective and purpose under the UNFCCC. It also must show that its CERs are real and additional to reductions that would not have occurred in the absence of the project.³⁶ This "additionality" test is essential to maintaining the environmental integrity of the projects, though it has been heavily criticised since its inception. The CDM generally remains controversial in nature due to its inefficiencies, insufficiency, inequity and sustainable development concerns.

3.1 Environmental Integrity

At the core of the CDM's problem lie three competing interests: environmental integrity, sustainable development, and economic efficiency.³⁷ The technical ability and know-how of the EB overseeing all CDM projects³⁸ is to make nonbiased decisions that are based on additionality. These decisions must consider all possibilities of other environmental damage; the CDM project must promote sustainable development of the host countries, and demonstrate economic efficiency. The project must produce a suitable number of CERs to make the

- 37 Christina Voigt "The Deadlock of the Clean Development Mechanism: Caught between Sustainability, Environmental Integrity and Economic Efficiency" in BJ Richardson and others (eds) *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy* (Edward Elgar, Cheltenham, 2009) 235 at 244.
- 38 Though this is hotly debated. Schneider, above n 2, at 10–11 argues that the EB should delegate responsibility rather than actively be involved in every CDM project application, promoting better governance and a far better approach to the CDM framework, and encouraging more investment equally around the world, particularly in poorer, less developed countries.

³⁶ Kyoto Protocol, art 12.5(c).

project "worthwhile" financially, with relatively quick turnaround time and low transaction costs.³⁹

3.2 Additionality

CDM project participants must identify the additionality of their project design. This must detail the baseline from which the additionality is measured, which will represent what would have been had the CDM project not been in place. The CDM EB works with the potential project participant to determine the appropriate methodology to work to in order to combat any risk of hypothetical assumptions, leading to inflated CERs.⁴⁰ Whether the EB itself is capable of determining these factors is another problem in itself, but it is likely that cost and experience (if any, given most of the effects will not be evident until, say, 2100) are other factors that must be taken into account.

The concept of additionality is difficult both theoretically and on a practical level, given the subjective nature around project confirmation. Project investments are made for a variety of reasons, and investors are incentivised to make claims to persuade programme administrators for project proposal approval. Similarly, different administrators and auditors may interpret the evidence for additionality in different ways - leading to an absence of concrete definitions or parameters.⁴¹ Auditors and programme administrators have developed techniques to assess, test and review all projects that claim to provide additional emission reductions. However, perfection is "neither realistic nor attainable"42 and there have been calls for a better review system. For instance, a system that reduces the number of projects incorrectly approved because they provide no measure of additionality, compared with those rejected incorrectly when they do provide a measure of additionality.⁴³ This naturally leads to an increase in review time, which means increased administrative costs. The transaction costs must be carefully weighed to "ensure that an offset program delivers the widespread incentives for emission reductions and low-carbon technology deployment desired, while ensuring that environmental goals are met as well" 44

- 39 This might mean a certainty of outcome for the investor, so they are not throwing money at a project that may be rejected by the EB.
- 40 Voigt, above n 26, at 17.
- 41 Michael Gillenwater and Stephen Seres *The Clean Development Mechanism: A Review of the First International Offset Program* (Pew Center on Global Climate Change, March 2011) at 15.

- 43 MC Trexler, DJ Broekhoff and LH Kosloff "A Statistically-Driven Approach to Offset Additionality Determinations: What Can We Learn?" (2006) 6 Sustainable Development Law and Policy 30.
- 44 Gillenwater and Seres, above n 41, at 16.

⁴² At 16.

3.3 The CDM Additionality Process Explained

Where a CDM project claims that its greenhouse gas (GHG) emissions are below those that "would occur in the absence of the certified project activity",⁴⁵ and passes a multi-step process in order to do so, a credible baseline must be established to determine what GHG emissions would have occurred without the CDM. Against this baseline, the project's net emissions are valued, and a project's credibility "hinges in large part on the strength and realistic grounding of this projected baseline scenario"⁴⁶ (and ultimately determines the number of CERs issued). Establishing a baseline scenario and determining whether a project has the element of additionality under the CDM is a four-step approach.⁴⁷

The first step is to assess all possible alternatives (if any) to the project, which includes continuations of status quo; the proposed project activity and its benefits; or the adoption of other economically feasible technologies. This assessment takes into account a number of factors, including required changes by regulations or legislative measures. For instance, operating a boiler run with heavy fuel and switching to low or no net CO_2 emissions will not satisfy the requirements of additionality when this will be a mandatory requirement pursuant to overriding regulations or legislation of the nation. No additional intervention would be required to enable the project's implementation, and therefore it does not fall into the additionality category.

The second step is to establish the realistic barriers that any such project may be faced with. For instance, investment barriers, technological barriers, or any other barriers specific to a region or country — as in, a project may not be suitable for the particular climate, or local government policies and/or cultural practices make this impossible. Where a project is unable to be implemented based on these barriers, it is eliminated from consideration.

Third, the project must be analysed in terms of investment. This is typically the financial indicator that is appropriate to the project type, with the best financial performance then selected as the baseline scenario. This type of testing can be easily manipulated, with the CDM EB requiring a number of sensitivity tests to observe how changes in values of key variables affect the results of the analysis.⁴⁸

The final step is a common practice analysis, which checks the credibility of the second step, analysing the extent to which the proposed project has already spread through the relevant industry and within the relative geographical area. For instance, if a number of similar projects are already under way then it is

48 At 18.

⁴⁵ Kyoto Protocol, art 12.5(c).

⁴⁶ Gillenwater and Seres, above n 41, at 16.

⁴⁷ At 16.

for the proponent of the project to indicate why theirs is distinct. This could include, for example, a significant change in circumstances or situations where new barriers have arisen, resulting in CDM projects being less financially attractive without the incentive provided by the CDM. All these changes would need to be verifiable, and not simply relied upon as an argument to approve the proposed project.⁴⁹

Though this four-step process might suggest that acceptance into the CDM is fairly rigorous, there have been concerns that some non-additional projects were likely authorised in the early days of the CDM. It may be that the inclusion of an appeals process for rejected proposals would aid in increasing the programme value for project developers. Although such rejections would have considerably fewer adverse environmental effects than the flipside, it makes the CDM less appealing for prospective investors and developers.

The programme has developed significantly over the years, with a great deal of resources directed towards improving the knowledge, education and skills of all the relevant players in the CDM process, including the UNFCCC Secretariat.⁵⁰ Notably, significant advances have been made given criticisms in the late 2000s that decisions made by the Board were inconsistent with previous decisions, leaving it very unclear how these decisions could be reconciled.⁵¹ The development in both resources and process has led to a higher quality of project proposals, as well as a "more systematic and rigorous review of project proposals".⁵²

Although the CDM process is still evolving, the process remains fairly reliant on the subjective judgement of project proponents, auditors, and the EB itself. This means that there is relatively little certainty that a project will be approved given the lack of clear parameters. In addition, the amount of time taken continues to be lengthy, perhaps due to the uncertainty surrounding the limits of the CDM.⁵³ A criticism by the author revolves around a standardised approach for the CDM projects, transparency of decisions and decision processes, as well as enhanced education for the decision-makers.

- 51 Schneider, above n 2, at 11; also F Flues and others UN approval of greenhouse gas emission reduction projects in developing countries: The political economy of the CDM Executive Board (University of Zurich and Center for Comparative and International Studies, Working Paper No 35, 2008) at 16. Flues and others found that their results suggested a number of political-economic variables drive outcomes of decision-making in the EB, after an econometric analysis of over 1,000 individual CDM EB decisions. They did, however, find that the EB is "strongly committed" to quality criteria, but that the EB decisions tend to favour projects relevant for EB member countries.
- 52 Gillenwater and Seres, above n 41, at 19.
- 53 Lambert Schneider "Assessing the additionality of CDM Projects: practical experiences and lessons learned" (2009) 9 Climate Policy 242.

⁴⁹ At 39.

⁵⁰ At 19.

Development of performance standards or pre-approved project type lists are thought to increase the efficiency, though there is a risk that this may reduce a new imaginative approach to projects. Proponents do admit, as well, that the cost of maintaining such a list would require significant resources as it would require constant updating to prevent these risks. The CDM has, in fact, begun approving some standardised methodologies for determining additionality and baselines, such as the methodology behind energy-efficient refrigerators providing the benchmarks for calculating the energy savings.⁵⁴

Another criticism in a standardised methodology for projects is the issue between small-scale CDM projects and alleviation of poverty. Small-scale CDM projects are often used in rural low-income communities, and often seen as the best tool in the CDM system to address poverty issues.⁵⁵ In these smallscale projects, large-scale infrastructure does not need to be developed, and local communities can seek employment through such projects, without being overlooked for a project requiring, perhaps, more technical know-how and skills. The difficulty with smaller-scale projects is that the high administrative costs are off-putting, and are more accessible to large-scale projects with a significant amount of investment behind them. This has led to requests around simplifying the methodology to encourage an increased number of smaller-scale projects. It has been argued that any future CDM framework should attempt to rectify this imbalance by bundling under programmatic CDM, sectoral crediting approaches and the use of overseas development assistance to foster local capacities, all endeavouring to reduce small-scale project costs.⁵⁶ There is some merit to this argument as, with the large impact that a small-scale project can make in a smaller, rural, low-income area, it may be entirely more beneficial to long-term sustainable development overall.

It may be possible to develop, alongside other working parameters, a methodology that will benefit the small-scale investments. Such a methodology could bring about more change in terms of sustainable development and poverty alleviation, and capitalise on the myriad of options the CDM could potentially contribute to sustainable development.⁵⁷

- 54 UNFCCC "Manufacturing of energy efficient domestic refrigerators" https://cdm.unfccc.int/Panels/meth/meeting/08/034/mp_034_an03.pdf> (accessed 1 November 2014).
- 55 Marie Blevin "The Clean Development Mechanism and the Poverty Issue" (2011) 41 GIELR 777 at 791.
- 56 Katherine Begg and others *Encouraging CDM energy projects to aid poverty alleviation* (UK Department for International Development (DFID) Programme, June 2003) and C Egenhofer and others *Improving the Clean Development Mechanism* (European Climate Platform (ECP), Centre for European Policy Studies (CEPS), December 2005).
- 57 There are also suggestions that enforcement of investment contracts in less favoured countries should be utilised, and that host countries must offer and agree upon a secure legal framework to prospective investors to ensure poverty alleviation before the project is implemented.

There are always a number of concerns around the measurement of additionality to ensure accuracy, especially given once a methodology is used for an approved project it becomes a standard methodology accepted for that particular project type.⁵⁸ Also, given that the CDM methodologies are publicly available information, these have laid the "technical foundation for other mandatory and voluntary GHG emission reduction programs around the world, including those in the United States".⁵⁹ This then follows on with concerns raised earlier surrounding the transparency of these methodologies and their approvals by the EB, given it is publicly available information. Similar to concerns around transparency of methodology approval, the Pew Center on Global Climate Change notes fears around the auditing process to ensure environmental integrity. The audit work carried out by designated operational entities (DOEs/auditors) is well developed, but "serious structural problems remain within the overall quality assurance process",⁶⁰ and given payment is made by the project developers, there are obvious causes for concern around conflicting interests.

3.4 Leakage

Leakage of all GHGs that are significant and reasonably attributable to the project activity must also be accounted for. This, combined with additionality, provides a level of assurance that CDM projects will not be simply displacing GHG-intensive activities.⁶¹ The issue with leakage is the impossible task of determining project boundaries, as well as the emissions that the project may be in control of. Given that leakage can extend across country borders, it makes it nigh on impossible to calculate in any baseline scenario. In short, there is a risk with the CDM that is incredibly difficult to overcome. Any amendments to the CDM must resolve this issue, and cater to an "environmental integrity check", ensuring that any project does not lead to increased emissions or slow climate change mitigation efforts.

Leakage, under the CDM, is defined as the net measurable change in GHG emissions that occur outside a project's boundary⁶² and is an especially challenging issue for CDM forestry projects. The Pew Center identifies as an example an offset project designed to prevent deforestation that could just result in trees being harvested elsewhere. Put simply, if there is no decrease in net

⁵⁸ Gillenwater and Seres, above 41, at 22.

⁵⁹ At 22.

⁶⁰ At 24.

⁶¹ The example that Voigt uses is where a CDM project intended to reduce fossil fuels in one location resulted in increases elsewhere. See Voight, above n 26, at 16.

⁶² This being the project boundary and all greenhouse gases under the control of the project participants that are significant and reasonably attributable to the project.

deforestation, the emissions from deforestation are "leaked" to another area that would not otherwise have been deforested.⁶³ Offset programme methodologies must address the issue of leakage to prevent incomplete accounting of emission reductions.

3.5 Economic Benefits and Perverse Incentives of the CDM

Since the EB commenced issuing CERs in October 2005, the CDM has become lucrative for foreign investors, host country partners and host governments. Since its inception, it has grown rapidly from 42164 projects in November 2006 to the 7,570 figure established in October 2014. This vast number of CDM projects is expected to generate some 2,394,075,697 CERs to the end of 2015.65 By contrast, only 597 JI projects have been registered. The value of these projects is immense, with May 2007 figures showing that a cumulative 920 million CERs shifted hands through the CDM transactions for a value of about US\$8 billion.⁶⁶ Such investments are necessary to promote lowcarbon technology transfer to developing countries — those countries that lack the resources to mitigate GHGs. As the developing world is using, and still continues to use, more energy as it inevitably tries to catch up with the developed world, it is necessary to replace fossil fuel-based energy with lowcarbon energy infrastructure. The development of CDM aids in the expansion of renewable energy projects and therefore reduces the need for carbon-intensive energy sources.⁶⁷

For Annex I and developing countries, the CDM provides significant benefits as the dollars pass through the international carbon market. Given the cost of emission reductions is higher in Annex I nations, the CDM is an opportunity to reduce emissions at a much lower cost. A number of other variables must come into the equation before determining whether to commence a CDM project — transaction costs, administrative costs, even the risk of project failure. Similarly, a host country must also assess what local benefits it might get out of the deal — and might look towards non-climate change associated issues. For instance, sustainable development, improved environmental quality, or reduced energy costs.⁶⁸ Host countries do stand to gain more in the form of additional

- 63 Gillenwater and Seres, above n 41, at 27.
- 64 Figures obtained at Hitomi Kimura, Ancha Srinivasan and Keisuke Iyadomi "Clean Development Mechanism" (undated) http://pub.iges.or.jp/modules/envirolib/upload/535/attach/04_cdm.pdf>.
- 65 UNFCCC "CDM Insights" http://cdm.unfccc.int/Statistics/Public/CDMinsights/index.html>.
- 66 Schatz, above n 22, at 709.
- 67 At 709.
- 68 Barbara Buchner and others "The Clean Development Mechanism and Ancillary Benefits" in M Bothe and E Rehbinder (eds) *Climate Change Policy* (Eleven International Publishing,

resources, like access to modern technologies, improved infrastructure, and a possible share in the net economic benefits.⁶⁹ However, as in any cost-benefit analysis, host countries must weigh this up against a reduced demand for or emphasis on domestic technology development, or the loss of their own less expensive measures to meet any future obligations they may have under any future post-Kyoto agreement.

3.6 The Low-hanging Fruit Dilemma

Any country looking to reduce its emissions would naturally start with the easiest and cheapest option first — the low-hanging fruit (LHF). In a CDM context, this is high global warming potential gases rather than the more expensive and notably the more critical long-term CO_2 reductions. Developing country host nations need to be aware, when determining the size and scope of CDM projects to be implemented, that they may be facing their own emission reductions commitments in the future. Since most emission abatement is irreversible,⁷⁰ future commitments could lead to a problem in that the cheapest abatement measures will be implemented for CDM projects. This would leave the developing countries with the more expensive measures to meet their own commitments in the future.⁷¹

CERs are awarded based on the global warming potential of a gas, and investors can receive thousands more CERs for a one-tonne reduction from a super-pollutant than from CO₂. Given that the Annex I countries' cost of compliance has reduced, the LHF options offer a far better alternative to CO₂ reduction projects that could otherwise be implemented. Unsurprisingly, a high number of CDM projects are skewed towards projects accruing a large number of CERs due to the high number of global warming potential gases controlled.⁷² CDM project investors are very keen on projects that capture methane from landfills and coal mines, meanwhile renewable energy projects and agriculture emission control remains less popular due to the high level of investment cost, length of time to become prosperous, and risk and uncertainty in operation.⁷³

The Netherlands, 2005) at 131 and 145.

- 69 Pier Vellinga and Roebijn Heitz "Joint Implementation: A Cost Benefit Analysis" in C Jepma (ed) *The Feasibility of Joint Implementation* (Springer, Dordrecht, 1995) at 69 and 72.
- 70 The concept of irreversibility is because, once implemented, it is likely that CDM projects typically last more than one Kyoto Protocol commitment period.
- 71 M Germain and others "Should Developing Countries Participate in the Clean Development Mechanism under the Kyoto Protocol? The Low-Hanging Fruits and Baseline Issues" (CORE Discussion Paper No 2005/23, March 2005).
- 72 Sonia Labatt and Rodney R White *Carbon Finance: The Financial Implications of Climate Change* (Wiley, New York, 2007) at 154.

⁷³ At 154.

Other authors suggest that the LHF issue will not be a problem in the future and has been mischaracterised. They note that developing countries will also have access to the international permits market, and will therefore not necessarily have to implement high-cost measures in the future.⁷⁴ Another way to combat this issue would be to financially compensate developing countries for implementing or accepting CDM projects that may have an impact of LHF thus banking the funds in order to deal with any future commitments they may have of their own.⁷⁵

Some analyses⁷⁶ have suggested that the LHF problem is unfounded, and that it would never be optimal for a developing country to retain its LHF in favour of implementing the high-cost projects first. Some go even further to suggest that the term LHF is inappropriate.⁷⁷ It may be these concerns, compounded over time, that have resulted in host countries inflating the prices of the super-pollutant project CERs. Host parties have been exploiting these market disparities, selling CERs sometimes 100 times greater than the cost of abatement.⁷⁸ This leads to perverse incentives or unintended consequences of the CDM, as countries are spending significantly more on projects at their inflated price, rather than using those funds on GHG and climate change mitigation projects.

While the CDM EB has recognised some perverse incentives, it has failed to recognise and implement measures against others such as those detailed above.⁷⁹

- 74 Germain and others, above n 71, at 2.
- 75 Germain and others, citing Rose and others (1999), above n 71, at 3.
- 76 At 17.
- 77 At 17.
- 78 Michael Wara Measuring the Clean Development Mechanism's Performance and Potential (The Program on Energy and Sustainable Development, Stanford University, Working Paper No 56, July 2006) at 3. China, for instance, imposes a 65 per cent tax on any project's CER revenue, yet the projects are still profitable for investor countries/companies.
- 79 The Montreal Protocol tried to phase out ozone-depleting gases and subsidises projects in the developing world. However, some of these (like HCFC-22) actually create superpollutant HFC-23 as a by-product. Essentially, the developed world is paying to increase production of HCFC-22 and paying again for the CERs to reduce HFC-23. "Smart" companies therefore have an incentive to double up.

4. THE CDM AND SUSTAINABLE DEVELOPMENT

4.1 Does the CDM Contribute to Sustainable Development?

Sustainable development encompasses at least three aspects: social, economic, and environmental,⁸⁰ and generally relates to poverty alleviation, equity and improved quality of life, financial returns to local entities, technology transfer, the reduction of GHGs, (diminishing) use of fossil fuels, conservation of local resources, improved health, and reduced pressure on local environments.⁸¹ This generally accepted list, however, is not universally accepted into a single authoritative approach applicable to any CDM projects. Obviously, then, a definition of sustainable development will vary considerably depending on what the host country considers sustainable development to be. Some countries, including China, India and Brazil, have criteria for sustainable CDM projects, but "they fail to include verifiable indicators to measure the outcome, nor do they have the means for monitoring or enforcing the sustainability benefits".⁸² This is one of the greatest challenges facing the CDM, and is entirely likely to be its undoing.⁸³

Given that there is no definition and nations prioritise different aspects of sustainable development over others, combined with unequal power relations⁸⁴ and the competition between developing countries for projects, a low sustainability threshold is set leading to questions around the longevity of the CDM. Relatively little has been achieved in affecting the growth pattern of developing countries.⁸⁵

There is some research to suggest that while the long-term benefits of the CDM projects may promote sustainability, in the short term, projects may not necessarily affect sustainable development at all with local people being required to be removed from their land in order to implement the CDM project.⁸⁶

- 80 HH Kolshus and others *Can the Clean Development Mechanism attain both cost-effectiveness and sustainable development objectives?* (Center for International Climate and Environmental Research, Oslo, Working Paper 2001:8, June 2001) at 8.
- 81 A Olhoff and others *CDM Sustainable Development Impacts* (UNEP Risø Centre on Energy, Climate and Sustainable Development, Denmark, undated) at 18.
- 82 Voigt, above n 37, at 240, citing P Castro and A Michaelowa *Empirical Analysis of Performance of CDM Projects* (Climate Strategies, Final Report, June 2008).
- 83 CDM's contribution to sustainable development was subject to considerable debate throughout Kyoto negotiations, as well as the Marrakesh Accords.
- 84 It is often the resource-strong stakeholders who are able to define the terms for carbon trade; see Karen Holm Olsen *The Clean Development Mechanism's Contribution to Sustainable Development: A review of the literature* (UNEP Risø Centre on Energy, Climate and Sustainable Development, Denmark, undated) at 7.
- 85 Voigt, above n 37, at 240.
- 86 Blevin, above n 55, at 785-786.

Sustainable development may also end up being an unintended consequence, rather than the main objective, with the risk that the CDM may "become little more than a cost-reduction tool for developed countries legitimised by incidental secondary benefits that may or may not be consistent with developing country priorities".⁸⁷ As previously stated, nowhere in the Kyoto Protocol is there a definition of sustainable development as a concept — it does not address what it means, how should it be implemented, and whether there is a list of requirements before sustainable development can be ascertained. According to the Bonn Declaration, the parties agreed that it was the host Party's prerogative to "confirm whether a [CDM] project activity assists it in achieving sustainable development",⁸⁸ and it is this prerogative that must be used to alleviate poverty. At times, however, it can have the opposite effect — setting low barriers in order to encourage investment and development⁸⁹ in a country that would not otherwise receive it, yet the elements of sustainable development are overlooked. All too often, host countries will only focus on the direct economic benefits, treating the social and environmental effects as something they can take or leave rather than a central project feature. Sustainable development therefore comes second to reducing Kyoto Protocol compliance costs. As Voigt points out, "in order for the CDM to play a role in any future climate agreement, a balance between cost-effectiveness and promotion of sustainable development has to be found".90

4.2 Poverty and the CDM, and the Inequitable Distribution of CDM Projects around the World

The Millennium Development Goals list eradication of extreme hunger and poverty as a top priority.⁹¹ The COP acknowledged the link between sustainable development, climate change issues and poverty eradication at the 2002 Delhi Ministerial Declaration on Climate Change and Sustainable Development. It was there that energy policies supportive to developing countries' efforts to eradicate poverty were called for, with the United Nations Development Programme (UNDP) recognising that the CDM could be used as a tool to

- 90 Voigt, above n 37, at 240.
- 91 United Nations Millennium Development Goals http://www.un.org/millenniumgoals/ poverty.shtml>.

⁸⁷ Duncan Austin and others *How Much Sustainable Development Can We Expect From The Clean Development Mechanism?* (World Resources Institute, Climate Notes, November 1999) at 4–5.

⁸⁸ Decision 5/CP.6 Review of the Implementation of Commitments and of Other Provisions of the Convention (UNFCCC, Bonn, 16 July–27 December 2001).

⁸⁹ Blevin, above n 55, at 789.

alleviate poverty.⁹² Ideally, under the scheme, investors bring finance and technology to developing countries and allow them to create efficient and innovative measures for a more sustainable life, while also reducing the GHG emissions in that country, and therefore GHG emissions overall.

As mentioned, the programme has been successful in encouraging a large number of investors, but the question remains whether the CDM has been successful in addressing poverty, and the current impact on poverty issues. Does the CDM encourage sustainable development and improve standards of living in its host countries? For instance, does it improve the quality of air, water; allow better access to the country's natural resources; or improve employment opportunities? If the answer is no, then these are arguments that the CDM has not been successful, mostly due to the implementation in poorer countries, pointing specifically to the least developed countries (LDCs), small island developing states (SIDS), and Africa.

Countries have determined and published criteria on when they consider a project contributes to sustainable development. The problem remains, countries are not rejected when they contribute little, or nothing, to sustainable development. According to Schneider in a European Topic Centre on Air and Climate Change Technical Paper, "host countries do not prioritize projects with high sustainable development impacts by rejecting projects with little or no sustainable development impact" and cites India as a prime example of this practice. Schneider also notes that all types of projects, including those relating to the destruction of HFC-23 and N₂O, have been approved by the country so far.⁹³ The current situation has resulted in a project portfolio that revolves around economic attractiveness.

The current CDM portfolio is dominated by a small number of project categories, with power generation being the largest (mainly renewable power generation but also natural gas power plants and waste heat recovery projects).⁹⁴ Some sectors that have large climate change mitigation potential have not attracted CDM projects, particularly in the energy efficiency and transport sector, as well as the land use, land-use change and forestry (LULUCF) sector, given the limits to afforestation and reforestation for which the demand for credits is low.⁹⁵

As well as the dominance by certain project categories, there is an unbalanced distribution of CDM projects geographically. According to Schneider, the regional distribution of CDM projects is strongly related to GHG mitigation potential; given the CDM's design as a market mechanism,

- 93 Schneider, above n 2, at 26.
- 94 At 32.
- 95 At 32.

⁹² The Clean Development Mechanism: A User's Guide (Energy & Environment Group, UN Development Programme, 2003) at 12.

the projects will search for the cheapest emission reductions — rather than geographically balanced ones. With the largest abatement opportunities in China and India, the numbers of projects in these areas are reflected by the UNFCCC's host party data with China and India reflecting the large majority.⁹⁶ As previously discussed, the development of CDM projects is also dependent on the relevant legislative and general policy framework of a country, as well as a history of accepting particular projects given the lack of internationally accepted criteria.

4.3 CDM Project Locations — Overcoming the Barriers

Schneider considers that it is challenging to overcome these barriers that affect the geographical distribution of CDM projects, also noting that it has been recognised as an ongoing issue by the EB.⁹⁷ There are also concerns regarding underrepresented project sectors, though there are some limits around overcoming such barriers. As of 1 February 2013, however, the CDM announced structure around standardised baselines and suppressed demand. This should theoretically improve the implementation of CDM projects, particularly in the LDCs, as it will reduce transaction costs and reflect the real emission reductions achieved.⁹⁸ LDCs are known to be more vulnerable countries, due to their low per capita income, weak human assets and economic vulnerability.⁹⁹ Notably, art 4.9 of the UNFCCC acknowledges that there are specific needs and special situations for LDCs with regard to funding and transfer of technology.

The Nairobi Framework was designed to address the issue, primarily reported as requiring "increased financial resources to assist in building requisite capacity and innovative means of project financing/risk management".¹⁰⁰ It

- 96 See "Trends of projects registered and registering by Host Party" http://cdm.unfccc.int/Statistics/Public/files/201410/reghpnum.pdf (accessed 11 November 2014).
- 97 See Schneider, above n 2, at 33. In an attempt to overcome such geographical favouritism, the EB has a mandate to report to COP serving as Meeting of the Parties (MOP) about the geographical distribution of all CDM projects. In 2006 the Nairobi Framework was released by the EB after having requested submissions on the barriers to an equitable distribution of CDM project activities.
- 98 H Gadde and others Promoting Energy Access Projects under the Clean Development Mechanism: Standardized Baselines and Suppressed Demand (The World Bank, 2013) at 1; CDM: Guidelines and Clarifications https://cdm.unfccc.int/Reference/Guidclarif/index.html (accessed 12 November 2014); and EB 65, Annex 23 where the CDM will now accept proposals for standardised baselines applicable to new or existing methodologies for consideration.
- 99 See UN "LDC Criteria" http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml (accessed 6 November 2014).
- 100 United Nations Framework Convention on Climate Change Clean Development Mechanism Executive Board: Proposed Agenda and Annotations: Twenty Sixth Meeting, Annex 4,

was initiated by the United Nations Development Programme, United Nations Environment Programme, World Bank Group, African Development Bank, and the Secretariat of the UNFCCC "with the objective of helping developing countries, especially those in sub-Saharan Africa, to improve their level of participation in the CDM".¹⁰¹ While this was a good first step, it has not made significant inroads into the geographical unequal distribution of projects, with Africa, LDCs and SIDS still heavily underrepresented in the CDM projects. Within two years of its adoption, the framework had yet to change the overall picture.¹⁰² Currently, Africa hosts only 247 CDM projects (as at the September 2014 figures)¹⁰³ whereas Asia (including Asia and the Pacific, and Central Asia) hosts some 7,181 projects.¹⁰⁴ Though it is accepted that more projects being implemented results in more development, it is not clear *how* these technologies are benefiting the poorest populations.

Schneider suggests that the CDM could be promoted in these countries through fundamental changes to the mechanism: access to CDM could be limited for more advanced developing countries¹⁰⁵ therefore automatically increasing the share of CDM projects from LDCs, including sub-Saharan Africa, by virtue of more "desirable" countries being out of the running. The reduced CER supply could also result in higher CER prices, which would make the development of CDM projects in these locations economically more attractive.¹⁰⁶

Another option is to discount the CERs from other developing countries, giving emission reductions from sub-Saharan African countries and LDCs a higher market value, again, making CDM projects more attractive in these countries.¹⁰⁷ A further suggestion could be to gain commitment by industrialised countries to purchase a minimum of CDM projects in LDCs. Schneider also refers to one of the main criticisms of CDM previously discussed: there are

Equitable Distribution of Clean Development Mechanism Project Activities — *Analysis of Submission*, Attachment A (26–29 September 2006).

- 101 Schneider, above n 2, at 33.
- 102 At 33.
- 103 UNEP DTU CDM/JI Pipeline Analysis and Database http://www.cdmpipeline.org/cdm-projects-region.htm#6 (accessed 12 November 2014).
- 104 UNEP DTU CDM/JI Pipeline Analysis and Database by Region http://www.cdmpipeline. org/regions_7.htm> (accessed 12 November 2014).
- 105 With the high number of projects in China, the ability of CDM to drive broad engagement with sustainable development across developing countries has been called into question, given China's high level of development in areas like production and consumption of electricity, internet usage, mobile phone usage, improved drinking water, roading and other development qualifiers. See http://www.theguardian.com/environment/2011/jul/26/cleandevelopment-mechanism and (accessed 12 November 2014).
- 106 Schneider, above n 2, at 33.
- 107 At 33.

no set parameters for projects, leading to uncertainty of approval, and making it harder for investors to see these countries as attractive to investment. Schneider suggests that the rules could be further simplified "including the financing of validation and verification through the UNFCCC secretariat or the development of further simplified baselines and monitoring methodologies for these countries".¹⁰⁸

The vast majority of research into CDM inequitable distribution focuses on problems with the current framework, some of which this article has detailed. Given that the CDM has been designed as a project-based global market mechanism, there are reasonable limitations placed on it; it can only address certain countries and sectors effectively. According to Schneider, it may be that adaptation and mitigation opportunities would favour sub-Saharan African countries and LDCs more efficiently, but due to size and scope these policies have not been discussed at length.¹⁰⁹

In a recent academic piece on overcoming the geographical barriers, Eni-Ibukun confirms the barriers are a lack of capacity and financing, as well as other cost-related barriers, primarily due to the unilateral¹¹⁰ nature of many CDM projects.¹¹¹ CDM-specific and general investment/project issues are considered the two elements to hosting CDM projects that may impact on equitable distribution according to Eni-Ibukun. CDM-specific measures previously noted at part 3 of this article include procedural-based issues when developing and implementing CDM projects. This article has suggested additional changes to the CDM framework, which deal with the majority of these issues.

Eni-Ibukun claims unilateral CDM projects are a barrier due to the requirement of the host country to have sufficient "financial and technical capacity to undertake unilateral projects" and where they lack such capacity is when these projects are easily sidelined in favour of others.¹¹² Many of the LDC and African countries do not have the capacity to conduct project baseline studies, and fulfil approved methodologies. This, Eni-Ibukun says, is due to a

108 At 34.

- 110 A unilateral CDM project refers to those that do not have a letter of approval from an Annex I Party at the time of project registration. This allows the developing country direct access to carbon mitigation revenues from the sale of CERs, leading to this inequitable distribution because not all countries have the same resources for CDM investment. Developing countries have long defended their position to finance and register CDM projects on their own, and the EB clarified this was possible at EB Meeting 18, 23–25 February 2005 <http:// cdm.unfccc.int/EB/018/eb18rep.pdf>.
- 111 Tomilola Akanle Eni-Ibukun International Environmental Law and Distributive Justice: The Equitable Distribution of CDM Projects under the Kyoto Protocol (Routledge Research in International Environmental Law, 2013) at 7.1.

¹⁰⁹ At 35.

¹¹² At 7.1.

lack of local infrastructure and qualified personnel, CDM knowledge at the project origination level, and adequate CDM information among financial intermediaries.¹¹³ A *perception* of lack of capacity is also just as much of a problem as a lack of capacity itself, with the CDM EB unable to provide information to potential investors on the technical capacity of developing countries, ensuring certain countries are not overlooked unnecessarily. Given that the overall objective of the CDM is to promote sustainable development by facilitating technology, a current lack of technology should not provide a reason for not implementing CDM in these countries.¹¹⁴

Eni-Ibukun also notes that there are many internal barriers affecting the update of CDM projects in some developing countries — for instance, corruption, lack of security, poor governance structures, conflict and political instability, all of which lead to high investment risks.¹¹⁵ Others argue that the unequal distribution is due to the fact that developing countries lack a voice during international negotiations,¹¹⁶ though this is not a sure-fire way to ensure equal distribution of CDM projects. Eni-Ibukun also points out, quite rightly, that the issues of political instability are outside the powers of the CDM mechanism itself and cannot be fixed through the CDM framework.

5. WHAT IS THE ROLE FOR LEGAL REFORM?

5.1 Judicial Safeguards for the CDM

As Preston and Hanson note, the dramatic increase in the number of countries that enter into treaty negotiations has increased as a product of awareness and concern about environmental problems globally. As a result, countries can deal with a number of policy decisions in a cross-sectoral interdisciplinary manner, adopting a holistic approach to environmental protection.¹¹⁷

The upside is acknowledged as the setting out of broad principles, giving international environmental law-making a "dynamic process"¹¹⁸ and allowing

113 At 8.1.

- 115 At 7.1. Though she also notes that this does not suggest that these countries *can't* achieve excellent CDM results, and many do, in fact, perform well despite their internal barriers, citing China as a prime example with poor governance ratings, yet host of the clear majority of all CDM projects.
- 116 Bharathi Pillai "Moving Forward to 2012: An Evaluation of the Clean Development Mechanism" (2010) 18 NYU Environmental Law Journal 357.
- 117 Hon Justice Brian J Preston and Charlotte Hanson "The Globalization and Harmonisation of Environmental Law: An Australian Perspective" (2013) 16 Asia Pacific Journal of Environmental Law 1 at 4.
- 118 At 4.

¹¹⁴ At 7.1.

for strong negotiations. However, Preston and Hanson also comment that the inevitable downside then becomes increasing levels of compromise, "resulting in vague, general terms", and further difficulties are encountered when international courts are called on to "interpret ambiguous treaty terms and requirements of highly indeterminate norms of customary international law".¹¹⁹

It follows that the increase in international environmental law generates more demand for administration and enforcement of such law. A need for courts and tribunals would be required, consisting of a judiciary with specialist experience in the aid of developing international jurisprudence.¹²⁰ As the authors note, environmental issues have been addressed by a growing number of environmental courts over, in particular, the last 15 years, and therefore the need for "bodies competent in adjudicating international environmental disputes also grows".¹²¹ This is very much the case with the implementation of CDM projects, as well as the general application and approval process.

The growing need for a judicial panel to review decisions made under the CDM has already been noted, and it is an essential element in delivering "environmentally sound results" and giving security in the function of the CDM.¹²² A number of issues around transparency of process, and complete (as much as possible) impartiality when the EB is making decisions, has also been raised, and is still as important a point as ever. As Voigt notes, the CDM is in a position of teaming the public and private sector, giving rise to much closer contact between international institutions and private entities. This, therefore, reduces the active role of the state and means the EB has a far more intrusive role in relation to private project participants, and must transparently show how due process has been followed and implemented.

There lies a case for these private participants to sue the EB for projects that have not been approved where additionality, and other rules around environmental integrity, was clearly proven. Both Voigt and Schneider raise this possibility, and Schneider comments that some countries in particular have consistently argued for immunity of decisions made by the collective EB.¹²³ Voigt proposes reviewing EB decisions in a national court. Voigt claims that private participants in the CDM that have been denied registration of their CDM project, or where the baseline and methodology has not been accepted by the

- 120 At 6.
- 121 At 7.
- 122 Voigt, above n 37, at 253.
- 123 Schneider, above n 2, at 10 states that "Several parties, including New Zealand, China, Japan, Tuvalu, Australia and the EU have stressed that a full immunity is a key prerequisite to assure the independence of the EB members".

¹¹⁹ At 4-5.

EB, may have notional recourse.¹²⁴ However, this does raise further questions: does a claim against the EB require a violation of a right, or does anyone have the ability to formally question, review or challenge an EB decision using an objective appeals process? If anyone is able to do so, does that bring into question common law concepts of privity of contract, and furthermore, does that even matter when such global issues are at stake? It may be that the answers must be decided on a case-by-case basis, though it is worth noting that such an ad hoc approach forms much of the criticism levelled at the CDM EB.¹²⁵

Clearly, however, there is scope for a review of the current CDM EB framework around decision-making. There is, perhaps, some difficulty in setting objective standards as previously outlined in this article, with the possibility of limiting the scope to today's technology. Any standards set would need to be drafted in a clear and unambiguous manner, but one also allowing for future technological and environmental developments.

6. THE FUTURE OF CDM IN A POST-KYOTO WORLD

6.1 CDM: A Review

The CDM has attracted substantial criticism, and as such its credibility has suffered. Many have questioned whether or not it is still an economic means serving as an environmental end, or if it has been taken over completely by the money. The CDM itself, due to its intricacies of legal, technological and financial expertise, and relationships between developers, investors, government

- 124 Christina Voigt "Responsibility for Environmental Integrity of the CDM: Judicial Review of Executive Board Decisions" in D Freestone and C Streck (eds) *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond* (Oxford University Press, Oxford, 2009) 272 at 290. Voigt further notes that there have been many threats to bring claims against the EB and its members, though no lawsuit has been filed to date. The claims tend to revolve around financial losses, but also reputational damage due to negative publicity.
- 125 A "learning by doing" approach has been used as a description of the CDM to date; see Gillenwater and Seres, above n 41, at 35. Also note, Schneider (above n 2 at 10), in an attempt to outline improvements to the framework surrounding the CDM, pinpoints a number of issues around the EB that could be changed in order to have a much more efficient system. In brief summary, these changes consist of:
 - ensuring competency and a lack of conflict of members of the Board
 - terms of reference for the Board
 - · a professionalisation of the Board
 - · transparency and consistency of decisions
 - enhanced delegation of individual case decisions
 - a systematic catalogue of EB decisions to be made available
 - systematic justification of all EB decisions
 - an appeals procedure.

and industry officials, has become a "cash-machine for lawyers, accountants, economic counsellors, brokers and intermediaries".¹²⁶ Yes, the CDM is an offset mechanism, but is the reality of it simply providing a "get out of jail free card" for nations who are buying their way out of climate responsibility?¹²⁷ While many debate the operational hazards of the CDM, and how it must be changed, few have come to any real conclusions on change. In addition, it is likely that most countries are waiting for the developments in Paris 2015, where the COP will (hopefully) agree to a successor to the Kyoto Protocol — whatever that might look like.

As we progress towards 2015, negotiators face a number of challenges presented by the CDM as it is with respect to sustainable development. However, to assess what will become of the CDM, it is also important to assess the future and a possible successor to Kyoto. Any changes to the CDM will impact on Kyoto, and vice versa. Any direct continuation of the Kyoto-style mechanisms will involve quantified emission limitations with the well-understood binding targets, emissions trading and the continuation of the CDM mostly as we know it. It is entirely possible that rapidly developing countries may be faced with an emissions target, which may be binding, non-binding, voluntary, flexible commitments or otherwise. It is possible, using this method, that a national programme with unilateral CDM projects could contribute towards any such voluntary or flexible commitments.¹²⁸

6.2 The Path Forward — Where Are We Now?

In 2009, with the end of the first commitment period swiftly approaching, negotiations continued with the intent of replacing the Kyoto Protocol. Three different negotiating positions reflected the main divisions among the international community: those of differently positioned developing countries, and between developed and developing countries.¹²⁹ Those countries more susceptible to the effects of climate change advocated for a new binding agreement, where large emitters (for instance, China) would take responsibility for those emissions, rather than relying on their status as a developing country and therefore not bound to any reductions. Larger countries opposed binding obligations on industrialised countries, and industrialised countries supported the framework of another convention, rather than advancing a second commitment period under Kyoto.¹³⁰ It was obvious that a stalemate

129 Pillai, above n 116, at 358.

130 At 358-359.

¹²⁶ Voigt, above n 37, at 241.

¹²⁷ At 67.

¹²⁸ Emily Boyd and others "Reforming the CDM for Sustainable Development: Lessons Learned and Policy Futures" (2009) 12 Environmental Science and Policy 820 at 826.

had occurred where developing countries would continue to evade their common but differentiated responsibilities. According to Pillai, countries like China, India and South Africa "firmly categorised" themselves as developing countries, and advocated that they should be free from carbon restrictions until their emissions were on par with industrialised countries.¹³¹ The industrialised countries refused to commit to any binding commitments without a meaningful commitment from these emerging economies,¹³² leaving a no-win situation and no productive steps towards the future.

2011 saw the development of the Durban Platform for Enhanced Action,¹³³ mandated to draft the future Paris Protocol in 2015 after the disaster that was Copenhagen, or COP 15, held between 7 and 18 December 2009, the first attempt at developing a post-2012 framework.¹³⁴ The Durban Platform negotiating process began in May 2012 and is scheduled to end in 2015. Any agreed outcomes will be implemented from 2020 onwards, but there are still some doubts as to whether this will be achieved.¹³⁵ The choice has been limited¹³⁶ to a protocol, another legal instrument, or an agreed outcome with legal force under the Convention, which must be completed no later than 2015 to be in effect by 2020. As Ulfstein and Voigt note, the length of time between adoption and implementation does not inspire confidence, and indicates "yet another interpretative argument for the legally binding possibilities under the UNFCCC".¹³⁷

In terms of policy architecture for any Paris protocol, treaty or agreement, any future regime has been described as falling into three categories:¹³⁸

- 131 See Pillai, above n 116, at 398.
- 132 At 398.
- 133 See UNFCCC "Ad Hoc Working Group on the Durban Platform for Enhanced Action" http://unfccc.int/bodies/body/6645.php>.
- 134 By the final day of COP 15, international media reported that talks were "in disarray" and that for fear of a complete summit collapse only a "weak political" statement was anticipated at the end of the conference. See Mark Memmot "Obama in Copenhagen; Climate Talks in Disarray; Urges 'Action Over Inaction'" http://www.npr.org/blogs/thetwo-way/2009/12/obama_in_copenhagen_climate_ch.html> (18 December 2009) and IBN Live "Last Day of Copenhagen Summit, Hope Fizzing Out" http://ibnlive.in.com/news/last-day-of-copenhagen-summit-hope-fizzling-out/107355-11.html> (19 December 2009).
- 135 Geir Ulfstein and Christina Voigt "Rethinking the Legal Form and Principles of a New Climate Agreement" in Todd Cherry and others (eds) *Toward a New Climate Agreement: Conflict, Resolution and Governance* (Routledge, London, 2014) at 183 have noted that the negotiations are marked with uncertainty and that the choice of form is "far from settled" at present. The question of how the principle of "common but differentiated responsibilities and respective capabilities" should be incorporated into the document is still unanswered.
- 136 See Decision 1/CP.17 < http://unfccc.int/index.html?such=j&volltext=1/CP.17>.
- 137 Ulfstein and Voigt, above n 135, at 185.
- 138 JE Aldy and RN Stavins (eds) *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World* (Cambridge University Press, New York, 2007) at 5.

- **Targets and timetables**: essentially reflecting the same Kyoto intentions, being specific emission reductions targets for countries over a specific timeframe.
- **Harmonised national policies**: this focuses more on national policy action rather than goals, and involves countries' agreement on domestic policies, achieving efficient controls within domestic borders, and evolving like regional trade agreements.
- **Co-ordinated and unilateral policies**: where domestic policies drive participation and compliance. Using this method, countries would pledge actions and undergo period reviews without any formal penalties.

6.3 The Future of the CDM

It is entirely possible that a post-Kyoto agreement may contain different flexibility mechanisms to the ones we have in place already. The CDM, with its criticism that it only promotes the cost-effective compliance of Annex I countries with their emission reductions commitments, low contribution to sustainable development and unbalanced regional distribution of projects, will not be the direct cause of a reduction in GHG emissions. This begs the question: should it be scrapped?

An amended mechanism establishing a minimum threshold, and directly addressing the contribution of the CDM to sustainable development in host countries, should be the preferred option.¹³⁹ Marrakesh in 2001, however, proved this objective to be more difficult than anticipated, with developing countries strongly opposing such measures.¹⁴⁰ This is to be expected, as this suggests that another body makes the decision as to what is best for the country, and diminishes aspects of national sovereignty. Bakker and others suggest that the "political feasibility" of this as an option will only improve "when criteria open to DNA interpretation [is] allowed".¹⁴¹ The type of project is also a factor that may need to be strictly monitored, noted earlier, as large-scale industrial gas projects (HFC-23) provide little in the way towards sustainable development, yet accrue the most in the way of tangible economic benefits for the host country. Restricting the number of projects in this manner could be beneficial to sustainable development within the CDM. This, however, is at odds with other project types — for instance, renewable energy projects which on the whole contribute more towards sustainable development.¹⁴²

- 139 Stefan Bakker and others "The Future of the CDM: Same Same, but Differentiated?" (2011) 11 Climate Policy 752 at 761.
- 140 See Olsen, above n 84, at 7.

141 At 7.

142 At 7. Bakker and others, above n 139, at 761, also note that this view has been nuanced, and argue this is not the case for all renewable energy projects.

Bakker and others argue four key findings on what they see a possible new CDM structure would look like in a post-Kyoto world. These are as follows:¹⁴³

- preferential treatment for underrepresented host countries
- minimum¹⁴⁴ thresholds for sustainable development at an international level
- quotas or eligibility of countries of project types
- CER discounting.

First, although it is debateable what it would generate towards sustainable development, Bakker and others argue for preferential treatment for underrepresented host countries or preferable project types. This, they say, appears to be an option with the least amount of pushback and without significant negative impacts.¹⁴⁵ This is qualified, however, by the notion that projects may be difficult at the ground level, given implementation issues, and fears around political instability of host countries. While Eni-Ibukun suggests these concerns will always remain issues¹⁴⁶ (and any changes to the CDM will not be able to factor these issues in), it is still a consideration. Thus changes in this direction may not sufficiently change the current sectoral and regional distribution of CDM projects.

Second, minimum thresholds for sustainable development set at an international level and verified by DOEs may, according to Bakker and others, improve sustainable development. But as the authors detail, the *quantification* of sustainable development will always be problematic, and there are indicators this would increase transaction costs.¹⁴⁷ As discussed, keeping transaction costs down is imperative to encourage CDM projects.

Third, they argue differentiation based on quotas or eligibility of countries or project types as a means of changing the distribution of CDM projects, but note that this could be difficult to negotiate with other interested nations.¹⁴⁸

Finally, Bakker and others suggest discounting CERs, or alternatively, discounting of appropriate project types. The discounting of project types is, perhaps, the most powerful option, although they also note the drawback of finding it difficult to negotiate the discounted rates.¹⁴⁹ These are very likely to

- 143 Bakker and others, above n 139, at 12.
- 144 This is also acknowledged by Pillai, above n 116, at 406.
- 145 Bakker and others, above n 139, at 12.
- 146 See Eni-Ibukun's theories on external issues, above n 111, at 7.1.
- 147 Bakker and others, above n 139, at 13.
- 148 Notably, however, as a result of the Copenhagen negotiations, many of the larger developing countries have shown a willingness to accept voluntary emissions targets.
- 149 A similar suggestion is proposed in Griffith-Jones and others' paper on the role of private investment in the CDM, claiming that a solution of "CDM with atmospheric benefits", offering fewer CERs on "perhaps ... a 2:1 ratio", would help overcome the problems of additionality and ensure global offsets do not lead to an overall increase in emissions. See

be arbitrary discount rates, and would rely on significant negotiation by the COP.

Professor Michael Wara at Stanford University has suggested, as an alternative, the creation of an international fund to supersede the current system.¹⁵⁰ He comes to this conclusion after establishing that the CDM has failed, given the purpose of the Kyoto Flexible Mechanisms was to accomplish emissions reductions at the lowest marginal cost possible, and noting that "[t]he CDM is neither functioning well as a market for emissions reductions nor is it a successful subsidy".¹⁵¹ He states further that the CDM market has "failed to encourage, in substantial measure, the addition of low carbon intensity energy infrastructure in the developing world".¹⁵² In a world of limited resources, "modifying [the Protocol] makes sound environmental and financial sense".¹⁵³ He specifically identifies the Montreal Protocol Multilateral Fund (the Fund) used for the implementation of the Montreal Protocol as an example of an alternative for the mechanism and framework of the CDM.¹⁵⁴ The Fund provides financial assistance to developing countries for the phasing out of the use of ozone-depleting substances. The Fund, contributed to by developed countries, acknowledges the common but differentiated responsibilities of all countries in depletion of the ozone layer.¹⁵⁵ The Fund ensures that financial and technical assistance to developing countries is delivered, which in turn enables those countries to comply with their emission reductions, without the need to bear any of the additional costs. This example offers a real possibility for changing the structure of the CDM although there are immediately obvious implementation concerns. The Fund itself sets criteria for the approval of its projects,¹⁵⁶ and then provides the host country with final approval on the project. Accordingly, this leaves the same concerns around foreign investment

Stephany Griffith-Jones, Merylyn Hedger and Leah Stokes *The role of private investment in increasing climate friendly technologies in developing countries* (IPD, Columbia University and Institute of Development Studies, 2009) at 18–19.

- 150 See Wara, above n 78.
- 151 See Wara, above n 78.
- 152 See Wara, above n 78.
- 153 See Wara, above n 78.
- 154 See Wara, above n 78.
- 155 Multilateral Fund for the Implementation of the Montreal Protocol Policies, Procedures, Guidelines and Criteria (April 2010) < http://www.unmfs.org/POLICYdoc/Policy60. pdf > [Montreal Protocol Guideline]. International funding as a means to implement differentiated responsibility has a long history, beginning with the UNEP Environmental Fund and the World Heritage Fund in the 1970s. A key example of implementation in this context is funding to ozone reductions projects through the Multilateral Fund for the Implementation of the Montreal Protocol.
- 156 It may be worth noting that none of the criteria for such projects administered by the Multilateral Fund consider the notion of sustainable development and would therefore provide no guarantee of poverty alleviation.

versus sustainable development, and therefore creates no incentives for the host country to choose any such project that may favour sustainable development issues.¹⁵⁷ However, any other alternative that removes the final approval from the developing countries suggests that more developed countries are in a better position to judge — which simply is not (always) the case.

As previously noted in this article, different countries have different social development goals, and thus assign different weight to the various CDM projects. Consequently, they also have contrasting regulatory approaches, with some focusing more on promoting national growth rather than entertaining sustainable development goals.¹⁵⁸ In recognising the importance of national sovereignty,¹⁵⁹ Boyd and others establish four alternatives to the current system¹⁶⁰ as follows that could be implemented into any new post-2012 agreement:

• Minimum global standards for sustainable development:

This might mean (inter alia) employment generation, local development, general infrastructure, and could be moulded to fit that nation's requirements, while at the same time making them aware that these are the minimum standards every CDM project should include.

- **Global checklist of sustainable development benefits:** Boyd and others describe this as "global norms with local flexibility".¹⁶¹ Similar to but seemingly more prescribed than the guidelines above.
- Establishment of a global points system for beneficial development aspects of CDM projects:

This would consist of more points being allocated to more desirable options, and would see that all projects would require a minimum amount of points for sustainable developments to be accepted, still allowing for mandatory elements and for choice by the nation itself.

- 157 See the Montreal Protocol Guideline, above n 155.
- 158 Boyd and others, above n 128, at 828, specify Brazil, emphasising employment and income distribution objectives; Peru, pursuing more local community needs. Peru's regulatory approach to DNA is based on visits to project sites, where they take a hands-on approach, asking local communities about their needs and potential contribution to the project. Brazil has developed a generic set of criteria, as has China, although the Chinese have goals in relation to the energy sector.
- 159 Boyd and others, above n 128, at 828.
- 160 Boyd and others, above n 128, at 828, note that the current system protects national sovereignty, but risks a "race to the bottom" in terms of attracting CDM investment.
- 161 Boyd and others, above n 128, at 828.

• Policy-based adjustment to CERs in favour of high sustainable development; and disincentives for high CER/low sustainable development benefit projects:

This is similar to Bakker and others' suggestion of discounting CERs discussed earlier, and involves an "intentional distortion" of the market, requiring a mixture of projects with low and high CERs. It is also similar to Pillai's argument to promote certainty of important (though less profitable) project types by using taxes and credits "creatively".¹⁶²

These alternatives still leave open as to who would be deciding on what the international standards are, who will develop the checklist, and who allocates the points, and Boyd and others are not oblivious to these issues, and as such, consider the last option to be the most favourable.¹⁶³ Other authors have echoed the need to emphasise sustainable development,¹⁶⁴ with the CDM to "actively promote" it,¹⁶⁵ saying that the CDM would benefit from a well-defined and agreed-upon concept of sustainable development. How to actually define the concept, as well as *getting* to the point of defining it, though, is not discussed and this is a common problem with much of the literature on sustainable development and the CDM.

What this debate does make abundantly clear, however, is that many policy issues must be negotiated well before Paris 2015, as any clarification on whether the CDM moves from a project-based mechanism to a policy-driven approach will need to be incorporated into a post-2012 agreement.

6.4 Private Investment? The Role of Public–Private Partnerships in the Future of CDM

Griffith-Jones and others' paper on the role of private investment in "climate friendly technologies" in developing countries outlines what they see as the significant barriers to directing foreign private investment towards low-carbon technology implementation. The paper, prepared in 2009, notes the effects of the Global Financial Crisis (GFC), though ultimately maintains that through significant domestic and international policy intervention, the GFC should not remain a constant barrier to any such investment. Griffith-Jones and others cite the lack of support mechanisms as the underlying issue for growth in this sector, and draw on 1930s precedents to encourage a "Global Green New

165 See Pillai, above n 116, at 403.

¹⁶² See Pillai, above n 116, at 408.

¹⁶³ Boyd and others, above n 128, at 829.

¹⁶⁴ Pillai also refers to concepts of a more streamlined approach and lower transaction costs in relation to CDM, as well as an option of discounting CERs; see Pillai, above n 116, at 404.

Deal".¹⁶⁶ This "New Deal" would, as a matter of national and international policy, direct public funds towards large-scale, low-carbon development, and would aid in meeting urgent carbon emission reductions targets and boosting investment in developed and developing countries, "as well as contributing to higher growth globally".¹⁶⁷ Griffith-Jones and others suggest by doing so, this would incentivise large-scale capital flows and show private companies that large profits can be made.¹⁶⁸

Similarly, Aldy and Stavins argue for an approach used to subsidise investment in new climate-friendly technologies, citing the United States, United Kingdom and Japan as having announced as early as 2008 their intentions to finance new clean technology funds for developing countries.¹⁶⁹ They note, however, there needs to be the stimulation to drive such private investment, both push and pull incentives. These incentives may need to be seen at an international level rather than just domestic, and could be used to develop a framework for a future CDM. Other "bottom-up" approaches, focused on the private sector — for instance, farmers using seeds more resilient to climate change — do not require governments to step in to promote such policies, but *can* facilitate such adaptation measures through education.¹⁷⁰ Policies such as these may also deal with national sovereignty issues around sustainable development raised earlier.

Griffith-Jones and others also argue that the introduction of a sectoral CDM would make investment more clear cut, and is an approach that would help move away from the problems "inherent in the project-based system as currently structured".¹⁷¹ Overall, the crux of their argument focuses on the following issues:

- 1. For private investment to take place, there is a need for incentives and subsidies. These are going to come from a large-scale public investment in low-carbon technologies.
- 2. A new agreement, protocol or treaty must be agreed upon, as the lack of certainty is "significantly impeding" private financing of emissions. Also,
- 166 United States President Roosevelt implemented a series of domestic policies that were enacted between 1933 and 1936 to combat the effects of the Great Depression. Any such policies were labelled a "US New Deal".
- 167 Griffith-Jones and others, above n 149, at 3.
- 168 At 3.
- 169 JE Aldy and RN Stavins "Climate Policy Architectures for the Post-Kyoto World" (2008) 50 Environment: Science and Policy for Sustainable Development 6 http://www.environmentmagazine.org/Archives/Back%20Issues/May-June%202008/aldy-stavins-full.html>.
- 170 Aldy and Stavins, above n 169.
- 171 Griffith-Jones and others, above n 149, at 18.

without a clear view of how carbon will be valued in the future, further private financing relating to the carbon market will be stalled.¹⁷²

- 3. Government intervention in the price of oil, natural gas and other energy commodities will increase private investment. They suggest a minimum price for oil assumption to guarantee profitability, but note that the design of any such policy would require great care. It is also entirely likely that there may be a backlash from the market in general over such an issue, but the authors fail (or chose not to) recognise this factor.
- 4. Banks need to be willing to lend for longer, and financial actors need to accept that a short-term perspective will not work.¹⁷³
- 5. The development of a Global Green New Deal which directs public funds towards large-scale, low-carbon investment will signal to and incentivise large private companies to invest in such technologies.

Regardless of the clear impracticalities of some of the suggestions, the privatesector investment must be incentivised and encouraged. This need must be absorbed into any new mechanism developed for a post-Kyoto agreement at the end of 2015.

7. CONCLUSION

At present, the CDM is poorly equipped to meet its objectives and goals and lacks a certain future given its inability to do so. Currently, the CDM provides for some 7,570 projects based in developing countries, though the overwhelming majority are implemented in China and India. This unbalanced approach prima facie establishes that the framework of the CDM is not working, and has produced strategic behaviour that undermines the intention of the mechanism, as well as its ability to work as an effective tool against the effects of climate change.¹⁷⁴

- 172 Although this paper was written in 2009, the merits of this point remain the same. Currently, the future of the format of the CDM is unknown until the end of 2015, and because of this, the lack of certainty surrounding it is still impeding private investment and public encouragement.
- 173 Essentially, what the authors are saying is that fund managers need to forget the prospect of a short-term payout or bonus on such a deal, and look long-term. Whilst this is a fantastic idea, the practicalities of implementing something like this will remain incredibly difficult. This is, perhaps, not the most practical of suggestions, despite first appearances. It may be, also, that the authors' perception has been slightly skewed due to the timing of writing and publication (2009) and its proximity to the GFC.
- 174 Pillai, above n 116, at 408.

The EB still faces ongoing criticism about its lack of concrete requirements to ensure swift and reliable investment, the subjective measures applied by its personnel, its structure, and the lack of independent validations of environmental integrity. Many weaknesses have been exposed, including the battle between cost-efficiency and sustainable development: is every CDM project "right" as long as it delivers GHG reductions, or are they simply to be cost-effective climate mitigation measures? Or, alternatively, is the CDM actually designed to bring about sustainable development in developing countries?¹⁷⁵ The CDM is constantly faced with challenges to reconcile economic efficiency as well as global climate change responsibilities, and it is currently failing. At the moment, the current framework of the CDM simply promotes encouraging the maximum number of CERs (offsetting an already increased emissions rating) for the minimum number of dollars, and ultimately never meets the overall objective of stabilising GHG concentrations in the atmosphere at safe levels. As a result, the CDM's attempts to balance its three competing interests: environmental integrity, sustainable development, and economic efficiency¹⁷⁶ have been unsuccessful to date.

There is a role for judicial reform within the CDM, and many academics identify the growing need for a judicial panel to review the decisions made by the Executive Board. However, a vast amount of work needs to be completed before this can be implemented — who can make a claim, are we all interested parties by virtue of occupying the same space, and any remedies that may be imposed as a result.

We clearly need to strengthen the overall institutional capacities of poorer countries, as this will reduce the risks of investing in these countries, and therefore increase the likelihood of evenly distributed CDM projects.¹⁷⁷ Regardless of whether high-emitting countries like China and India are willing to take on binding commitments at Paris, a mechanism that treats these countries the same as lesser-developed nations ignores global progress, the evolving capacities of countries and changing development needs.¹⁷⁸ We also need to find a new way to transition into clean technology, and the CDM is an essential part of this process. However, given that its current framework cannot meet its objectives it is not sustainable long term, and must be improved to adequately address the concerns around sustainable development and climate change. These changes must include scope for an appeals process, or an independent tribunal in order to review decisions made by the EB, and the members must be capable of understanding the complex requirements of the CDM.

175 Voigt, above n 37, at 243.

- 177 Pillai, above n 116, at 405.
- 178 At 405.

¹⁷⁶ At 70.

Sustainable development must be built in as a requirement of the CDM, with various options (with some essentials) for projects allowing nations to determine what projects they will accept. Ideally, it would create a "pick and mix" effect¹⁷⁹ in order to satisfy the national sovereignty components, as well as assuring that the remaining objectives of the CDM are met. This should be teamed with a discounted CER rate for countries with higher numbers of CDM projects, to be determined by the EB (with the possibility of being reviewed by a tribunal). This would then remove the barrier to the unequal distribution of CDM projects globally. Effort must also be made in order to strengthen the capacities of the less desirable developing countries, as well as streamlining the process for acceptance of CDM projects in order to create a more welcoming regulatory environment for prospective CDM investors. This would need to be built into the Paris framework to accommodate such policy change.

The efforts of Paris need to be implemented by 2020, given the possible five years within which to negotiate the terms. While this seems complex, we must learn from the current problems with the CDM and act in a proactive manner to modify the mechanism and ensure its effectiveness. As discussed, there are a myriad of opportunities for CDM reform — and someone needs to champion these opportunities immediately to ensure progress. A collaborative approach from both developed and developing countries is required to ensure positive outcomes for all: the refusal of some countries¹⁸⁰ to accept binding commitments should no longer be tolerated.

- 179 The CDM was set up with the flexibility to adapt and alter its policies with experience, and this is something that should continue under any new framework, but perhaps on a less ad hoc basis than has been seen over the last few years.
- 180 China and the Unites States, while parties to the UNFCCC, have never made binding commitments under the Kyoto Protocol. New Zealand refused to commit to a second commitment period (see Tim Groser "New Zealand Commits to UN Framework" (Beehive, 9 November 2012) http://www.beehive.govt.nz/release/new-zealand-commits-un-framework-convention), though has indicated it is willing to be a part of binding commitments for Paris. Canada withdrew from the Kyoto Protocol in 2011 and at the time it was one of the highest emitters in the world.