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ASSESSING THE CLIMATE GOVERNANCE CONTRIBUTION AND FUTURE OF THE CLEAN DEVELOPMENT MECHANISM

GERARD KELLY

This Article assesses the contribution of the Clean Development Mechanism (CDM) to climate governance. The CDM emerged as the key offset mechanism under the Kyoto Protocol, but the mechanism’s contribution to climate governance has remained contested. This Article deconstructs the CDM by evaluating the dominant critiques of the mechanism before offering a synthesised perspective of the mechanism’s core design and operational defects. The implications of the Paris Agreement, particularly the prospect of a successor mechanism to the CDM, are evaluated and inform this Article’s vision of a reconstructed mechanism as an important component in the evolving carbon markets infrastructure. This Article recognises the potential for a reconstructed mechanism to continue to build a base of regulatory experience and provide learning-by-doing in less developing countries but suggests that its role should be more carefully circumscribed in the emerging framework under the Paris Agreement. Finally, this Article concludes by reflecting on reform of the mechanism and the potential contribution of such a reconstructed mechanism to climate governance.

Key words: Clean Development Mechanism; Paris Agreement; carbon emissions trading; linkage; climate governance.

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1 Introduction

Given the North American origins of emissions trading as a regulatory tool, it is perhaps unsurprising that the genesis of the Clean Development Mechanism is often attributed to the influence of the American delegation during negotiations of the Kyoto Protocol. Indeed, American negotiators had advocated the importance of flexibility in achieving emissions reduction commitments at the very first climate negotiations, under the auspices of the UN, in 1991. The importance of facilitating such flexibility was further emphasised during subsequent negotiations by successive US delegations (and those of other countries, such as Norway) and the resulting United Nations Framework Convention on Climate Change (UNFCCC) provided that Annex I countries could meet their emissions reductions goals “individually or jointly.” It was this language of flexibility which spawned the “flexibility mechanisms” introduced under the Kyoto Protocol, in the form of Joint Implementation (JI) and the CDM, effectively creating a legal framework to facilitate cooperation in the form of cross-jurisdictional collaboration.

The inclusion of flexibility mechanisms in the final text of the Kyoto Protocol was far from assured. As Werksman has observed, proposals with reference to project-
based joint implementation between Annex I and non-Annex I Parties ranged from “absolute prohibitions on joint implementation (Iran), to proposals that would have limited joint implementation to Annex I Parties only (EU), to a more detailed elaboration on the conditions under which Parties would be entitled to participate in project-based joint implementation (US)”.

In some quarters the CDM was so unexpected that it was initially greeted as the “Kyoto Surprise”. The mechanism has since evolved to form an important element of the global climate governance architecture but, as Section 2.3 explores, contribution of the CDM to this governance framework remains subject of intense contestation.

This Article deconstructs the CDM, critically assessing the contribution of the mechanism to climate governance before offering a vision of a reconstructed mechanism in a post-Paris Agreement landscape. Section 2 is structured with three sub-sections. Section 2.1 locates the CDM as the predominant offset mechanism to emerge from multilateral negotiations and provides an overview of the mechanism’s operation in practice. Section 2.2 evaluates the CDM’s contribution to climate governance and the success with which the mechanism has performed this function before considering the implications of this experience for the trajectory of climate governance. The CDM has been and continues to remain a controversial mechanism and Section 2.3 unpacks and considers the dominant critiques of the mechanism before advancing a synthesised analysis of the CDM’s key deficiencies.

Section 3 explores reconstruction of the CDM in view of the acknowledged criticisms. Section 3.1 considers the implications of the Paris Agreement and the emerging legal and operational framework under the Agreement within which any

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6 Werksman (n 3) 151.
reconstructed mechanism must develop. Section 3.2 considers the unilateral reforms which the EU has implemented regulating credits generated under the CDM and locates this reform within the context of reframing the mechanism as an instrument to facilitate graduated carbon reduction action. Sections 3.3 builds on the synthesised critique which this Article offers of the CDM’s deficiencies by advancing recommendations to reconstruct the CDM through reform of the normative function and operation of the mechanism. Section 4 concludes by reflecting on the broader post-Paris Agreement context for such reform and the potential contribution of a reconstructed mechanism to climate governance.

2 Deconstructing the CDM

2.1 Overview

It is possible to construct a global network of linkages indirectly by connecting emissions trading schemes to a shared offset programme, such as the CDM. In such circumstances, indirect linkages are forged when two schemes, A and B, which are not otherwise linked to each other, are separately linked to a third system. Since all carbon trading schemes to date have included provisions allowing for the use of offset credits in one form or another for compliance purposes, the emergence of indirect linkages between different emissions trading schemes is highly likely and has been described as “a foregone conclusion”. Indeed, even though restrictions governing the use of offsets may vary between schemes – an issue which is emerging as a critical

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focus of concern – all trading schemes to date have employed offsets in some capacity.\(^9\)

The CDM is not the only offset programme in existence, but it is certainly the most significant.\(^10\) As of 31 January 2018, over 7,980 projects have been approved since operationalisation of the CDM and approximately 1.9 billion offset credits have been issued.\(^11\) In essence, as one of the so-called “flexibility mechanisms” enshrined in the Kyoto Protocol,\(^12\) the CDM provides a market mechanism to permit Annex I countries to obtain offset credits to contribute, under Article 12 of the Protocol, to satisfying their domestic compliance obligations. Article 12(2) of the Kyoto Protocol further envisages that the CDM will facilitate non-Annex I countries in “achieving sustainable development”. A key underlying rationale for the CDM – that of economic efficiency – is consistent with the theoretical underpinning for emissions trading more generally.\(^13\) The text of Article 12 also conveys a confidence in the potential for partnership between environmental protection and economic growth by promoting sustainable development in developing countries, whilst simultaneously reducing greenhouse gas emissions on a global scale. This reframing of the relationship between the two core objectives of the mechanism is resonant of Porter’s celebrated hypothesis that environmental regulation can spur innovation and competitiveness.

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\(^10\) For example, South Korea has developed an offset mechanism which operates in tandem with the country’s national trading scheme, the Korean Emissions Trading Scheme (KETS). Participating entities in the KETS are only permitted to surrender offset credits which have been generated as a result of domestic projects (as opposed to overseas projects), so-called Korean Offset Credits (KOCs). See Younghun Choi ‘Korean Offset Market Development’ in ICIS, Carbon Markets Almanac 2016: Global Developments & Outlook (Reed Business Information Ltd, 2016) 58.


\(^12\) Article 12 establishes the Clean Development Mechanism, whilst Article 6 established Joint Implementation which, to date, has been an under-utilised mechanism.

rather than the static perspective that environmental protection is inevitably costly and without economic benefit.\textsuperscript{14}

The validity of the CDM’s underlying economic rationale is important: as Fankhauser and Hepburn have emphasised, ultimately the cost-effectiveness qualities of any particular approach to reducing emissions is likely to prove “critical to the success or failure of climate policy”.\textsuperscript{15} The glacial process of international climate negotiations, encompassing potentially fatal events such as the rejection of the Kyoto Protocol by the United States and the subsequent withdrawal of Canada, provides ample evidence that the international community’s collective willingness to pay is limited.\textsuperscript{16} Indeed, the failure of the United States to ratify the Kyoto Protocol has been largely ascribed to “concerns about substantial compliance costs and domestic voters’ low willingness to pay.”\textsuperscript{17} Moreover, the will to act remains only very weakly developed in most countries (and most spheres of life) and, as such, “[p]lainly, there is a mismatch between the apparent seriousness of the problem and our collective institutional response”.\textsuperscript{18} Consequently, the allure of a central promise of the CDM – the potential to unlock cost-effective carbon mitigation opportunities – should not be casually overlooked. This promise is consistent with the global nature of the climate change problem, since the territorial source of emissions (or reductions) is, from an


environmental perspective at least, irrelevant. In practice, this has allowed the CDM to search out low cost projects which (potentially) have a high climate change impact. Indeed, the identification of such projects underscores the strength of a market-based approach: the capacity to identify low-cost emissions reduction opportunities that may otherwise be overlooked.

2.2 The CDM as a Vehicle for Linkage

The potential of the CDM to foster linkages between and across emissions trading schemes is a recurring theme in research considering the CDM’s contribution to climate governance. To date, the implementation of linkage between emissions trading regulatory initiatives has been described as “understudied”, whilst “practice on linking remains in its early stages”. However, as more countries consider the adoption of emissions trading schemes, the concept of linkage is likely to increase in prominence. It is notable, for example, that over half of the Parties to the Paris Agreement indicated their intention to use or consider the use of market-based instruments from international, regional, or domestic schemes. Given this, the concept of linkage between emissions trading initiatives – what can be appropriately

19 Of course, this is not to disregard the fact that there are other relevant considerations which have also been recognised, such as equity, by way of the principle of common but differentiated responsibilities.
23 Sampo Seppänen and colleagues, Demand in a Fragmented Global Carbon Market: Outlook and Policy Options (Norden 2013) 56.
considered as within the definition of the term and how such linkages might develop – is of particular importance.25

The concept of linkage is often construed as denoting the specific context of the regulatory authority of one trading scheme allowing regulated entities to use allowances or emissions reduction credits generated from an offset scheme, such as the CDM, for the purposes of satisfying domestic compliance obligations.26 Haite’s articulation of this definition provides that “two national emissions trading schemes are linked if one country’s allowance can be used, directly or indirectly, by a participant in the other country’s scheme for compliance purposes”.27 This classic definition, however, has been undergoing reconsideration. Metcalfe and Weisbach, for example, advance an expansive definition of linkage which is not limited to emissions trading, but instead encompasses any “policies that allow regional or national carbon regimes to interact in such a way as to narrow or eliminate differences in the marginal cost of abatement between different regions or countries”.28 Burtraw and colleagues, in a persuasive study examining pathways and modalities of linkage, have articulated a definition which moves beyond the orthodox understanding by “expand[ing] the definition of ... linking to also describe the incremental alignment of various program elements across trading programs”.29 This Article both reflects and builds on the

28 Metcalfe and Weisbach (n 26) 113.
conceptualisation offered by Burtraw and colleagues by defining core convergence criteria to incrementally facilitate and guide pathways towards direct linkage.

Incrementalism, in this context, emphasises the prospect of constructing deep and durable climate governance arrangements through the gradual harmonisation of separate and diverse initiatives: in this context, within the sphere of emissions trading.\(^\text{30}\) Such progress, via fragmented and multi-speed efforts, has been described as Madisonian, and resulting in something akin to a global federalism of climate policy.\(^\text{31}\) An incrementalist approach, however, offers up the prospect of achieving progress – where possible – to advance the medium-term objective of a fully linked emissions trading network, whilst recognising the increasing urgency of ensuring that emerging market-based governance initiatives are not so disconnected so as to be incompatible with one another.

Linkage, as construed in this Article, is not only outcome-oriented, but extends to incorporating the process by which the outcome of direct linkage is advanced. Consequently, the process by which linkage is incrementally implemented – linkage by degrees – is properly within the definition of linkage.\(^\text{32}\) This conceptualisation also recognises that the process of linkage “does not have a final stage [and] will be ongoing.\(^\text{33}\) It is, for example, always open to sovereign jurisdictions to change their minds about climate policies and consequently linkage is not immutable.\(^\text{34}\)

The CDM is not a vehicle for implementing direct linkage, in the sense that the CDM is not a cap-and-trade scheme and therefore does not require the surrender of

\(^{30}\) Oran Young, ‘Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions’ in Elinor Ostrom and colleagues (eds), *The Drama of the Commons* (National Academies Press 2002) 263, 266.


\(^{32}\) Kelly (n 25) 68.

\(^{33}\) Burtraw and colleagues (n 29) 4.

allowances for compliance purposes. Instead, the CDM is a form of indirect linkage which can be said to occur under conditions where two schemes, A and B, are not linked to each other, but are separately linked to a third scheme, such as the CDM. Moreover, the CDM is not intrinsically an emissions reduction tool, but rather a voluntary market-based instrument which relies upon the rigour of participating countries’ commitment, collective and individual, to advance decarbonisation. The proportion of offset credits permitted for compliance purposes is inversely related to the degree of carbon reduction initiatives which must be undertaken domestically within any linked cap-and-trade scheme, such as the EU ETS. Consequently, the contribution of the CDM must remain carefully circumscribed to ensure that its role is supplemental to domestic carbon reduction action. Whilst the CDM’s performance is frequently the subject of critical commentary, the mechanism has developed a substantial constituency and it is likely that it will endure as a core component of the emerging framework under the auspices of the Paris Agreement.

In fact, it has been suggested that indirect linkage, via an emission-reduction-credit system such as the CDM, could develop as an important component – if not the key fulcrum – of the Paris Agreement’s emerging climate governance architecture.

The Marrakesh Accords, which operationalised the CDM, specifically provides that “the use of the [CDM] shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction

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35 Within the EU, Member States have traditionally varied with respect to the proportion of CERs which may be used for compliance purposes. German EU ETS participants can use up to 22% in CDM credits, whilst Slovakian EU ETS participants can only use up to 7%.


commitments”. The Accords did not define the degree of “domestic action” required, but this has been elaborated internally by some participating countries and regional economic integration entities, such as the EU. The EU adopted Directive 2004/101/EC which introduced a link between the EU ETS and the CDM. The Commission explained at the time that linkage with the CDM would “not only provide a cost-effective means for EU-based industries to cut their emissions but also create additional incentives for businesses to invest in emissions reduction projects elsewhere”. During Phase II of the EU ETS (2008-2012), Member States retained discretion to determine the rules relating to the use of offset credits generated under the CDM. As such, each Member State of the EU individually determined the percentage of offsets allowed (as a percentage of total allowances). The range of flexibility varied markedly between Member States from 0% in Estonia to 20% in neighbouring Lithuania (and Germany and Spain). Moreover, seven Member States (Germany, Spain, Italy, France, Poland, the UK and the Czech Republic) accounted for over 75% of total use across the EU.

The European Commission has since moved to harmonise the use of offsets within the EU. As a result, the exact amount eligible for use per operator until 2020 depends on whether or not the operator is a new entrant, but existing operators may only use such credits either up to the amount permitted to them in the period from

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42 ibid.
2008 to 2012 or to an amount corresponding to a maximum of 11% of its allocation in the period from 2008 to 2012, whichever is the higher.\textsuperscript{44} Yet, governance of the EU ETS remains highly contested and it is perhaps little wonder then that de Sadeleer has described this regulatory space as “oscillat[ing] between decentralisation and centralisation”.\textsuperscript{45}

Indirect linkage, however, of the kind facilitated by the CDM promotes incremental progress towards advancing more coherent climate governance arrangements. Indeed, Jaffe and colleagues have observed that the CDM and the linkage pathways which it provides already represent “key operational elements of the de facto global climate policy architecture”.\textsuperscript{46} The CDM’s potential to accommodate and positively encourage the evolution of a framework of indirect linkages should not be underestimated. Whilst lacking the comprehensiveness of a system of multilateral direct linkages between schemes, such a network of indirect linkages should still bring multiple advantages, including enhanced market depth and liquidity, cost savings, and strengthening international collaboration in climate governance. Initiatives which nudge the world gradually towards more rigorous emissions reduction commitments are now emerging as a key priority in climate governance, particularly given the highly decentralised character of the Paris Agreement. This Article emphasises that, if appropriately reconstructed, the CDM could favourably contribute to advancing a network of bottom-up indirect linkages.

In particular, such a reformed CDM could facilitate enhanced participation in market-based climate governance.\textsuperscript{47} In this sense, the contribution of the CDM may

\textsuperscript{44} ibid, Article 1(1).
\textsuperscript{46} Jaffe, Ranson and Stavins (n 37) 802.
\textsuperscript{47} ibid.
be better viewed as representing an important staging post in the transition towards adoption of more rigorous carbon trading initiatives, such as cap-and-trade schemes. However, if normatively reconfigured and operationally reconstructed as Section 3 advocates, the CDM could act as an engine to incrementally promote the wider adoption of market-trading and the implementation of direct linkages between emissions trading schemes. The aspiration of incremental climate governance advanced in this Article emphasises the development of a global network of interconnected emissions trading schemes, but as this Section acknowledges, the process by which this network evolves may also properly be accommodated within the concept of linkage.\(^\text{48}\) Harnessing the potential of the CDM to make a durable contribution to climate governance requires reconceptualising it as a fluid instrument, rather than accepting the mechanism as a static regulatory fixture with a fastened participant pool. As Section 3.3 discusses, this will involve – albeit in different ways – both scaling-up and scaling-down the CDM. Such repositioning will require a sharper regulatory focus on the CDM’s capacity to enhance opportunities to facilitate and incentivise the integration of non-participating countries in the emerging carbon market infrastructure.\(^\text{49}\) Importantly, this Article does not advocate the marginalisation of the CDM, but rather that for the CDM to properly contribute to climate governance, it is important to recognise the deficiencies embedded in the current structure of the mechanism, as unpacked and evaluated in Section 2.3. The strategic re-evaluation of the normative role of the CDM advanced in Section 3 envisages reconceptualising the mechanism as an instrument which facilitates access to market-based climate governance experimentation and promotes graduated participation pathways.

\(^{48}\) Burtraw and colleagues (n 29) 4 and Kelly (n 25) 68.

2.3 The Experience of the CDM: A Critical Reflection

The CDM has been the subject of significant criticism which ranges from ethically-based objections to the intrinsic market nature of the mechanism to concerns which instead focus on perceived flaws in the functioning of the mechanism. This Section briefly surveys the key prevailing critiques before this Article progresses to consider approaches to reconstruct the CDM. In the context of evaluating how these critiques should inform the future development of the CDM, it is also timely and necessary to assess the potential implications of the Paris Agreement. It is not the purpose of this Section to exhaustively itemise and discuss every defect or criticism of the CDM which has emerged in the literature: such a task would be beyond the scope of this Article. However, it is necessary to understand the key deficiencies identified in the literature in order to recommend reforms to enhance the contribution of the CDM to climate governance.

2.3.1 Revisiting the Ethical Objections to Market-Based Instruments

Market-based mechanisms are increasingly acknowledged as a “necessary component in the policy toolbox” in climate governance. However, a considerable volume of criticism continues to challenge the perceived intrusion of economic principles into environmental value determinations. Heynen and colleagues, for example, criticise the “failed logic of neoliberalism and its ravenous craving for

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markets, commodities, and sites of accumulation across the planet”.

Constituencies critical of the potential contribution of economic-incentivised approaches exist beyond scholarly debate and, as Marcu has observed, during the Paris negotiations some parties demonstrated an “ideological opposition … to include any provision that referred to markets or could be seen as facilitating markets in the Paris Agreement”.

However, the contestation of carbon markets has been an important driver shaping the evolution of these markets and iterative improvement through learning and experimentation is a dynamic feature of an incrementalist vision of climate governance. Such critical voices are important reminders that the case for market trading enjoys uneven support and that proponents of emissions trading schemes must justify their approach with increasing clarity in both the quality of their arguments and the functionality of such schemes in practice. Such justification is of heightened importance since, although neither the concept nor practice of emissions trading is new, “carbon markets on the scale, ambition, and planetary importance of those currently emerging have never been seen before”.

Like carbon trading more generally, the CDM has attracted significant criticism. The mechanism has been described as facilitating “cheap carbon dumps”, “resource-wasting and corruption-inducing”, and an “attempt to provide a new system of legitimation and accumulation that enable the status quo of capitalism to continue”. However, a consistent theme in the literature reveals a philosophical

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54 Fankhauser and Hepburn (n 15) 4386.
57 Steffen Böhm and Siddhartha Dabhi, ‘Upsetting the Offset: An Introduction’ in Steffen Böhm and Siddhartha
opposition to the role of economic incentivisation generally (and market trading specifically) in the realm of environmental protection. Such criticisms are less based on contesting the effectiveness of emissions trading – though from time to time the battlefront for engaging with the concept of emissions trading moves onto such substantive terrain – but rather the normative rationale underpinning emissions trading.

Goodin’s critique, for example, challenges the concept of economic instruments by drawing an analogy with the medieval Church’s sale of religious indulgences. He has admonished “environmental indulgences” as the “sale of the unsaleable”, challenging what he characterises as the presumptuous right that “any human being [can] grant indulgences on behalf of Mother Nature”. The notion that an environmental wrong may be rendered right merely by payment, in Goodin’s view, presents further grounds for objection. As he explains: “The problem with green taxes or pollution charges or permits… is that they seem to say, ‘It is okay to pollute provided you pay’, when the proper message is instead, ‘It is wrong to pollute, even if you can afford to pay’”. It is this failure to stigmatise such pollution in moral terms which many scholars critical of economic instruments find deeply unsettling. Humphreys has aptly expressed the concern that “[a] certain quotient of environmental harm is so fundamental to the economy that it is not visible as ‘harm’ at all: it is to be contained and directed rather than avoided”. Consequently, for some scholars, as Dryzek has acknowledged, “[n]o matter how attractive economic prescriptions may be in

58 Significantly, Robert Goodin also recognised that "environmentalists ought to be realists... [t]hey ought not go tilting at windmills": see Robert Goodin, ‘Selling Environmental Indulgences’ (1994) 47(4) Kyklos 573, 592.
59 ibid 579.
60 ibid 578.
61 ibid 582.
instrumental terms, even to committed environmentalists, they help constitute a discourse, and a world, which those according higher priority to citizenship, democratic and ecological values find unattractive”.

Consequently, it is important to distinguish such philosophical critiques about the contribution of market-based instruments in climate governance from substantive concerns which have been articulated about the functioning of the CDM. This is not to diminish the import of the philosophical challenge to the increasing centrality of economic instruments in climate governance, nor is it to suggest that philosophically-based objections are disconnected from broader questions concerning the successful implementation in practice of economic instruments. Indeed, Dobson’s critique of economic incentivised environmental governance focuses on the concern that such a model is unlikely to unlock the fundamental and substantive changes in behaviour that a sustainable society requires.

Yet the urgency of the underlying science of climate change requires engagement with the reality as it is now in 2018, not as we might like it to be and, as Hepburn has cautioned, “critics of market-based approaches often struggle to articulate a credible and politically feasible alternative”. Advocating a pre-eminent role for emissions trading in addressing climate change does not imply the uncontested normative superiority of such a regulatory approach, but rather advances the more modest yet no less crucial claim that the market can be successfully deployed in an instrumentalist manner to secure carbon reduction objectives which are

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65 Dobson instead argues that ecological citizenship is an underexplored route to environmental sustainability and suggests that ecological citizens will have a deeper commitment to sustainability than those whose only motivation to sustainable behaviour is fiscal dis/incentives: see Andrew Dobson, *Citizenship and the Environment* (Oxford University Press 2003).

mandated by the state. To this end, Zapfel and Vainio are correct to caution that “[t]he creation of a market by government intervention is not an end itself, but a technical tool to the end of achieving an environmental target at lower cost”.67

2.3.2 The Challenge of Additionality

The authenticity of emissions reductions claimed to have been achieved by the CDM has been challenged with the suspicion that “some proportion of the credited activity would have happened even without the CDM”.68 One classic case study, for example, has centred on projects reducing HFC-23 emissions which have comprised a significant proportion of all CDM projects.69 Since HFC-23 is an extremely damaging greenhouse gas – 14,800 times more potent than carbon dioxide – mitigation efforts are certainly desirable.70 As early as 2007, the largest volume of credits, almost 30% of the entire CDM market, had come from capturing and destroying HFC-23.71 Whilst his should have been a welcome development, cutting HFC-23 emissions is a relatively inexpensive process and concerns were raised that the significant dividends which were possible under the CDM ultimately created perverse incentives for generating more HFC-23.72 Wara concluded that a more efficient alternative approach to cutting HFC-23 emissions would have simply been to pay for the additional costs of technologically upgrading the plants.73 He estimated that this would have cost

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68 Hepburn (n 66) 415.
71 Wara, ‘Is the Global Carbon Market Working?’ (n 69) 595.
73 Wara, ‘Is the Global Carbon Market Working?’ (n 69) 596.
approximately €100 million, considerably less than the €4.7 billion credits generated, whilst Schneider suggested a suite of options, including the creation of an independent intermediary or multilateral institution to fund HFC-23 destruction projects. Yet it is far from clear that fitting the necessary equipment to remove HFC-23 from industrial projects would have happened without an incentive to do so. A persuasive argument remains that by incentivising opportunities for low-cost emissions reductions that had not otherwise been identified (much less mitigated), the CDM was in fact merely doing precisely that which it was designed to do. The CDM Executive Board has since amended its rules to reduce the risk of perverse incentives by excluding new greenfield HFC-23 projects and the EU adopted Commission Regulation 550/2011 which prohibits the use of offset credits generated by projects involving the destruction of either HFC-23 (or nitrous oxide).

Concerns continue to focus, however, on whether the deficiencies revealed by the discrete circumstances of HFC-23 destruction products could have significance beyond the scope of such projects. Central to such concerns is the obligation, imposed by Article 12.5(c) of the Kyoto Protocol, that reductions in emissions must be “additional to any that would occur in the absence of the certified project activity”. This requirement, framed as the concept of “additionality”, has proven particularly taxing in practice and risks perverse incentivisation. At present, offset credits for projects under the CDM should only be allocated in circumstances where it has been demonstrated that emissions reductions relative to a hypothetical “no project” baseline

74 ibid.
75 Schneider (n 72) 861.
76 Grubb, Laing, Counsell and Willan (n 20) 557.
77 ibid 560.
will be achieved. The process of determining the appropriate allocation of credits requires calculation with reference to a theorised baseline, but the construction of this baseline necessarily involves a counterfactual assessment of a hypothetical business-as-usual alternative scenario. As a result, determining the presence or absence of additionality, which is only ever possible by reference to this theorised alternative, is necessarily speculative and highly complex. However, confirming the presence of additionality is legally important precisely because it is specifically mandated by Article 12.5(c) of the Kyoto Protocol.\textsuperscript{80} The process of assessing additionality is further complicated by the potentially uneasy alignment of interests: the generator and buyer of credits have an incentive to facilitate both the approval of projects and the maximisation of credits issued for such projects. Consequently, a real risk of perverse incentivisation to manipulate what is an unobserved and essentially unobservable baseline exists.

The additionality requirement imposed by Article 12.5(c) of the Kyoto Protocol has proven controversial and, with sustainable development, one of the more challenging features in the implementation of the CDM. Some studies, for example, suggest that as many as 40\% of all CDM projects may have been non-additional.\textsuperscript{81} Grubb and colleagues surveyed estimates of the extent of additionality in different project classes and found “an extraordinary range of opinion ranging from deep scepticism to a broad view that... almost all approved projects are likely to be genuinely additional”.\textsuperscript{82} However, whilst the precise percentage of projects characterised by dubious additionality remains open to debate, there is a consensus

\textsuperscript{80} ibid.
\textsuperscript{81} Schneider (n 72) 862.
\textsuperscript{82} Grubb, Laing, Counsell and Willan (n 20) 567-571.
in the literature that at least some proportion of projects have not adhered to the additionality obligations of Article 12.5(c).

Such concerns have given rise to observations that “market participants [are] behaving strategically to generate credits for activities that do not merit them”. Lohmann has gone further, challenging the very concept of additionality: “there is no such thing as ‘additionality’ or ‘non-additionality’, and thus no standard that either market participants or regulators could use either to clarify the accounting rules or to prevent scamming”. Given the centrality of additionality in the text of Article 12, the Executive Board – the decision-making authority which oversees the CDM – has striven to develop procedures for ascertaining and assessing the presence of such additionality. However, as the Executive Board examines additionality on a project-by-project basis, this has resulted in the proliferation of a series of methodologies to determine the emissions reductions from and additionality of different kinds of projects. Indeed, it has been observed that over a hundred different methodologies to assess additionality have been approved to date with many still pending. In some quarters this assessment process has now become ingrained with criticism of the CDM and has been described as “tangled in red tape” and “verifying the unverifiable”.

In many cases additionality determination remains a “tricky exercise in establishing a credible counterfactual” and presents a challenging friction which Grubb and colleagues have characterised as the “additionality paradox”: the more cost-effective the project, the more uncertain the additionality.

85 Grubb, Laing, Counsell and Willan (n 20) 557.
87 Buiter (n 56).
89 Grubb, Laing, Counsell and Willan (n 20) 558.
concerning that the inherent complexity of this process has imbued the CDM with an esoteric flavour which is at best unhelpful by undermining confidence in the contribution of market-based mechanisms to climate governance and at worst potentially a vehicle for carbon fraud.

2.3.3 **Sustainable Development**

A further complexity which has complicated operation of the CDM is the requirement under Article 12.2 of the Kyoto Protocol that offset projects must assist non-Annex I countries “in achieving sustainable development”. In this respect, the Protocol envisages that the CDM is not only a mechanism to assist Annex I countries in complying with their greenhouse gas reduction targets. Significantly, Article 12.2 does not contain either an express or implied hierarchy of purposes. In practice, however, the objective of assisting in achieving the sustainable development objective has turned out to be the poor relation.

The concept of sustainable development is intended to “embrace the idea of ensuring that future generations inherit an Earth which will support their livelihoods in such a way that they are no worse off than generations today”.⁹⁰ The formulation framed by the World Commission on Environment and Development (Brundtland Commission) in 1987 is perhaps the most widely recognised to date: “Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”.⁹¹ As such, sustainable development

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seems to have a focus on the future. The Johannesburg Declaration 2002 reaffirmed a collective responsibility to promote and strengthen the interdependent and mutually reinforcing pillars of sustainable development, economic development, social development and environmental protection at the local, national, regional, and global levels.

At the Rio+ 20 conference, sustainable development was (re)conceptualised as comprising three mutually reinforcing dimensions: environmental protection, social development, and economic development. Whilst these elements capture the essence of the concept and provide value by identifying the relationship between environmental protection and economic and social development, the operationalisation of sustainable development, precisely how it should be measured, and the implications of implementing it have proven much more elusive. The inchoate nature of the concept has made it difficult to implement in practice and efforts to operationalise it have generated "a new set of 17 Sustainable Development Goals (SDGs), with 169 targets and potentially many more indicators". It is perhaps little wonder then that Bosselmann has observed that the concept “resists definition and avoids the hard questions, which is precisely why it has become so popular among governments”.

Neither the Kyoto Protocol nor Paris Agreement have engaged with, much less clarified, the innately ambiguous nature of sustainable development. This lack of a common understanding has created troublesome questions for the operation of the

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CDM and, irrespective of the merits and achievements of the CDM more broadly, the objective of promoting sustainable development has been largely relegated to the realm of rhetoric. The challenge, however, may be much deeper: the real problem may ultimately lie with the very design of the CDM. As Pearson has observed, the “first mandate to help reduce Kyoto compliance costs is all but making impossible the fulfilment of its second mandate to promote sustainable development”. The implications of such conflict at the heart of Article 12.2 are significant. The sustainable development dimension of the CDM has not been incorporated into the market dynamics of the mechanism meaning that contributions to sustainable development produce no monetary value under the CDM. This raises existential questions about the viability of the sustainable development objective, particularly in circumstances where it is so fundamentally disconnected from the surrounding architecture of the mechanism, a theme this Article engages with in Section 3.3.

In practice, it is the host country which determines whether a proposed CDM project advances sustainable development. Since whether sustainable development is (or is not) present in any project is a matter for each individual country to determine, this means that sustainable development will continue to defy precise definition. Under the Marrakesh Accords, host countries are required to establish Designated National Authorities (DNAs) which are tasked with evaluating and approving proposed CDM projects and determining whether a project will assist in achieving sustainable development. The South African DNA explicitly emphasises that “[t]he CDM procedures leave the definition of what sustainable development means as a

sovereign decision of each developing country”, but this practice further balkanises any understanding of sustainable development. Consequently, given the ill-defined nature of sustainable development, it is inevitable that further definitional fragmentation will develop as both criteria and assessment practices diverge.

The South African definition requires “the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure that development serves present and future generations”. Significantly, the South African Constitution contains strong language capturing the importance of sustainable development, whilst falling short of providing a constitutional right. As such, it is reasonable to assume that the presence of constitutional and statutory anchors for sustainable development in South Africa create a very different landscape for assessing CDM projects as compared to many other developing countries. In China, for example, “there are no explicit social and economic guidelines of sustainable development for CDM projects”. Understandably, this has led some scholars to observe that the “sustainability criteria applied by host countries usually lack specificity, transparency, and stringency”.

The unbounded scope now afforded to individual countries to form highly divergent sustainable development determinations seriously risks undermining the maintenance of complementarity in climate governance. Evidence already indicates

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101 National Environmental Management Act 1998 (South Africa), s 1.


104 Aggarwal and Aggarwal (n 92) 90.
that serious questions exist regarding the sustainable development qualities of many CDM projects.\textsuperscript{105} Disch evaluated the merits of 122 CDM projects with respect to 15 sustainable development metrics and across a diverse pool of developing countries, including China, India, Peru, Brazil, Malaysia, and South Africa.\textsuperscript{106} He discovered that Peru, exceptionally amongst the sample countries studied, adopted an approach to project approval which was characterised by on-site visits and interviews with local stakeholders.\textsuperscript{107} Each of the other five countries confined their analysis to desk-based sustainability checks. Dirsch concluded that all of the host countries’ frameworks for CDM project approval, with the notable exception of Peru, fell short of ensuring a sustainable development benefit.\textsuperscript{108} Separately, Sutter and Parreño have concluded that CDM projects “may be far from delivering their claims to promoting sustainable development”,\textsuperscript{109} whilst Baumert recommended that “policy interventions of the kind precluded by CDM rules”\textsuperscript{110} may be required to genuinely assist developing countries in achieving sustainable development.

It is quite clear that the elephant in the room remains the lack of definitional clarity regarding what sustainable development requires (at the very least, in the context of the CDM) and how we might objectively, with some degree of confidence, assess it. After analysing 400 CDM projects in the waste management sector, Siebel and colleagues concluded that “[m]ost projects do not bridge the two objectives of CDM projects”, a reality which only reinforces the concerns which had emerged since

\textsuperscript{105} For example, Pearson has suggested that an offshore oil production facility in Vietnam and two coal mines in China had claimed over 17 million CER credits for “capturing and using the methane released as part of their operations”: see Pearson (n 97) 249.


\textsuperscript{107} ibid 54.

\textsuperscript{108} ibid.


the earliest days of the CDM. Their suggested reform – “the need for an international standard for sustainability assessment additional to national definition” – is a timely reminder that the CDM, as presently constituted, simply cannot provide assurance of projects’ sustainable development qualities. It is also consistent with Dirsch’s concern that “no common criteria” have been agreed to assess sustainable development. In the absence of reform, rather than maintaining the fiction that the CDM’s architecture can deliver emissions reductions and sustainable development, it is preferable to acknowledge that the CDM, in its current structure, cannot successfully fulfil this dual objective. Section 3.3 revisits this theme, within the context of the Paris Agreement, to explore the potential of post-Paris pathways to provide greater clarity regarding the concept and contribution of sustainable development.

2.3.4 Geographic Concentration of Projects

The Kyoto Protocol is silent with respect to any expectations, much less obligations, regarding the regional distribution of CDM projects with the binary Annex I/non-Annex I categorisation instead prevailing as the core distinction. However, the Marrakesh Accords which, inter alia, provide the operational technicalities for the functioning of the CDM, specifically envisage an “equitable geographic distribution of clean development mechanism project activities at regional and subregional levels”. Indeed, the issue of promoting equitable regional distribution of CDM project activities

112 ibid.
113 Dirsch (n 106) 62.
has remained a recurring theme, yet CDM projects – and the ensuing associated financial flows – have been highly concentrated in only a few advanced developing countries. As of 2014, China, India and Brazil hosted 6613 projects in the pipeline which accounted for approximately 74% of all projects and of expected annual CDM generated offsets, whilst least developed countries (LDCs) hosted just 105 CDM projects in the pipeline (1.2%).

China has attracted the lion’s share of foreign investment opportunities created by the CDM and alone generates almost 60% of all offset credits.

The drivers behind this geographic bias are complex and certainly reach beyond the architecture of the CDM. For example, developing the national governing procedures required under the CDM raises considerable administrative challenges and the complexity of the CDM project cycle and high transaction costs which are entailed make it comparatively more difficult for poor countries. Moreover, the development of a domestic environment conducive to fostering CDM investment is a difficult and resource-intensive effort which simply may not make sense for some countries. However, irrespective of these multi-faceted drivers, the outcome has been the development of a market mechanism which little resembles the equitable distribution vision of the Marrakesh Accords and is incompatible with the expansive global role which many policymakers and scholars envisaged for the CDM.

It is concerning that such skewed distributional flows have been evident from the earliest days of the CDM. The near total absence of African countries from the offset credits market was identified as far back as 2007, with only notable exceptions

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117 Vichit Petersen and Bollerup (n 114) 81.
118 Castro (n 116) 5.
of South Africa, the Maghreb countries, and a few sub-Saharan countries.\textsuperscript{120} Whilst this pattern is consistent with prevailing foreign direct investment (FDI) flows, it is no less disquieting. Clearly FDI preferences reflect broader conditions which are influential to the overall investment climate, such as political stability, institutional capacity and macro-economic security, but it is disappointing that many of the poorest nations which have been unable to attract FDI flows appear to have been similarly unable to attract significant interest in investment in CDM projects either.\textsuperscript{121}

The extent of the impact of DNAs in the process of attracting CDM investment has yet to be fully evaluated. However, a number of countries have expanded the role of their DNAs beyond that of evaluating and approving proposed CDM projects. Additional functions including outreach initiatives to promote and actively attract CDM investment and proactive engagement in the assessment of projects with the proposing entity demonstrate an attentive and strategic approach to maximising financing under the CDM. Such an approach is in marked contrast to jurisdictions which have instead treated the role of the DNA as merely an appendage to an existing process, such as environmental impact assessment. For example, the Ugandan DNA, whilst now located within the Ministry of Water and Environment,\textsuperscript{122} was originally outsourced to a private agency.\textsuperscript{123} It is clear that current institutional capacity between potential CDM host countries is uneven, but the internal priority which a potential host country allocates to attracting and developing CDM projects is likely to enhance its prospects of attracting such CDM investment.\textsuperscript{124}

\textsuperscript{123} Ellis, Winkler, Corfee-Morlot and Gagnon-Lebrun (n 121) 21.
\textsuperscript{124} ibid.
The failure of the CDM to fulfil the “equitable geographic distribution”
expectation of the Marrakech Accords raises serious concerns. The intervention of the
ten UN Secretary General, Kofi Annan, by pioneering the “Nairobi Framework”, an
initiative aimed at strengthening Africa’s position in attracting CDM investment,
demonstrated the concern of the international community regarding the operation of
the CDM, but as recent research has revealed, this initiative has failed to significantly
redress the gross geographic imbalance.\textsuperscript{125} Despite the enhanced technical
assistance provided to less developed countries under the Nairobi Framework, CDM
investment continues to gravitate towards countries such as South Africa which have
already cultivated a more favourable investment climate.\textsuperscript{126} Changing this landscape
will continue to prove difficult and provides a salient reminder of the challenges
afflicting the CDM in its current guise. These challenges further underscore the
importance of meaningful consideration of options for reform such as those defined
and advanced in Section 3.1.

3 Reconstructing the CDM

3.1 The Paris Agreement: A New Mechanism or “Reborn
CDM”?\textsuperscript{127}

The Paris Agreement has received a mixed reception.\textsuperscript{128} The Agreement successfully
entered into force on 4 November 2016, thirty days after ratification by at least 55

\textsuperscript{125} Castro (n 116) 27
\textsuperscript{126} Alfred Byigero, Joy Clancy and Margaret Skutsch, “CDM in Sub-Saharan Africa and the Prospects of the
\textsuperscript{127} Marcu (n 53) 18.
\textsuperscript{128} Kinley has welcomed the Agreement observing that “[w]ith the adoption of the Paris Agreement, and the
directional signal provided by the long-term goal, we can now look forward to … a new sustainable growth model
that is becoming a virtuous circle of action”: see Richard Kinley, “Climate Change After Paris: From Turning Point
Parties to the Convention accounting for at least an estimated 55% of the total global greenhouse gas emissions. At the time of writing, however, the future of the Agreement remains uncertain. As Young has observed, “changes in the composition of governments can bring to power officials who did not participate in the creation of a regime and have little interest in fulfilling obligations undertaken by their predecessors”. In this respect, the announcement by President Trump of his administration’s intention to withdraw from the Paris Agreement is a case in point. As the Republican presidential candidate, he was severely critical on the campaign trail of both the underlying science of climate change and, specifically, the Paris Agreement, even if subsequent to his election, he observed that he had “an open mind” regarding the Agreement. It is little wonder then that concerns had been voiced that the Paris Agreement was vulnerable to the prospect of American withdrawal and that a “non-party US could lethally wound [it]”. With the EU having subsequently ruled out any prospect of re-opening negotiations, the US administration’s timeframe to initiate withdrawal remains to be clarified. The administration’s reluctance (to date) to impose a definitive timeframe for withdrawal from the Paris Agreement may yet prove significant given that the implementation of

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129 Article 21.1 provides the mechanics for the Agreement entering into force. It sets forth an entry threshold of 55 Parties depositing their ratification instrument with the depositary (the Secretary General of the United Nations) accounting in total for at least an estimated 55% of total greenhouse gas emissions.  
130 Young (n 30) 277.  
dramatic policy shifts within the US federal regulatory system often proves a challenging undertaking.\textsuperscript{136}

The Paris Agreement requires significant practical outworking with “many elements of [it] need[ing] to be fleshed out, including rules, modalities, and guidelines.”\textsuperscript{137} American disengagement – should the Trump proceed towards withdrawal – could prove particularly problematic, especially during the period of the coming years when renewed international efforts are necessary to elaborate an implementation framework. It is likely to prove particularly challenging, for example, to deepen and further elaborate the international climate governance framework “by somehow passing over or actively excluding the USA”.\textsuperscript{138} In this context, it is important to recall that the Kyoto Protocol continues to provide the international climate governance architecture until 2020. The Protocol will then be replaced by arrangements – which at the time of writing remain to be defined – under the Paris Agreement, but it is clear that the elaboration of these arrangements will require countries to “revisit potentially contentious issues and agree on specificities”.\textsuperscript{139}

However, unlike the Kyoto Protocol, the Paris Agreement does not define absolute and economy-wide emissions reduction targets, nor does it require only a limited number of industrialised countries to take on carbon reduction obligations.\textsuperscript{140} Indeed, it has been observed that “[w]ith the Paris Agreement, international negotiations have now officially given up on any attempt to categorise countries and

\textsuperscript{137} Bodansky (n 24) 291.
allocate specific emissions reduction targets”. Instead, the Agreement provides a “politically acceptable structure and process through which all countries can play their part and tighten their commitments over time”. For the purposes of this Article, it is helpful to focus specifically on the potential implications of the Paris Agreement for the CDM.

Given previous multilateral negotiations, it had been clear that issues surrounding the future of the CDM, particularly the prospect of a successor mechanism, would feature prominently in any post-Kyoto arrangements. It has been observed, for example, that there was broad consensus in international talks on the need for perpetuation of the CDM in any post-2012 climate change regime. However, Article 6 of the Paris Agreement, which addresses the contribution of markets (and, incidentally, non-market contributions) was “one of the last issues to be agreed”. This has been attributed to a number of factors including the desire of some countries to delay agreement on markets to trade against issues of importance to them; lateral connections with other draft provisions; and, the perceived, as well as very real, importance of environmental integrity.

Article 6 establishes “a mechanism” which the accompanying Decision recommends should build upon the “experience gained with and lessons learned from existing mechanisms”. Article 6.4 of the Agreement further elaborates that the mechanism will be supervised by a body established by the Parties to the Agreement. The accompanying COP decision to the Paris Agreement provides a detailed work

141 Streck, Keenlyside and von Unger (n 138) 27.
142 Viñuales, Depledge, Reiner and Lees (n 95) 7 (emphasis original).
144 Marcu (n 53) 1.
145 ibid.
146 Decision 1/CP.21, para 37(d).
programme to define the modalities and procedures of the mechanism.\textsuperscript{147} However, Article 6.4 identifies the four key aims of “a mechanism … to contribute to the mitigation of greenhouse gas emissions and support sustainable development”:

(a) to promote the mitigation of greenhouse gas emissions while fostering sustainable development;
(b) to incentivise and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorised by a Party;
(c) to contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emissions reductions that can also be used by another Party to fulfil its nationally determined contribution;
(d) to deliver an overall mitigation in global emissions.

Whilst some scholars in the emerging post-Paris literature have described the mechanism as the Sustainable Development Mechanism (SDM), the true nature of the instrument remains to be defined.\textsuperscript{148} Through Decision 1/CP.21 the Parties to the Paris Agreement decided on a “work programme” to be undertaken in preparation for the full implementation of the Paris Agreement. Under this work programme, further development of the successor mechanism has been assigned to the Conference of the Parties to the Paris Agreement and the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC.\textsuperscript{149} It has been suggested that the CMA may yet “approve a reborn CDM (CDM+) and accept the argument that this is the ‘a mechanism’ referred to in paragraph 6.4”.\textsuperscript{150}

\textsuperscript{147} Decision 1/CP.21, para 36 – 40.
\textsuperscript{148} Torbjørn Jevnaker and Jørgen Wetttestad, ‘Linked Carbon Markets: Silver Bullet, or Castle in the Air?’ (2016) 6 Climate Law 142, 150.
\textsuperscript{149} Decision 1/CP.21, para 36 and para 37.
\textsuperscript{150} Marcu (n 53) 18.
The term “successor mechanism” is adopted here.
It is clear that the language of Article 6 reveals important similarities between the CDM and the successor mechanism. The successor mechanism is envisaged as operating under the authority and guidance of the CMA and Article 6.4 provides that it shall be supervised by a body designated by the CMA. This is consistent with the architecture currently governing supervision of the CDM and, in particular, the role of the CDM Executive Board. The presence – and perhaps even enhanced importance – of the concept of sustainable development in Article 6 is also consistent with the CDM. It is notable that reference is made to sustainable development twice in Article 6: the nature of the successor mechanism is defined with reference to sustainable development, whilst “fostering sustainable development” (together with “promot[ing] the mitigation of greenhouse gas emissions”) is identified within its first aim. As this Article has emphasised, the operationalisation of sustainable development in relation to the CDM has proven particularly unsatisfactory, a theme revisited – in the context of the successor mechanism – in the concluding paragraph of this Section. It is also significant that the accompanying COP decision, which outlines a detailed work programme with respect to the successor mechanism, includes reference to additionality.\(^\text{151}\) In addition, it has been suggested that the successor mechanism may “play the part that the CDM played in the past of creating an indirect link between carbon markets through offsetting”.\(^\text{152}\)

Whilst it remains too early to determine with precision the nature of this successor mechanism, there is a strong possibility that it could share many similarities with the CDM, particularly with regard to design features and, relatedly, with respect to its likely function within the broader climate governance framework. The text of Article 6, however, also creates potential for a successor mechanism to diverge from

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\(^\text{151}\) Article 37(d) of Decision 1/CP.21.
\(^\text{152}\) Jevnaker and Wettestad (n 148) 150.
the CDM as currently constructed. First, under Article 6 there is no distinction between developing and developed countries and this suggests that any country could be: (i) a host country and/or (ii) a country which may use the output (ie likely credits) generated under the successor mechanism. Second, the fourth aim of the successor mechanism “is to deliver an overall mitigation in global emissions” which suggests that, unlike the CDM, avoided emissions growth alone will not suffice. These changes could have very real implications for how the successor mechanism evolves and signal a potential point of departure from the current CDM. However, it remains unclear how or whether this lack of distinction between developing and developed countries will be operationalised. Article 6.6 mandates that the CMA “ensure that a share of the proceeds from activities under the mechanism … is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaption”. 153

Given the absence of host country eligibility criteria, it is possible that the successor mechanism could facilitate broader coverage, yet Article 6.6 strongly suggests that the Parties’ intention has been to refocus financial flows generated under the mechanism towards countries “particularly vulnerable to the adverse effects of climate change”. Similarly, Article 6 does not restrict access to the product of the successor mechanism. Marcu has suggested that many countries “felt that while they may not need, or want, to use the [mechanism’s] output at this time, in an increasingly constrained post-2020 climate change regime, they would want to keep all options open”. 154

It is possible that preferences regarding participation coverage may emerge as the modalities and procedures of the successor mechanism are elaborated by the

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154 Marcu (n 53) 17.
CMA and the SBSTA.\textsuperscript{155} As Section 3.3.2 emphasises, this Article favours progress towards a reconstructed CDM which prioritises the participation of LDCs and it is clear that the Paris Agreement is not inconsistent with such a prospect, even if the language of Article 6 is more open-ended regarding participation. The Paris Agreement does not prevent, for example, the development and implementation of modalities and procedures enhancing the eligibility of LDCs as host participants. Such an approach would be consistent with Article 6.6, whilst simultaneously creating a disincentive for non-LDC participation. This approach would advance the vision of a reconstructed mechanism which prioritises the participation of LDCs, whilst promoting graduated integration commensurate with capacity, within a broader carbon trading framework.

As part of such an approach, the credibility of small-scale projects under the CDM pipeline in LDCs should be enhanced.\textsuperscript{156} There is some evidence that this perspective is gaining prominence within the work of the SBSTA with recent informal draft documentation published by the SBSTA Chair incorporating language acknowledging that “the special circumstances of the least developed countries and small island developing States as set out in Article 4, paragraph 6, to be recognised where these rules, modalities and procedures relate to NDCs”.\textsuperscript{157}

Before concluding analysis of the potential implications of the Paris Agreement for the CDM, it is necessary to revisit the concept of sustainable development. As observed at the outset of this Section, sustainable development continues to occupy a prominent position within the text of Article 6. It is ominous that the “embedded

\textsuperscript{155} Through Decision 1/CP.21, the Parties to the Paris Agreement decided on a “work programme” to be undertaken in preparation to the full implementation of the Paris Agreement. Further development of the successor mechanism has been assigned to the SBSTA.

\textsuperscript{156} Aggarwal and Aggarwal (n 92) 95.

\textsuperscript{157} SBSTA Chair, ‘Informal document containing the draft elements of the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement’ (Informal document by the Chair), 16 March 2018, para 8 <http://unfccc.int/documentation/documents/advanced_search/items/6911.php?priref=600009957>, accessed 31 March 2018.
dysfunctionality” of the dual objective at the core of the CDM survives (and, potentially, has been enhanced) in the Paris Agreement.\textsuperscript{158} As Marcu has observed “[d]ifferent interpretations of sustainable development lead to a sense of arbitrariness and subjectivity in decision-making”.\textsuperscript{159} This Article has emphasised this concern and it is unnecessary to retrace those steps again but, particularly in light of the Paris Agreement, the proposal of Torvanger and colleagues to devise a two-track mechanism remains a particularly attractive option.\textsuperscript{160} Indeed, given the dual focus of the successor mechanism as captured in the language of Article 6.4, “to contribute to the mitigation of greenhouse gas emissions and support sustainable development”, creative approaches to provide substantive content to sustainable development should be considered anew by the SBSTA. Such reform could, for the first time, move the concept beyond the realm of rhetoric by integrating sustainable development incentives into the fabric of the mechanism. The Paris Agreement envisages that the CMA and SBSTA during elaboration of the successor mechanism, irrespective of whether it proves to be a new mechanism or a reborn CDM, should reflect on the case for reform informed by the substantial regulatory learning experience provided by the CDM over the past decade. Ultimately the degree to which the successor mechanism can accommodate flexibility continues to await clarification by the CMA and SBSTA, but textually there is no reason to interpret the reference to “a mechanism” in Article 6.4 as prohibiting the emergence of more than one pathway within it.

\textbf{3.2 Unilateral EU Regulation of Offsets}

\begin{footnotesize}
\textsuperscript{158} Vichit Petersen and Bollerup (n 114) 84.
\textsuperscript{159} Marcu (n 53) 14.
\end{footnotesize}
From the outset, the CDM only achieved lacklustre consensus in its potential to meaningfully contribute to carbon reduction efforts. The Chairman of the Kyoto Conference observed that, whilst he facilitated the approval of the CDM, he “did not like it” and did not “understand how commitments can be implemented jointly if only one of the Parties involved is committed to limit or reduce emissions”. The EU’s integration of the CDM with the EU ETS was also conditional. Article 11a(9) of the EU ETS Directive expressly permitted the imposition of restrictions on “specific credits from project types” and the Linking Directive further amended the EU ETS Directive by prohibiting the use of CERs generated from nuclear, land-use, and forestry projects.

The distorted geographic concentration of projects attracting CDM investment has been the focus of unilateral reform by the EU. Articles 11a(4) and (5) of the EU ETS Directive introduced a prohibition on the use of new-project CERs beyond 2013, unless such credits are generated from projects in least developed countries (“LDCs”) or can otherwise be swapped for CERs from LDCs. The impact of this prohibition was subsequently overtaken by market developments, but the EU’s unilateral approach emphasised the Union’s concern to broaden access to the financial flows generated under the CDM. However, it is suggested that the EU could strengthen yet

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161 However, Paterson is correct to observe that a very consistent feature of the development of carbon markets generally, and not merely the CDM, is that “they have been contested from the outset and have been shaped in part through the character of those contests”: Paterson (n 2) 619.

162 Lecocq and Ambrosi (n 120) 135.


165 Since the onset of the financial crisis, allowances prices have collapsed. For example, in 2014 and 2015 the price of an allowance oscillated between €5 and €7, substantially less than the approximately €20 threshold which it is believed is necessary to encourage industries to invest in research and development towards cleaner technologies: see de Sadeleer (n 45) 139.
further its legislative commitment to enhance the access of LDCs to CDM investment. Whilst Article 21a promotes support for CDM capacity-building activities in developing countries and countries with economies in transition, it does not prioritise engagement with LDCs, in particular, through enhanced administrative infrastructural development. Furthermore, whilst strengthening CDM participation amongst LDCs has been a factor influencing the EU’s legislative prohibition on non-LDC offset credits, it would seem that advocating the wider adoption of cap-and-trade emissions schemes has also been an significant consideration. For example, the Commission has openly acknowledged its “objective of actively using the leverage the EU possesses” with respect to offsets.166 Commentators have correctly characterised this approach as employing “a carrot and stick to stimulate developing country participation” in emissions trading.167

However, there remains scope for the EU to pursue a much more nuanced strategy by marrying the active prioritisation of administrative-capacity building measures in potential host LDCs with simultaneously advocating the graduated implementation by non-LDCs of more stringent emissions reduction initiatives, such as emissions trading. The EU has been the single largest demand market for CDM credits and the impact of internal EU reforms regarding offsets can have far-reaching market consequences with significant extra-territorial impacts.

### 3.3 Reforming the CDM

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The unilateral reforms introduced by the EU go some measure towards addressing the distorted geographic concentration of CDM investment even if, as noted above, the EU could sharpen its focus further. However, a much more fundamental question concerns the medium to long-term potential contribution of the CDM (or any successor mechanism), and, in particular, whether the CDM should be construed as a permanent feature of the climate governance landscape. In this respect, this Article advances that there is a compelling case for reconstructing the mechanism as a transitional tool. Under such an approach, non-Annex I host countries, particularly those not otherwise classified as LDCs, should be actively encouraged to graduate from the CDM and adopt more stringent carbon reduction commitments.

### 3.3.1 The CDM as a Transitional Instrument

The broader context surrounding negotiation of the Kyoto Protocol presented conditions where, for many developing countries, whilst an offset system such as the CDM proved satisfactory, the application of binding reduction commitments would have been completely unacceptable. Yet the context within which the CDM must be reconsidered, particularly with respect to national contributions to global carbon dioxide emissions, has radically changed. Nearly two-thirds of global emissions for 2010 originated from just ten countries, with the shares of China (23.8%) and the United States (17.7%) far surpassing those of all others, whilst India is now the world’s third largest greenhouse gas emitter having tripled its carbon dioxide emissions from
fuel combustion alone between 1990 and 2011.\textsuperscript{168} India’s emissions alone are forecast to increase by almost 2.5% between 2008 and 2035.\textsuperscript{169}

Questions of carbon responsibility are influenced by a range of factors, including the “framing” of the problem of climate change. Indeed, the way in which the issue is framed inevitably impacts upon the range of perceived legitimate or equitable options available. Consequently, whilst the framing of climate change as one of historic responsibility has tended to dominate and underpins the now fundamental principle in climate governance of common but differentiated responsibilities, the reality of rapidly escalating carbon emissions from advanced developing countries challenges whether there should be a more nuanced elaboration of this principle under the Paris Agreement.\textsuperscript{170}

It has been observed that the emerging climate change regime complex represents “a loosely coupled system of institutions [with] no clear core, yet many of its elements are linked in complementary ways”.\textsuperscript{171} The role of the CDM within this regime complex is open to normative re-evaluation, an undertaking which is now particularly timely as the Kyoto Protocol comes to an end. The CDM has proven effective as a tool to globalise the issue of climate change and it has contributed to increasing international acceptance of the importance of regulating carbon. Indeed, in this context, it has been described as “a success beyond the wildest dreams of its

\begin{itemize}
\item \textsuperscript{169} ibid.
\item \textsuperscript{170} The American National Academies have noted that: “[c]umulatively, since 1751, at the level of individual countries, the United States has been by far the largest emitter of carbon, while the USSR is the second largest emitter (based on data from 1830-1991).” Interestingly, however, even under an historic framing of climate change responsibility, China is now the third largest emitter. See National Academies, America’s Climate Choices: Panel on Informing Effective Decisions and Actions Related to Climate Change (National Academies Press 2010) 29-30
\item \textsuperscript{171} The authors define their use of “regime complex” as arrangements of the loosely coupled variety located somewhere in the middle of a continuum ranging from fully integrated to highly fragmented collections of institutions: see Robert Keohane and David Victor, ‘The Regime Complex for Climate Change’ (2011) 9(1) Perspectives on Politics 7, 9.
\end{itemize}
early architects”. Moreover, the CDM may be viewed as a step towards a global carbon market by creating capacity, clarifying concepts, and initiating a certain level of data collection. The CDM is also, perhaps, uniquely positioned to promote the incremental adoption of emissions trading schemes. For example, Elgie has identified the potential of offset trading to facilitate evolution towards more stringent cap-and-trade schemes and has identified three contexts where offset trading may positively contribute to this transition: (i) where institutional capacity is under-developed; (ii) where there is resistance to a proposed cap-and-trade scheme; and (iii) where a period of learning-by-doing is needed to develop an effective cap-and-trade scheme. As such, the development of a web of indirect linkages, as facilitated by the CDM, could meaningfully advance an incremental process of linkage by degrees by facilitating wider adoption of emissions trading schemes.

It has been suggested that the CDM should be considered as “a transitional, not a permanent, tool of international climate co-operation”, but it is instead argued that there remains space within the climate governance mosaic to advocate the continued presence of a reformed and scaled-down CDM. If the CDM were to be preserved in its current form, it would disincentivise the implementation of more stringent cap-and-trade schemes by advanced developing countries. The regional restrictions, implemented by the EU, limiting participation as a host country in the CDM to LDCs substantially addresses this concern. However, the development of a more rigorous global climate governance architecture requires “emerging economies such as China and India [to] rapidly indicate that they are ready to play their part”.

172 Grubb, Laing, Counsell and Willan (n 20) 556.
173 Vasa and Neuhoff (n 35) 18.
175 Vasa and Neuhoff (n 35) 26.
176 ibid 18.
177 Maria da Graça Canto Muniz, ‘India’s Carbon Governance: The Clean Development Mechanism’ (2013) 1(1)
Stabilising carbon emissions at an acceptable level will simply prove impossible if such countries avoid the implementation of appropriately ambitious carbon reduction commitments.\textsuperscript{178} As has been emphasised, the nature and scope of the CDM or successor mechanism is not defined by the Paris Agreement. Since there is no definite end to the CDM and given that Article 6.4 of the Paris Agreement envisages a related successor mechanism, it is important that the engagement of LDCs with the CDM is prioritised, whilst encouraging, nudging, and otherwise incentivising the graduation of non-LDCs towards the implementation of domestic emissions reduction initiatives.

### 3.3.2 Reinvigorating a Scaled-Down CDM

Subject to the limitations suggested in Section 3.3.1, there is a continuing role for a scaled-down CDM, but the deficiencies elaborated in Section 2.3 require careful consideration. In particular, concerns regarding questionable additionality and limited sustainable development impacts – issues which have bedevilled the CDM throughout its existence – must be urgently addressed.

Additionality constitutes “a weak link” in the CDM.\textsuperscript{179} By extension, non-additionality would present a serious problem for the EU ETS and, more broadly, any emerging global climate governance framework. For example, in the context of the EU ETS, the use of non-additional offset credits for compliance purposes directly

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\textsuperscript{178} Stern has elaborated on this further: “Even if emissions from developed regions (defined in terms of Annex I countries) could be reduced to zero in 2050, the rest of the world would still need to cut emissions by 40% from BAU to stabilize at 550 ppm CO\textsubscript{2}e. For 450 ppm CO\textsubscript{2}e, this rises to almost 80%”.


\textsuperscript{179} Lecocq and Ambrosi (n 120) 149.
contributes to funding an increase in global emissions and diverts investment flows from authentic carbon emissions reduction projects to non-additional projects. Beyond this, concerns regarding the operation of the CDM fuel critiques challenging the contribution of market-based instruments to climate governance and weaken the consensus necessary to promote wider experimentation with such initiatives. Whilst the intrinsic conceptual difficulties involved in defining and ascertaining additionality are not new – it had been identified as a potential problem even before the launch of the EU ETS – research studying the operation of the CDM in practice has reinforced and sharpened such concerns.180

Helpful debate in the literature has been generated concerning how best to redress the challenges of additionality. Meng has suggested modification of the mechanism to structure a “value-added” component to credits generated from offset project activities.181 He has defined value-added as when a certain percentage of all offset credits transacted between an Annex I country and a major developing country is either permanently retired or withheld from the carbon market.182 For example, every 100 tonnes of reduction made by a CDM project (assuming full additionality) would instead generate 90 offset credits with the discount representing an enhanced environmental benefit.

It is an approach which this Article endorses and which merits serious consideration by the CMA and SBSTA given the innate difficulties of translating the theoretical concept of additionality into practice. It is already evident from the preparatory work of the SBSTA that discussions surrounding the concept of

180 For example, see Michael Grubb, Duncan Brack, and Christian Vrolijk (eds), The Kyoto Protocol: A Guide and Assessment (Earthscan 1999) and Tim Jackson, Stuart Parkinson and Katie Begg (eds), The Flexibility in Climate Policy: Making the Mechanisms Work (Earthscan 2011).
182 ibid.
additionality and how best to construe it have not yet achieved consensus.\textsuperscript{183} Based on draft documentation published in March 2018, it is suggested that additionality could be construed in at least three different ways. One such definition is consistent with the present understanding as denoting circumstances where “emissions are reduced below those that would have occurred in the absence of the activity”.\textsuperscript{184} However, the working draft also recognises alternative definitions including, for example, where activity is beyond the NDC: “[t]he reduction of emissions goes beyond what would be achieved through the delivery of the NDCs of the host country”.\textsuperscript{185}

The introduction of a precautionary value-added component – or what might more appropriately be considered as an “environmental premium” – would not entirely resolve the challenge of evaluating additionality, but such reform would reduce the current additionality imbalance. Additionality will always remain “an imperfect art with an unavoidable trade-off between administrative costs and the level of assurance”.\textsuperscript{186} Yet the introduction of an environmental premium also offers a framework for future iterative readjustments where strengthening of the premium is considered prudent. Moreover, an environmental premium could incorporate a country of origin element and, consistent with the approach Section 3.3.1 advances, positively favour LDC-based projects by imposing a lower value-added component. Such an approach would facilitate the normative reconstruction of the CDM as a transitional tool which prioritises the participation of LDCs, whilst encouraging graduated implementation of more stringent climate action by non-LDCs. This approach is also consistent with the principle of common but differentiated responsibilities.

\textsuperscript{184} ibid.
\textsuperscript{185} ibid.
\textsuperscript{186} Grubb, Laing, Counsell and Willan (n 20) 558.
As discussed in Section 2.2.3, the limited contribution of the CDM to sustainable development has been a persistent cause of concern and remains the focus of sustained criticism. The Herculean nature of determining and applying comparable standards to assess sustainable development, as envisaged under Article 12.2, is indicative of a more intrinsic problem. It is clear that developing countries are jealously protective of their sovereign right to define what constitutes sustainable development, but it must be a source of genuine concern that instances have been uncovered where CDM projects have even undermined sustainable development “with the tacit approval of national CDM approval bodies”.\textsuperscript{187} The difficulties surrounding the concept are not only concerned with the variability in application between countries. Such an approach – whilst sanctioned by the Marrakech Accords – was assured to produce different interpretations and outcomes. Instead, a much more fundamental concern is that the objective of sustainable development is “not incorporated into [the mechanism’s] core incentive structure”.\textsuperscript{188} As such, it is unlikely that the sustainable development qualities of any potential CDM investment forms an integral part of project planning. The architecture of the CDM does not incentivise sustainable development and, consequently, any additional sustainable development-related project costs do not generate additional offset credits.

Given these concerns, recommendations for reform of the mechanism should instead focus on restructuring or de-coupling the twin objectives of Article 12.2, rather than clarifying the definition of sustainable development. In this respect, Torvanger and colleagues have advanced the introduction of a two-track mechanism with one track focusing on the traditional offset dimension of assisting compliance with investor

countries’ domestic reduction commitments, whilst a second new track could instead focus on delivery of sustainable development outcomes.\textsuperscript{189} Such reform represents an important departure point from current understandings of the CDM by integrating, for the first time, sustainable development incentives into the fabric of the price mechanism. Indeed, this “may enhance the capability of the CDM to deliver on achieving each of these objectives”,\textsuperscript{190} particularly since there can be little doubt that the failure of the CDM to attribute a price premium to sustainable development has been a key factor in the marginalisation of this objective.\textsuperscript{191} The implementation of such reform will continue to prove challenging in circumstances where “the primary requirement for implementing a sustainable development track is a common, internationally devised, definition of sustainable development”.\textsuperscript{192} Yet consensus on a universal definition – much less criteria operationalising such a definition – has proven elusive. It is unlikely that this will change in the foreseeable future given the emphasis which host countries attach to interpreting sustainable development through a distinctly national lens.

Instead, a more fundamental enquiry is to consider whether it is desirable to reconfigure the CDM based upon the structure which Article 12.2 imposes. It has been suggested that sustainable development “will only ever be a rhetorical flourish” if the CDM continues to function as a project-based market mechanism.\textsuperscript{193} The failure to incorporate the sustainable development objective within the mechanism’s incentivisation architecture indicates that sustainable development benefits were

\textsuperscript{189} Torvanger, Shrivastava, Pandey and Tørnblad (n 159) 471.
\textsuperscript{190} ibid 483.
\textsuperscript{191} An observation which is particularly evident in the literature: for example, see Sutter and Parreño (n 109) and Christoph Olsen and Juan Carlos Fenmann, ‘Sustainable Development Benefits of Clean Development Mechanism Projects: A New Methodology for Sustainability Assessment Based on Text Analysis of the Project Design Documents Submitted for Validation’ (2008) 36(8) Energy Policy 2819.
\textsuperscript{192} Torvanger, Shrivastava, Pandey and Tørnblad (n 159) 482 (emphasis added).
\textsuperscript{193} Pearson (n 97) 251.
considered as secondary rather than transformative. In the absence of radical reconstruction of the CDM, it may make more sense for policy-makers to creatively focus on improving the existing market dynamics of the CDM by ensuring that the mechanism maximises viable opportunities to widen access to the carbon market and the important financial flows which are generated by such participation.

Alternative approaches recognising sustainable development in climate governance exist and should also be seriously explored, amongst which is the possibility of creating a sustainable development-oriented fund-based mechanism. As the negotiating history of Article 12 demonstrates, the proposal from Brazil which resulted in the CDM had originally advocated the creation of such a clean development fund, not the CDM which ultimately emerged.\textsuperscript{194} Murphy and colleagues have evaluated the merits of such a fund and recognised the enhanced potential it offers to “explicitly direct financial transfers to sustainable development priorities”.\textsuperscript{195} There has, however, been a proliferation of climate-related funds in recent years – the Least Developed Countries Fund and Special Climate Change Fund being the most obvious examples – and securing consensus on mandatory contributions from developed countries will prove challenging. Yet de-coupling sustainable development from the CDM or any successor mechanism and instead exploring a funds-based approach remains attractive. Moreover, such an approach is consistent with developed countries’ obligations under Article 4.3 UNFCCC to cover the incremental costs of addressing climate change in developing countries.

A reconstructed CDM which prioritises the participation of LDCs and promotes integration, commensurate with capacity, in a broader international emissions trading framework could evolve as a core component of the emerging climate governance

\textsuperscript{194} Werksman (n 3) 151.
\textsuperscript{195} Cosbey, Murphy, Drexhage and Balint (n 119) 19.
landscape. However, maintaining the CDM in its current form does not advance this vision and corrodes confidence in market-based climate governance.

4 Conclusion

The CDM, whilst hailed as “a masterpiece of compromise”,\textsuperscript{196} has proven to be a highly controversial component of the climate governance landscape. This is not without good cause. Suspicions concerning questionable assessments of additionality and a convoluted articulation of sustainable development have bedevilled the functioning of the mechanism. The CDM has received its fair share of criticism but, as van Asselt has acknowledged “it is undeniable that it has clearly contributed to expanding low carbon investments in developing countries”.\textsuperscript{197}

The CDM is evidently fulfilling one of the twin objectives enshrined in Article 12.2 of the Kyoto Protocol: assisting Annex I countries in achieving compliance with their reduction commitments. The market-based nature of the mechanism has facilitated the identification of low-cost emissions reduction opportunities, so-called “low hanging fruit”, which might otherwise have been overlooked. Moreover, there is little evidence to suggest that developed countries have deliberately used the mechanism to evade domestic action.\textsuperscript{198} The CDM has broadened the experience of developing countries with economic instruments and contributed to building the current consensus favouring a long-term role for market-based instruments in climate governance. Carbon trading continues to reveal many flaws and the CDM is no

\textsuperscript{197} Harro van Asselt, The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions (Edward Elgar Publishing Limited 2014) 20.
\textsuperscript{198} Grubb, Laing, Counsell and Willan (n 20) 554.
exception to this, but the innately experimentalist nature of the multi-level climate governance endeavour – particularly, the quest to promote and maintain complementarity across governance initiatives – facilitates reflection and iterative improvement. However, perhaps the most significant achievement of the CDM has been proof of concept confirmation that diverse linked market-based climate governance arrangements are feasible. When the CDM was developed, linkage to the EU ETS could hardly have been foreseen.\textsuperscript{199} Yet the development of indirect linkage between the EU ETS and the CDM has demonstrated the scope for incremental expansion of climate governance arrangements on a global scale.

The CDM has proven its potential to integrate advanced developing countries, such as China and India, in carbon mitigation efforts, but the benefits for LDCs have been much more marginal. A privileged class of developing countries participating in the CDM have been subsidised through the mechanism, but this has created a disincentive to implement more stringent domestic emissions reduction initiatives. Unsurprisingly, as Paterson has commented, “developing countries… [have] been increasingly enthusiastic about using the CDM to attract investment”.\textsuperscript{200} This dynamic, however, is clearly unsustainable, particularly in circumstances where the current development pathways of advanced developing countries threatens to eclipse even the most ambitious emissions cuts which developed countries might reasonably achieve.

This Article suggests that, based on the experiences and deficiencies of the CDM, a degree of both scaling-up and scaling-down will prove necessary in the years ahead. Such reflective reform is particularly timely as the international governing framework transitions from the Kyoto Protocol to the Paris Agreement. It is critical that

\textsuperscript{199} da Graça Canto Muniz (n 177) 13.
\textsuperscript{200} Paterson (n 2) 617.
international negotiators and policymakers work towards a scaled-down version of the
CDM or any successor mechanism by focusing on under-resourced LDCs for whom
many of the benefits of the CDM have proven illusory. Consistently, it is now time to
scale-up the ambition of more advanced developing countries by actively promoting
and facilitating their graduation to a broader climate governance regime predicated on
emissions reduction commitments. This will require creative approaches to incentivise
and maximise participation in emissions reduction initiatives. Petsonk’s suggestion
to actively facilitate the development of docking stations in climate governance
arrangements to provide and actively promote space to facilitate participation in
carbon reduction and mitigation efforts could yet form an important piece to the
evolving climate governance jigsaw.

The Paris Agreement does not define a structured graduation to a framework
premised upon binding emissions reduction commitments but it is clear that the CDM
or successor mechanism will remain a component of the emerging governance
architecture, both as a potential partner for current and emerging cap-and-trade
schemes and as an important transitional staging post towards a more comprehensive
emissions trading framework. The CDM has demonstrated many of the opportunities
and challenges which market-based instruments present in terms of their sustained
contribution to climate governance. Given this contribution, there is clearly potential
for the CDM or successor mechanism to continue to “build a base of regulatory
experience, break down resistance, and provide learning-by-doing” in LDCs, but its
role must be much more carefully circumscribed.

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201 This could involve the allocation of surplus allowances to transitioning countries, an approach suggested by
Olmstead and Stavins. Such an approach is attractive from the perspective of distributional equity given that it is

202 Petsonk (n 49) 433.

203 Elgie (n 173) 267.
This Article has challenged the failure of the CDM to substantively deliver its objective of sustainable development. The market orientation of the CDM is such that advancing sustainable development was functionally improbable (if not impossible). However, there are better alternatives: a two-track approach merits closer study by the SBSTA, whilst de-coupling sustainable development from the CDM and instead translating it to a funds-based approach also has much to recommend it. The experience of the CDM demonstrates that successfully integrating sustainable development within the operative mode of the mechanism is unworkable. The challenge of additionality assessments has also plagued the CDM and provided ample ammunition to critics of market-based regulatory experimentation in climate governance. The introduction of an environmental premium, as this Article advocates, would represent a significant step forward in addressing concerns of questionable additionality assessments. Such reform is not a silver bullet and additionality will remain a thorny issue, but iterative review of such a premium and incorporation of a component favouring LDCs would provide a more assured foundation to reconstruct the mechanism. As this Article has endeavoured to demonstrate, there is space and scope for the SBSTA to critically, ambitiously and creatively (re)shape the successor mechanism envisaged under Article 6.4, consistent with the recommendation of the Paris Decision to reflect the “experience gained with and lessons learned from existing mechanisms”.204

Finally, in order to achieve a smooth transition between the Kyoto and Paris mechanisms, there is considerable merit in using the CDM as the core of the successor mechanism.205 The development of an informed and reflective elaboration

204 Decision 1/CP.21, para 37(d).
of this successor mechanism, particularly its desired function and intended contribution to climate governance, is now a pressing priority for post-Paris Agreement negotiations.