Clean Development Mechanism -Effective mechanism for carbon trading and achieve Sustainable Development

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Introduction

The Clean Development Mechanism (CDM) has become a significant instrument for financing global technology transfer aimed at reducing greenhouse gas (GHG) emissions (e.g. Seres, 2008). The scheme emerged out of the Kyoto Protocol negotiations as a way of satisfying two policy goals: providing developed countries with access to the most cost-effective emission reductions (a key focus of the US negotiation position); and increasing developed country financial support for development efforts (a key objective for many developing countries, led by Brazil) (Disch, 2010). Article 12 of the Kyoto Protocol describes the twin objectives of the CDM as to assist developing countries 'in achieving sustainable development and in contributing to the ultimate objective of the Convention' (UNFCCC, 1998, 12.2, p11), where the 'ultimate objective' is preventing 'dangerous anthropogenic interference with the climate system' (UNFCCC, 1992, 2, p5). Thus, the achievement of sustainable development (SD) benefits for host countries is enshrined as a key objective in the founding legal document of the CDM, alongside enabling developed countries to achieve part of their emission reduction targets at lower costs by purchasing Certified Emissions Reductions (CERs) from CDM projects. However, the CDM has been criticized for failing to deliver both sufficient technology transfer and SD benefits (e.g. Forsyth, 2007).

To date, the market nature of the scheme has prioritized the delivery of emissions reductions, with stringent measurement, auditing and reporting requirements being developed by the CDM Executive Board (the Board), in consultation with parties and other experts. Since its launch in 2001, the CDM has grown rapidly, with over 3000 projects now registered and 3 billion tonnes of CO2 equivalent (CO2 e) expected to be saved by the end of 2012 (UNFCCC, 2011). In contrast, the SD benefits have remained unspecified and vague and the responsibility of national governments to define and police through their Designated National Authority (DNA). DNAs have interpreted their responsibilities differently, with wide variation in the definition and prioritization of SD benefits, as well as approaches to enforcement (Disch, 2010). The market nature of CDM incentivizes investment in the most cost-effective projects which may not necessarily be those with the greatest SD benefits. A significant proportion of overall CDM investment has gone towards large industrial projects which offer high volumes of CERs through 'end-of-pipe' solutions, such as HFC-23 mitigation technologies.1 While such projects deliver

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GHG emission reductions, the local SD benefits can be minimal. Some CDM projects have even been accused of resulting in negative local impacts. Docena (2010), for example, suggests that CDM landfill gas recovery projects in the Philippines have damaged the viability of local recycling initiatives and efforts to reduce the overall volumes of waste going to landfill. Another key concern is over the distribution of CDM projects, which is highly concentrated in India and China, with only 0.2 per cent of CERs expected to come from projects in least developed countries (LDCs), where development needs are greatest (de Lopez et al., 2009). These issues have led to significant criticism suggesting that the CDM has offered little, if any, genuine SD benefits.

There have been differing views on the importance of achieving SD benefits. Some have suggested the delivery of emissions reductions and some inward investment to host-countries is sufficient; if anything, additional efforts should be limited to minimizing possible negative local impacts (Streck and Lin, 2008). Others point to the wide range of additional social and environmental benefits that CDM projects can potentially offer, including local air quality and health improvements and employment and poverty reduction, which they claim are too often overlooked, representing a significant missed opportunity (e.g. Cosbey et al., 2006; Schneider, 2007). This broad range of additional SD benefits, often referred to in the literature as 'co-benefits' or the 'development dividend' of projects, is the focus of this chapter.

There is a common sentiment shared by many CDM analysts that the 'CDM does not sufficiently fulfil its objective of assisting host countries in achieving sustainable development' (Schneider, 2007, p10). This research accepts this analysis as a starting point and assumes that the SD benefits delivered to date have been suboptimal and that it is desirable to improve the performance of the scheme. With the CDM set to expire at the end of 2012, on-going international negotiations will seek to find agreement on how best to extend, reform or replace the CDM.2

This research study summarizes different options for improving the SD benefits of the CDM and explores their likely effectiveness. It also assesses the likely political acceptability of reform options for different nations and the prospects for them being adopted in forthcoming negotiations. It is intended to be of use to readers interested in the future relationship between international carbon trading and development, including policy-makers, business representatives, civil society groups and non-governmental organizations (NGOs).

It is assumed that international carbon trading will continue post-2012 and the options below will therefore be of relevance should the CDM continue largely in its present form or should it be more substantially changed or replaced with a similar mechanism. Additionally, while it is recognized that trading in emissions from for estry-based projects is likely to expand in the future, with significant SD implications (Gutierrez et al., 2007).

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Options for CDM reform

Based on a wide ranging review of relevant literature, seven broad reform options for improving the SD benefits of the CDM have been identified: no reform and voluntary initiatives; removing barriers to smaller projects; limiting the use of technologies; minimum standards; inflating the value of high SD CERs; improving monitoring and compliance; and ensuring civil society participation. These are outlined below.

No reform and voluntary initiatives (option one)

It could be argued that market forces will naturally support the delivery of development benefits. After all, project developers have an interest in retaining local support and avoiding criticism which could harm their reputation. It is also arguably in the host country's interest to demand high development returns through their DNA. Purchasers of CERs are also weary of criticism and may demand higher project standards (Streck and Lin, 2008), leading Liverman and Boyd (2008, p11) to declare that the 'heady days when buyers and investors bought anything they could get their hands on are over and investors are looking for quality projects that provide social development'.

The success of voluntary initiatives such as the CDM Gold Standard is evidence of a market for CERs with high SD benefits. However, such initiatives seem likely to remain relatively niche compared to overall CER volumes and of most interest to public-sector and ethical investors and those companies in the public eye willing to pay extra for brand benefits. The natural desire for purchasers to obtain CERs at minimal cost is still likely to limit the emphasis placed on SD benefits under conventional CDM projects (Peskett et al., 2007). Furthermore, competition between prospective host countries to attract investment could lead to a 'race to the bottom' in terms of national SD standards (Boyd et al., 2009). It is therefore highly questionable as to whether continued reliance on voluntary actions will be sufficient to increase delivery of SD benefits.

Removing barriers to smaller projects (option two)

Analysis of CDM projects has shown that, in general, smaller-scale projects tend to produce greater SD benefits. As Cosbey et al., (2006, p19) put it: 'small-scale projects tend to yield greater development dividends, and very large-scale projects yield comparatively few. The basic relationship holds across all three elements of sustainable development: social, economic and environmental.' Smaller projects are also more likely to fit with the circumstances typically found in many LDCs where there tends to be fewer large industrial installations and more diffuse opportunities, often in rural areas (de Lopez et al., 2009). Furthermore, smaller-scale projects are more likely to be owned by community organizations, helping to ensure that the benefits are captured locally (Cosbey et al., 2006).

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There are already a number of simplified project design, monitoring and review procedures and requirements to try and support smaller projects. Despite this, transaction costs for small projects remain high – estimated to be, on average, 82,000 Euros for development and a further 7000 to 18,000 Euros for each monitoring and verification visit (de Lopez et al., 2009). These costs, combined with limited CER volumes, makes small projects less attractive from an investor perspective, and they act as a barrier for community-owned projects which have little access to upfront capital.

It may be possible to further streamline and simplify additionality, validation and verification processes (Leguet and Elbed, 2008). Revising the current thresholds3 for small-scale projects upwards would enable more projects to qualify for reduced reporting requirements and procedures (de Lopez et al., 2009). A new category of 'micro-projects' could also be introduced with further reduced requirements. Standardized methodologies for small projects may also further reduce costs (Leguet and Elbed, 2008). While such changes could improve the economic viability of smaller projects, market forces are always likely to favour larger volume projects which offer higher returns for investors (de Lopez et al., 2009). Equally, such reforms will not prevent many LDCs from being viewed as too risky by investors, due to poor governance or instability (Kant, 2010). Significant national capacity building is likely to be necessary to overcome these issues, although that could prove resource intensive and a long-term process.

Small projects of the same kind are able to benefit from 'bundling' together to reduce overall transaction costs. However, the current rules prevent bundling where the total quantity of estimated CERs exceeds the limits for small-scale CDM projects.4 Reviewing such limits could therefore offer advantages (Cosbey et al., 2006). Similarly, it has also been suggested that recent movement towards more programme-based CDM approaches could support smaller, more diffuse projects in the renewable energy, energy efficiency and transport sectors, which typically have high development benefits (Cosbey et al., 2006). However, there remain significant unresolved questions over the methodologies for ensuring additionality and which types of programmes and sectors would be favoured by the market in practice (Boyd et al., 2009). The complexities involved in designing CDM programmes and producing sufficient evidence of additionality are also likely to be resource intensive for host countries and could act to further exclude LDCs with limited specialist capacity (Cosbey et al., 2006).

There are signs that the Board may be open to some of these reforms (Figueres and Streck, 2009). However, some countries are nervous about reforms that could make the processes of validation too easy, which they fear could 'open up a floodgate to supply which would overwhelm demand and depress prices' and undermine domestic climate change targets and objectives (Figueres and Streck, 2009, p234). Additionally, more industrially advanced developing countries such as India,

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China and Brazil are likely to resist reforms which may divert investment from them towards smaller projects in less developed countries.

Limiting the use of technologies (option three)

Different technologies tend to offer differing potential development benefits. While domestic energy efficiency improvements may offer significant local economic, air quality and health benefits, the application of technology to industrial systems to reduce HFC-23 emissions is likely to offer little, if any, SD benefits. Indeed, the dominance of HFC-23 projects in the CDM has been singled out as a major reason for the CDM failing to deliver significant SD benefits (Schneider, 2007).

The decision by the Board to suspend issuance of HFC-23 credits in the summer of 2010 is widely seen as likely to increase the social benefits of CDM. However, the decision was taken due to concerns over the additionality of emissions reductions and not on the basis of SD considerations. Any decision to further limit the list of qualifying technologies would represent a major departure from the current CDM operating principles where such decisions are made primarily on the basis of emissions reduction integrity.

The emergence of carbon capture and storage (CCS) as a potential CDM-qualifying technology is likely to add to the pressures to introduce technology-specific limits. CCS is seen by many as strategically vital in delivering future emission reductions from countries with high levels of gas and coal reserves, and the 2010 Cancun negotiations agreed in principle to the inclusion of CCS in to the CDM. Yet, the added local SD benefits are likely to be weak and there are risks of negative local environmental and health impacts from CO2 leakage due to poor site selection and storage practices (IPCC, 2005). With individual CCS projects likely to deliver many millions of CERs, CCS could begin to dominate the CDM market and marginalize other projects with intrinsically greater SD potential.

The Board is reluctant to intervene with the choice of qualifying technologies as this is likely to increase CER prices. A compromise in order to support CCS through the CDM, while reducing the risk of CCS dominance, could be to impose limits on the proportion of CCS-originated CERs that states or companies can use to achieve their targets (de Coninck, 2008). Such a change in approach could pave the way for further market intervention to limit the use of technologies with limited likely development benefits. However, it will be difficult to reach agreement on what basis such decisions should be made as definitions of SD benefits are highly subjective (see the fourth option, minimum standards, below). The benefits from a project will also depend to a large extent upon where and how the project is designed and implemented. For example, while some geothermal projects have tended to deliver high social benefits, on average, this is because they

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have tended to be located in areas with low access to energy. Much of the benefit is therefore reliant on the local circumstances (Cosbey et al., 2006).

Minimum standards (option four)

A number of commentators have suggested the need to introduce globally consistent minimum standards for development benefits (e.g. see Huq, 2002). Under such an approach, projects would not be approved until a certain level of SD benefit is demonstrated. The delivery of SD benefits would therefore be treated in a similar way to how emissions reductions are currently, with globally consistent standards and enforcement. This could take the form of an agreed checklist of SD benefits, similar to the way in which the voluntary Gold Standard scheme operates (Huq, 2002; Boyd et al., 2009).

A number of methods for measuring development benefits have been suggested, comprising multiple environmental, social and economic indicators (see Cosbey et al., 2006, Olsen and Fennhann, 2008; Disch, 2010). However, such methods have been developed for the purpose of comparative research of CDM projects. Reaching international agreement on what indicators should be included with what weightings is likely to prove far more difficult (Cosbey et al., 2006). Different local circumstances, values and preferences, and stages of economic development will inevitably produce diverse national priorities, which will, in turn, influence the preferred definition of SD benefits. While some countries may wish to prioritize economic growth, others (and many NGOs), are likely to emphasize environmental and social benefits. Countries are reluctant to surrender such sovereign freedom (Disch, 2010). Forsyth (2007) also cautions against developers or national authorities using a prescription definition of SD benefits, as this would pre-empt the preferences of local stakeholders (see the seventh option, ensuring civil society participation, below). Greater flexibility could be introduced through a scoring system where projects would be awarded points based on a wide set of criteria and having to achieve an overall threshold score in order to be registered (Boyd et al., 2009). However, in order to gain the support of all countries, any such criteria are likely to have to be so broad and flexible that their value would be questionable. Even if an agreed approach could be found, there is likely to be resistance from developed countries due to the likely increase in CER prices that would result.

Inflating the value of high SD CERs (option five)

An alternative to introducing standards could be to differentiate between the value (or the quantity) of CERs awarded for projects with high SD benefits. This could steer investment towards more beneficial projects. This could be done according to priority sectors, technologies or based on the type of host country (Boyd et al., 2009). This last option offers one of the few ways of successfully steering investment towards LDCs.

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Adopting any of these options would mark a significant departure from the principles upon which the CDM currently operates. Such changes would restrict the supply of CERs and would therefore be likely to increase the costs for developed countries purchasing CERs. This could also require agreement on the method for determining CER values, which would inevitably mean reaching agreement on a workable approach for measuring SD benefits, which as discussed in options three (limiting the use of technologies) and four (minimum standards), will be fraught with difficulty. Nevertheless, the European Union has recently decided that post-2012 the use of CERs within the EU Emissions Trading Scheme (ETS) will be restricted to those originating from LDCs. This is likely to be fiercely opposed by the likes of China and India, as well as non-LDC developing countries and representatives of carbon traders (see, for example, CMIA, 2011).

Improving monitoring and compliance (option six)

At present there is also no agreement over how DNAs should ensure delivery of stated SD benefits. As a result, there is a wide range of different approaches practised by DNAs, with many simply reviewing project design documents (PDDs) prior to implementation and assessing them against checklists or national regulations (Disch, 2010). With such a lack of post-implementation checks and enforcement, it is unsurprising that there is evidence that claimed SD benefits can often fail to materialize (CSE, 2005).

Agreeing to stricter monitoring and enforced procedures for DNA s would not necessarily require agreement over common SD standards (as for options two to five: removing barriers to smaller projects; limiting the use of technologies; minimum standards; and inflating the value of high SD CERs) and may therefore prove more politically viable. In order to better ensure delivery of stated development benefits, post hoc evaluation activities will need to be undertaken by DNAs to compare project outcomes to initial PDDs. This could involve DNAs undertaking spot checks, site visits and interviews with stakeholders. Failure by project developers to deliver development benefits could result in penalties or fines for non-compliance in order to act as an effective incentive. One area of focus for DNAs could be to ensure high standards of consultation, which is discussed in more detail under the final option below.

Ensuring consistent implementation of such approaches is likely to prove challenging considering the diverse national circumstances and the perverse incentive for DNAs to be ‘soft’ on developers so as not to deter investment. In order to ensure that DNAs deliver their responsibilities to consistently high standards, a system of accreditation, akin to that for designated operating entities (DOEs), could be developed.5 This would require DNAs to demonstrate that they have the necessary procedures and practices in place to monitor and enforce national SD standards. Should poor DNA practice or a lack of enforcement be identified, penalties could be applied, with the potential risk of DNA de-accreditation. A system for handling complaints against DNAs could also be introduced to increase accountability. With no accredited DNA, countries would

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effectively lose the ability to host CDM projects, so such a system could act as powerful incentive to improve monitoring and enforcement practices.

Some countries are likely to be reluctant to agree to such a move due to the loss of national autonomy and the cost implications of running more active DNAs and operationalizing such an accreditation system. Furthermore, without some international agreement over the definition of SD benefits, some countries could simply choose to weaken or abandon national requirements, so that, in practice, DNAs would have very little enforcement to do.

Ensuring civil society participation (option seven)

Processes which ensure that the views of a variety of stakeholders are incorporated with the design of projects are likely to improve decision-making and increase the likelihood of SD benefits being delivered (Eddy and Wiser, 2002; Lovbrand et al., 2009). Case studies of waste-to-energy projects in India, the Philippines and Thailand support this view, and even suggest that in some circumstances deliberative processes can increase SD benefits, while also reducing overall investor costs by making local actors more willing to support project implementation (Forsyth, 2007).

Good participatory practices in Peru have been credited with delivering CDM projects with higher-than-average SD benefits (Disch, 2010). In this case, consultation and engagement activities were coordinated directly by the Peruvian DNA, with the outcomes informing final project approval decisions. This has the advantage of ensuring impartiality and uniformity of consultation approaches across different projects. However, such a centralized approach is highly resource intensive for the DNA and will therefore be resisted by many governments.

An alternative to a DNA-led approach is for consultation activities to be undertaken by project developers and for this to be monitored by the DNA and DOEs. In fact, the CDM rules technically already require stakeholder consultation by developers, but 'there are no clear rules or guidelines and the implementation varies from country to country' (Disch, 2010, p54). Lovbrand et al., (2009, p94) suggest that as a result of this lack of clarity, the 'concerns and views of those directly affected by CDM projects will automatically be less influential in the project design and implementation than those of project developers, host country governments and investors (domestic as well as foreign)'.

Development of clearer guidance on standards for consultation practices for project developers, DNAs, DOEs and national governments could therefore help to ensure that higher standards are achieved more consistently (Eddy and Wiser, 2002). It will inevitably be difficult to define uniform standards for how participation should be delivered across different projects and locations. This is especially true as experience has illustrated the importance of project institutional and contractual arrangements suiting specific local circumstances and stakeholder needs (Forsyth,

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2007). Ensuring consistency in the interpretation and enforcement of guidance will also be challenging (as discussed in option six: improving monitoring and compliance).There are also questions over the legitimacy of different participation methods; in many cases it may only be international NGOs who have the financial capacity and technical skills to participate in a meaningful way (Cosbey et al., 2006; Lovbrand et al., 2009), yet they are likely to focus on their specialist areas of concern and are unlikely to be representative of local stakeholders (Forsyth, 2007). Additionally, in practice, it may also prove hard to distinguish between genuine participation activities and box-ticking gestures which offer little real benefit (Lovbrand et al., 2009).

Despite these challenges, clearer guidance on how best to achieve local participation, especially if combined with improved monitoring and enforcement (as outlined in option six), would seem to offer the potential of improving delivery of SD benefits.

Summary discussion

The options outlined above are not exclusive of each other. The wide range of challenges in delivering improved SD benefits suggests that a number of different reforms could be necessary. Indeed, it is possible for the voluntary initiatives outlined in option one to continue to play a useful role alongside the more significant mandatory reforms outlined in options two to seven. There would also be little point in introducing the minimum SD standards outlined in option four, without also improving monitoring and compliance practices, as suggested in option six. However, there are also tensions between some options. For instance, while the focus of option two is on reducing transaction costs for small projects, the introduction of increased evidence requirements (implied by options four and five) could further add to project development costs and therefore act to weaken the commercial attractiveness of smaller projects. Similarly, differentiation in the value of CERs from different origins (outlined in option five) has the potential to increase investment in LDCs, yet a movement towards more programmatic approaches (one possibility considered in option two) could reduce LDC investment viability due to their limited specialist skills and government capabilities.

While each of the options offer different strengths and weaknesses, the final decision on CDM reform and replacement is likely to be a compromise and determined more by what is politically acceptable to different countries and stakeholders than what is practically most effective. The political barriers to implementation of reforms are significant. Many of the ideas for streamlining the project approval process (as outlined in option two) appear workable. However, concerns over the possibility of this generating too many CERs and suppressing carbon prices, and a reluctance by China and India to tolerate reforms which could reduce investment flows to them, is likely to limit their adoption. The significant challenges involved in reaching international agreement on a definition of SD benefits may prove insurmountable. This would effectively rule

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out options three and four. Although a variant of option five is being pursued by the EU, there remain significant political barriers to its implementation, as well as uncertainty over its implications for delivery of SD benefits. This suggests that improvements to monitoring and compliance (option six) and participatory approaches (option seven) are likely to be the most politically viable reforms which could deliver greater SD benefits. However, even for these options it will be difficult to ensure flexible yet consistent implementation at costs acceptable to all countries.

Any improvement in the delivery of SD benefits under the CDM will ultimately require a redoubling of political commitment to the delivery of SD. This will require explicit agreement that the SD benefits currently delivered under the CDM are too few and honest recognition of the limits to unfettered market-based approaches. Furthermore, it is also likely to require an acceptance of some increase in the costs of CDM for investors (which will be reflected in the prices of CERs) and/or the administrative cost of the scheme (which will be borne by DNAs and host governments).

Notes

1 HFC-23 is a powerful GHG.

2 This chapter was written in 2011 ahead of the Durban negotiations. However, it is anticipated that the discussion outlined here will continue to be relevant to the debate over the future of carbon trading and its relationship to sustainable development.

3 Thresholds for small-scale projects are currently 15MW per year for renewable energy projects, savings of up to 60GWh per year for energy efficiency projects, or savings of up to 60 kilo tonnes CO2 equivalent for other projects: see decision 1/CMP.2, para 28.

4 This was the case at the time of writing. See 2007 guidance document F-CDM-SSCBUNDLE, para 9.

5 DOEs are accredited by the UNFCCC as being able to offer legal, accounting and verification services to CDM projects.

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