

**KYLE MENG outlines proposals for increasing the Clean Development Mechanism's contribution to reducing greenhouse gas emissions in a post-2012 world**

# Creating a cleaner CDM

The less-than-optimal performance of the Clean Development Mechanism (CDM) in delivering sustainable development benefits has been well-reported by academics and journalists alike. Equally scrutinised has been the mechanism's record in generating truly additional reductions in greenhouse gas (GHG) emissions below a business-as-usual (BAU) baseline – a proof necessary in all trading between capped and uncapped entities. According to one study, "additionality issues" have arisen in about 30% of all registered CDM projects.<sup>1</sup>

Such findings are troubling, although not entirely unexpected. However, few have thus far noted the most important environmental downside of uncapped trading via the CDM. That is, under the CDM, emissions reductions made below BAU (assuming that they are indeed additional) in an uncapped country are transferred to a country with an emissions budget to help the latter cover emissions that exceed its Kyoto target. The CDM simply shifts emissions from one part of the world to another without any net reduction in global emissions.

Any effective post-2012 framework must, as a basic prerequisite, require deep mandatory reductions by all developed countries. However, a successful post-2012 framework must also embrace incentives that have a high likelihood of generating net emission reductions from major developing countries. How to generate these reductions in fast-growing economies is one of the biggest challenges the global community faces in its effort to combat climate change.

Achieving net reductions in global emissions beyond industrialised countries' Kyoto Protocol commitments was, of course, never the original intent of the CDM's architects. Instead, it was hoped that the mechanism would introduce low-carbon technologies to the developing world, and thereby begin to deflect host countries' emissions trajectories downward.

To date, projects that are expected to generate 1 billion tonnes of certified emission reductions (CERs) have been registered by the CDM Executive Board, with a total of 2.2 billion tonnes expected by

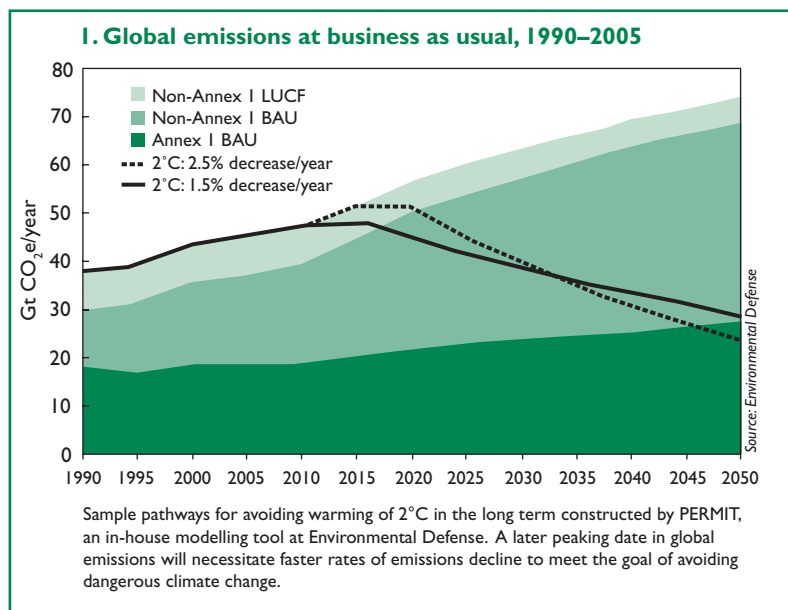
the end of 2012.<sup>2</sup> This volume, while substantial, is far too small to make a significant dent in the GHG emissions trajectories of developing countries whose fossil fuel-based emissions alone are expected to double from roughly 10 billion tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) today to about 20 billion tCO<sub>2</sub>e in 2030.<sup>3</sup>

Some analysts project that it is unlikely that CER volumes will expand significantly as the project-based mechanism is beginning to reach the upper bounds of its potential.<sup>4</sup> Moreover, while a small group of large-emitting developing countries have taken the vast majority of CDM market share to date, the mechanism has effectively eliminated any incentive for those same countries to generate greater emissions reductions. The CDM is thus increasingly incompatible with the environmental imperative presented by the latest climate science.

As Figure 1 shows, to keep open options for limiting warming to 2° Celsius (C) in the long-term, global emissions must peak by 2020 at the very latest and decline significantly by 2050.<sup>5</sup> In its Fourth Assessment Report, the Intergovernmental Panel on Climate Change offers an even tighter deadline, noting that, to stabilise global mean temperatures at 2.0°C–2.4°C above pre-industrial levels, global emissions must peak by approximately 2015 at the latest and decline by 50–85% below 2000 levels by 2050.<sup>6</sup>

While there has been no international agreement on the precise definition of the UN Framework Convention on Climate Change's (UNFCCC's) goal of "avoiding dangerous anthropogenic interference with the climate system," the 2°C target has received significant scientific support.

To achieve such a global emissions pathway, net emissions reductions from the developing world will need to begin soon. As the Stern Review notes, "Even if emissions from developed regions ... could be reduced to zero in 2050, the rest of the world would still need to cut emissions by 40% from BAU to stabilise at 550 ppm CO<sub>2</sub>e. For 450 ppm CO<sub>2</sub>e, this rises to almost 80%".<sup>7</sup> Thus, to avert dangerous climate change, emissions from major emitting developing countries will need to decline significantly below BAU, although such reductions need not start at the same time as those in industrialised nations or follow the same rate of decline.



**The post-2012 dilemma: essential elements**

Looking towards the post-2012 period, we believe that new market mechanisms will be needed that provide incentives for major emitting developing countries to stabilise and reduce their total GHG emissions. These new market mechanisms will also need to increase the flow of low-carbon investment going to all developing nations, stimulating a broader distribution of carbon finance than the CDM has achieved to date. Three such mechanisms are:

1 Sutter, C, Parreno, J, (2005), "Does the current clean development mechanism deliver its sustainable development claim?" International Conference: Climate or Development?, 28–29 October 2005, Hamburg Institute of International Economics, Hamburg, Germany.  
 2 UNFCCC (2007). CDM Statistics: <http://cdm.unfccc.int/Statistics/index.html>  
 3 International Energy Agency (2006), *World Energy Outlook 2006*.  
 4 Point Carbon (2007), *Carbon 2007: A new climate for carbon trading*.  
 5 This pathway is well supported by the literature. See: Meinshausen, M, W Hare, T M L Wigley, D van Vuuren, M G J den Elzen and R Swart (2006), "Multi-gas emission pathways to meet climate targets", *Climatic Change* 75, 151–194.  
 6 IPCC (2007), *Fourth Assessment Report Working Group III: Mitigation of Climate Change*.

□ 'Premium' emission budgets for developing countries that wish, voluntarily and at an early stage, to contribute more effectively to achieving the objective of the convention through full access to the global carbon market.

□ 'Value-added' CDM for those large-emitting developing economies that, in the near term, choose to continue with the CDM as their carbon market mechanism, to ensure that their CDM participation achieves real atmospheric benefits.

□ Eventual 'sunset' of CDM access for large-emitting developing economies.

### 'Premium' emission budgets

Under this approach, a developing country with the proven ability to quantify, track, and manage national GHG emissions would be eligible to receive a quantified emission allowance budget of absolute emissions set slightly above its level of current national emissions (see Figure 2). The 'premium' offered by such an emissions budget would enable countries to "leapfrog" the CDM directly to the global carbon market.

Countries participating in this mechanism could use their premium to finance rapid pathways to low-carbon economic growth nation-wide, participating more broadly in carbon markets, while saving significantly on transaction costs by avoiding project-level additionality requirements. In short, premium emission budgets would give countries interested in full access to the carbon market a head start on trading. Any reduction in emissions below their premium emissions level would be tradable, enabling participating parties to receive further compensation from carbon markets – a "gift that keeps on giving". Reductions not sold during the premium emission budget period could be saved for the future, when they are likely to increase in value as emission budgets for large-emitting countries tighten.

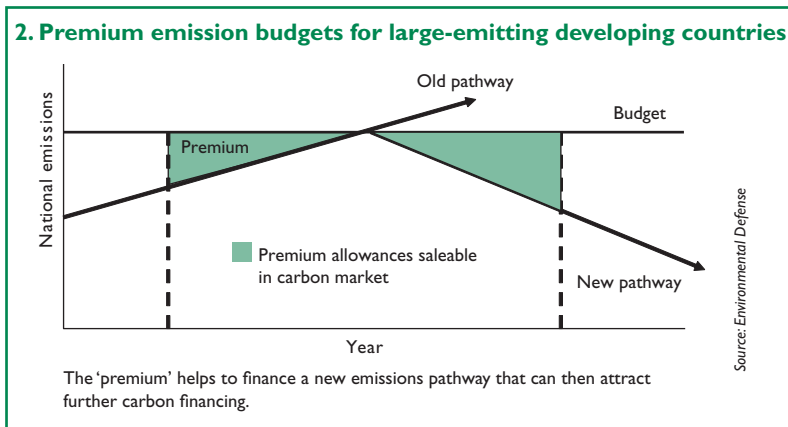
Given the history of heated debate on differentiated emission budgets for countries, a premium emission budget could also function as a longer-term budget set moderately below current levels at the onset. As the budget is kept steady over this period, a slight deflection in the country's emissions pathway can lead to the sale of a significant volume of credits at a later date.

### 'Value-added' CDM

As noted earlier, even if paired with extremely stringent Annex I (industrialised countries) emission limits, continuation of the CDM's current structure will make it essentially impossible to achieve a peak in global emissions by 2020. Consequently, for major developing economies that choose, in the near term, to remain in the CDM, it is essential to "add value" to the current mechanism to ensure that their participation in it achieves real atmospheric benefits.

Value is added when a certain percentage of all CERs transacted between an Annex I country and a major developing country is either permanently retired or withheld from the carbon market. For example, for every 100 tonnes of reduction made by a CDM project (assuming full additionality), only 90 CERs could be used by an Annex I country to meet its cap. The remaining 10 CERs would be retired and so would represent an atmospheric benefit, a net reduction made as a result of the CDM transaction. Value-added CDM could be applied on a sliding scale, with higher retirement percentages for larger emitting developing countries while all CERs from poorer developing countries would be fully transactable. Value-added CDM could be applied either on the demand or supply side. On the demand side, Annex I countries could choose to retire a portion of CERs coming from a major developing country.<sup>8</sup> Supply-side implementation could be undertaken by either the CDM Executive Board, which could decide to withhold from issuance a percentage of the CERs, or by a major-emitting developing country which could take the initiative to retire a portion of its CERs.

The carbon market implications of "value-added CDM" would



inevitably be slightly higher CER prices. However, distortions in the cost of compliance already exist in the EU Emissions Trading Scheme as quotas are in place on the amount of CERs that EU members are permitted to use for meeting their targets. The ongoing price difference in EU allowances and CERs ensures that the carbon market would be able to incorporate these costs.

Value-added CDM could be a crucial element in the transition to a more comprehensive set of GHG markets. However, adding value alone cannot avert dangerous climate change. It is a near-term remedy that will, in combination with the other aforementioned mechanisms, allow the CDM, while it exists, to yield greater atmospheric benefits and to address distributional inequities. To address these twin concerns over the longer term, value-added CDM should be coupled with a 'CDM sunset' clause.

### 'CDM sunset' clause

If emissions of large-emitting developing economies continue to increase, even the most severe of Annex I targets would not allow for the peaking of global emissions within the time-frame necessary to achieve the objective of the UNFCCC. As long as there is no definite end to the CDM, it will be necessary to 'sunset' access to the CDM for large-emitting developing economies – that is, to phase out their access to the CDM entirely.

This can be achieved by setting either a quantitative limit for the total amount of CERs issued or a deadline on CER issuance. Sunsetting for large-emitting developing economies will also encourage them to graduate from the CDM towards the fuller carbon market participation mentioned above. A CDM sunset provision will also need to address ongoing CDM projects, many of which have long operating periods. One solution would be for those CDM projects to apply for Joint Implementation (JI) crediting once the non-Annex I country accepts a premium budget.

### Conclusion

The post-2012 mechanisms presented in this article offer suggestions for possible successors to the CDM. As further work is done to understand how these mechanisms would operate within a post-2012 framework, it is critical that policy-makers keep in mind that successors to the CDM must ultimately provide incentives that allow global emissions to peak by 2020 and decline significantly thereafter. This will require nudging the world gradually towards global capped trading, generating net reductions from the world's major developing economies, and creating a more equal distribution of carbon finance across the developing world. Keeping these objectives in mind will be critical in building an equitable and environmentally effective post-2012 framework that is commensurate in ambition with the magnitude of the climate challenge before us.

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<sup>7</sup> Stern Review on the Economics of Climate Change (2006), Chapter 8: The challenge of stabilisation.

<sup>8</sup> We recognise clearly that, with the fungibility of assets in the global carbon market, arbitrage would potentially undercut the environmental effectiveness of any unilateral action by a purchasing nation.