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The Clean Development Mechanism (CDM) has been vital in implementing the Kyoto Protocol. Its achievements are remarkable - particularly since the climate regime had no market experience just five years ago. The Protocol's market mechanisms are the United Nations' first attempt to create and regulate a global commodity.

But the Protocol was never intended as the solution to climate change, nor were its market mechanisms seen as final products. The Protocol is limited in its global emission reduction target, in its timeframe, and in the countries that participate. Given the scale of the climate challenge, it can only be a preamble to an extended and enhanced effort — continuing to rely heavily on market mechanisms which may have to evolve to leverage the necessary capital and technology transfer. The Stern Review estimates that \$20-30 billion per year must be invested to cover the incremental costs of decarbonisation. The annual deployment of capital through primary CDM transactions doubled from \$2.4 billion to \$4.8 billion between 2005 and 2006, and is doubling again in 2007. But this is still only a fraction of what is needed. The CDM can, and must, do better.

For industrialized countries the CDM's purpose is to cut enough emissions to lower the cost of their reduction commitments under the Protocol. The CDM has registered over 900 projects with a potential of delivering up to 1 billion tonnes of CO<sub>2</sub> by the end of 2012. At least another 1800 projects — which could deliver another 1.5 billion tonnes by then — are in the pipeline.

For developing countries, the CDM has two purposes: to promote domestic sustainable development and to help stabilize global greenhouse gas concentrations in the atmosphere. These goals require it to be an effective instrument for decarbonising developing countries' trajectories of production and consumption. Here it has not performed quite so well.

It started by concentrating on projects to eliminate industrial gases with high global warming potential and extremely low elimination costs — particularly HFC-23 and N<sub>2</sub>O. This was the obvious place to start: without the CDM, there would be no incentive for eliminating them. The projects allowed the CDM to generate early reductions, build market confidence, and lower the initial cost

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by Christiana Figueres

of the supply of certified emission reductions — but continuing them beyond 2012 is highly questionable.

The CDM has also shown that it can catalyze the uptake of commercially proven technologies to capture waste heat and gases, thus increasing efficiency and reducing the local environmental impact of major carbon intensive industries like iron and steel, cement, and chemicals. It has also begun to support methane capture and use and efficiency in coal mining, oil and gas exploration and distribution.

Yet the CDM has fallen short of realizing its full potential. To date it has not:

- Demonstrated how project-based emissions reductions can catalyze and support decarbonising transport and the built environment — which comprise more than half of global carbon emissions and are the fastest growing sources in emerging markets;
- Shown the potential of creating carbon sinks through reforestation, leaving a huge imbalance in global efforts to manage climate change;
- Supported sustainable livelihoods and catalyzed energy access for the rural and peri-urban poor, leaving Sub-Saharan Africa and the least developed countries without access to carbon finance;
- Treated urban waste methane avoidance with sufficient regulatory consistency to promote a sustainable solution to the burgeoning waste management problem;
- Appropriately addressed coal fired power plants, the largest source of greenhouse gas emissions; nor
- Played an important role in switching from high to low carbon intensive fossil fuels.

These weaknesses are largely due to the CDM's creation as a project-based instrument. Restricting it to reducing emissions from single point sources has curtailed its potential to promote necessary sector-wide transformation, through cost effectively channelling capital and know-how to decarbonise such carbon intensive sectors as energy, transport and infrastructure.

The most important innovation for the 2008-2012 period is the introduction of “programmes of activities”, achieving emission reductions by many actions resulting from a government measure or a private sector initiative. Instead of being restricted to a single facility, like traditional projects, these promote decarbonization of a whole sector or sub sector — and could provide a first opening toward policy-based and sector-wide emission reductions in developing countries. They are complementary to CDM projects in the structure of the market, and provide an incentive for developing country governments to adopt and implement climate friendly policies and measures, helping to prepare them for broader participation in the future climate regime.

The CDM's governance also needs urgent attention. Fundamentally important is a well-established and effective support structure, providing institutional memory, impartial substantive analysis and regulatory consistency. The CDM's institutionalization has gradually matured, slowly but surely shifting analytical work from its Executive Board to a growing technical Secretariat, thereby increasing its institutional knowledge capacity. It is now critical, if currently politically less acceptable, to professionalize the Executive

Board. It is unreasonable to expect a part-time voluntary body with rotating membership, defined more by politics than business experience, to operate a market worth tens of billions of dollars a year.

Other specific measures deserve close attention for after 2012.

- Eliminating industrial gases as an eligible asset class. Continued eligibility for industrial gases would exacerbate existing biases in carbon finance flows to middle income industrializing countries and divert capital away from decarbonising their energy supply and infrastructure. With the bulk of industrial gases now eliminated, developing countries should require elimination of the rest as a production standard. The OECD should consider a grant program for poorer countries to ensure that they can install required catalysts and incineration equipment.
- Creating a level playing field for forestry activities. The full range of forestry interventions to create biological sinks should be included in post-2012 climate change management regimes, a process which has been started by the recent Bali decision on avoided deforestation.
- Sectoral Crediting. Programmatic CDM lets developing countries develop the capacity to organize and submit policy-based, sector-wide reductions from transforming production and consumption patterns. In the medium term, the larger rapidly developing countries could graduate into sectoral crediting mechanisms, defining clear-cut “domestic interest” reference lines, and being rewarded for capturing additional reductions in the “global interest” over a defined period. Reference lines would be progressive, embodying Governmental commitment to reduce the carbon intensity of growth while achieving domestic economic efficiency targets. Some form of sectoral crediting will be essential for mobilizing the level of private investment needed to transform economies the size of India and China as they grow at 6-8 percent a year — and for underwriting refurbishment of the slower growing industrial economies' existing carbon-intensive capital stock.

Several challenges will have to be met. First is the obvious disincentive against voluntarily setting such national interest sectoral reference levels: carbon intensive references that maximize potential crediting from the mechanism are preferred. Second, it implies differentiation in the Group of 77 and China — key for the regime's evolution, but extremely difficult politically, given the Group's long tradition and deeply entrenched negotiating position. Third, and most importantly, the feasibility of exponential supply in the market mechanism is predicated on commensurate growth in demand, stemming from much deeper reduction commitments by developed countries.

Managing climate change through the marketplace requires never-ending refinement and adjustment. It must be supported by keen observation and analysis, and quick — yet thoughtful — policy and regulatory adjustment, as we understand what works and what doesn't. The Kyoto Protocol has made an extraordinary and richly insightful contribution to our understanding of how to finance decarbonization and climate change resilience through market mechanisms. Governments must now identify the areas which need further improvement and swift action. The enormity of the challenge indicates that the market will continue to play an important role in climate control — but it will be effective only in as much as governments can make timely improvements.

*This article summarizes work co-authored with Ken Newcombe.* 