Looking into the future: the role of CDM

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**Global warming is a serious threat to the international community and collective action to reduce emissions of greenhouse gases (GHGs), the key cause of global warming, is needed to tackle the issue. The Kyoto Protocol’s Clean Development Mechanism (CDM) has become one of the most successful and practical tools existing today, to effectively reduce GHG emissions. Although CDM already plays a vital role in the development of GHG emission reduction projects, it can be improved by enhancing financing of initial capital costs, increasing transfer of cutting-edge and proven technologies, and establishing a framework for encouraging development of small-scale projects.**

The CDM’s key objective is to enable developed countries and economies in transition countries (Annex I) to meet part of their GHG reduction obligations under the Kyoto Protocol through the implementation of GHG emission reduction projects in developing and newly industrialised countries (non-Annex I), at the same time assisting sustainable development in those non-Annex I countries. For each tonne of carbon dioxide equivalent reduced, tradable carbon credits called certified emission reductions (CERs) are issued.

Today, carbon credits, such as CERs, are widely-recognised as one of the fastest growing and important financial instruments, encouraging further development of GHG emission reduction projects. Although the concept provides a win-win solution to both Annex I and non-Annex I countries, there is still room for improvement to make the CDM more effective and provide a greater contribution to the sustainable development of non-Annex I countries.

The CDM has been a groundbreaking mechanism – the first attempt to bridge developed and developing countries in the global warming issue – and the international community would benefit by ensuring the long-term prospects of the mechanism. For this reason, it is essential to improve the CDM from non-Annex I countries’ point of view. Furthermore, it is vital to recognise the role of CDM in conjunction with core GHG emission reduction projects. Although CDM can be used as a supplemental tool to provide additional incentive and support needed to develop GHG emission reduction projects, CDM revenue
should be neither the primary objective nor the sole benefit of the projects. From this point of view, financing of initial capital costs, transfer of cutting-edge and proven technologies, and establishing a framework for the improvement of small-scale projects have been identified as key elements where the CDM could be improved.

Financial barriers often underlay other barriers: for example, where financing is available, introduction of new technology is much less of a problem. In theory, the CDM can be used to enhance the financial position of GHG-reducing projects, by producing additional income through the sale of CERs. However, most CER transactions are made either upon issuance or on a forward delivery contract basis, meaning that the benefits of the CDM are only realised upon implementation of the project, and are not available to finance the initial capital costs of such GHG emission reduction projects.

In reality, financing of the initial capital is an issue curtailting many GHG emission reduction projects, where the initial capital costs are simply too large for the developer to meet and external financing is unwilling or unable to fill the gap. Clearly, some flagship companies in developing countries, particularly in China and India, have little difficulty in raising capital. However, a very large number of small and medium-sized companies in most of the non-Annex I countries are seen as a high credit risk and are often unable to gain the capital required for such GHG emission reduction projects, even if the economics of a given project look promising. In an ideal situation, CER revenue should be used to fill the gap, enhancing the return of the GHG emission reduction project, by recognising it as an element of expected future cash flow. However, most external financiers, especially local financiers in non-Annex I countries, do not take income from the sale of CERs into consideration when making financing decisions.

One reason for omitting CER revenue from the decision is the fact that many local financiers do not possess the know-how to conduct proper comprehensive financial coordination and assessment. A CDM project typically faces unique risks such as a CDM process risk (the risk that the project doesn’t meet the qualifications unique to the CDM), a post-Kyoto risk (the Kyoto Protocol ends in 2012, and how the CDM and CERs will be treated after 2012 is still unknown), a CER price risk or a technology risk (frequently, the technology used in the CDM is considered the first-of-its-kind in the region). Most local financiers do not possess the required capability and know-how to properly conduct the assessment and due diligence for a project.

A key question is who should take on the role of assisting the local financiers? In CDM development, most developers contract professional CDM consultants to deal with the complicated issues of the CDM. By the nature of their work, CDM consultants have a deep understanding of the risks associated with the CDM, which make them an ideal candidate for the role of assisting local financiers. As the CDM is evolving into a dynamic market, the role of CDM consultants should be reconsidered and should include broader financial advisory services similar to other business development consultants.

The Japanese government and other G8 countries have advocated a cut in global GHG emissions of 50% by 2050. This seems quite aggressive considering the fact that the same countries are struggling to reduce emissions by less than 10% (8% is the reduction target for the EU and 6% for Japan) as set under the first Kyoto commitment period. So, how is it possible? One key underlying assumption is technological advancement. Throughout history, technological advancement has always made the impossible possible, and scientists around the world are exploring new ways to reduce GHG, including carbon capture and storage, and electric vehicles (future technologies). In the long term, these future technologies will play a key role in the way we reduce GHG emissions.
On the other hand, compared to the 2050 long-term target, we have shorter target periods, starting from the first Kyoto commitment to 2012 and the post-Kyoto commitment to be negotiated at Copenhagen this December. For these short- to medium-term targets, future technologies are likely to play a small role in emission reductions. Instead, technologies that are considered cutting-edge or even proven technologies that are widely available in Annex I countries today are expected to play a major role in the short- to medium-term. For example, the average thermal efficiency of coal power plants in China and India is around 32%, whereas Japanese plants had achieved over 39% efficiency by 1990. This demonstrates that technologies that were available in Japan 20 years ago, today’s proven technology, can still be considered more efficient than the technology presently used in China and India, while investment in these proven technologies is normally significantly lower than in future, cutting-edge technology.

Though advancement of future technology is the main driving force for the ambitious long-term mitigation target, for the short- to medium-term goals, transfer of cutting-edge and proven technology from Annex I countries to non-Annex I countries is absolutely imperative.

Framework improvement for small projects

A dilemma of the CDM is that a larger potential to receive incentives from the CDM in the form of CERs is given to the industrial sector, while the number of projects developed in the public sector, and on a household and individual basis is quite low. One possible reason could be the inflexibility of the CDM framework, requiring a pre-determined project size and schedule. In order to encourage the highest possible GHG reduction and wide-spread efforts to combat climate change, a new framework for very small-scale projects was deemed necessary.

A prospective way to deal with such very small projects is the so-called programme of activities (PoA). The PoA is a new type of CDM with the objective of encouraging projects with the same stated goal or policy measure to be implemented with ease. One PoA consists of an unlimited number of projects. New projects can be added as the programme expands and a PoA is, therefore, given greater design flexibility than a single small-scale project.

Our experience as consultants from the early stages of the CDM allows us a unique perspective on the development of the various Kyoto mechanisms and, despite the challenges facing the PoA, we have been at the forefront since its conception. The PoA installing solar water heaters in Vietnam is one of the projects we are developing. Household level solar water heating systems, accounting for only about one tonne of carbon dioxide equivalent reductions per year, will be systematically installed in the south of Vietnam through a subsidy programme coordinated by the project developer.

Implementation of the project as a PoA enables the scope of the CDM to be potentially distributed throughout an entire country or region and not only a single, localised area as originally envisioned. The PoA contributes to the sustainable development of Vietnam by reducing energy consumption, and the amount of GHGs produced by fossil fuel consumption will be greatly reduced by the aggregate
savings of the combined units. The PoA also contributes to increased standards of living and comfort by providing a safe and steady supply of hot water, reducing the risk of electric shock and lowering utility fees. Under the PoA, a large number of solar water heating units can be installed throughout the 28-year crediting period. The costs associated with registering the equivalent number of small-scale projects will also be drastically reduced.

Having an increasingly large number of activities under one programme, however, leads to issues such as the management and coordination of not only each individual project, but also the overall PoA. It requires much time, skill and money to design and implement an appropriate sampling and monitoring plan in spite of the very small amount of CERs derived from each individual solar water heating unit. It is also necessary to obtain upfront financing to sustain the programme until the issuance of the first CERs. Complicated bureaucracy is expected to arise from any changes to the CDM regulations and it is an extremely difficult task for project participants in developing countries to manage all of the projects, with differing starting dates and regulations, under one PoA.

These issues can be addressed by providing capacity building programmes and developing a network to share PoA experience among practitioners. Ensuring detailed planning is undertaken during preparation of a PoA is essential to minimise both the costs and risks associated with CDM. Financing can be provided by Annex-I governments, international organisations or private investors to assist in PoA implementation until the first CERs are issued.

The PoA presents a challenge for project participants in developing countries to implement unaided, unless current and perceived risks are mitigated. If active public-private partnerships are encouraged, then the PoA has the potential to promote an aggregate of very small, policy/measure-related projects. These will significantly contribute to GHG reduction over a wider range of sectors – such as transportation and household energy conservation – than has been possible within the conventional CDM framework, while also contributing to the sustainable development of the host countries.

Conclusion

As negotiations for the post-Kyoto period heats up and the international community is working around the clock to agree on the post-Kyoto framework to be decided in Copenhagen in December 2009, the framework of the CDM is also facing reform. Although the CDM is not an all-encompassing solution and clearly requires improvements, it provides a vital basis to implement GHG emission reduction projects, contributing to both GHG reduction and the sustainable development of non-Annex-I countries. In order to maintain momentum, strong support and commitment from the international community is required to improve financial advisory services, facilitate the transfer of cutting-edge and proven technologies, and encourage the growth of innovative small-scale projects: all essential for the future of the CDM and any subsequent mitigation mechanisms.

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