Delivering Sustainable Development Benefits Through the Clean Development Mechanism

A background paper for the COP-11 Side Event:
Promoting the developmental benefits of the CDM: An African Case Study

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Background

The Clean Development Mechanism (CDM) is one of three flexibility mechanisms established under the 1997 Kyoto Protocol, and it is the only mechanism open for participation by parties from both industrialized and developing countries. It has two complementary objectives: to support sustainable development objectives and to provide cost-effective emission reductions. The CDM presents an opportunity to support developing countries' efforts to meet their national sustainable development objectives and deliver local development benefits[1] through the development and implementation of carbon-reducing renewable energy and energy efficiency projects. Concurrently, this mechanism assists industrialized countries in reaching their targeted emission reduction commitments set under the Kyoto Protocol more cost-effectively through the purchase of the resultant carbon reduction credits.

As described by the Department for International Development (DfID) in its paper, *Energy for the Poor* (2002), [2] access to clean, reliable and affordable energy is an important priority for many communities in developing countries. By supporting improved access to energy and energy services, CDM projects that expand access to energy services through the use of local, renewable energy resources can contribute to meeting local and national development objectives. Moreover, providing this access will be a crucial factor in meeting the Millennium Development Goals (MDGs).

Simplified procedures have been developed for small-scale projects that allow for standardized baselines and monitoring methodologies, fewer approvals and other means to reduce transaction costs, thus enabling a greater number of small-scale projects to access carbon financing. An ability to bundle together small projects in order to achieve minimum credit volume would also remove one of the limitations of small-scale project development.

The World Bank's "State and Trends of Carbon Market 2005" provides an overview of the current market for certified emission reduction credits (CERs) that are generated through Clean Development Mechanism (CDM) projects. The report indicates the successful rollout of an international carbon-trading regime characterized by high volumes and low prices — an ideal climate for long-term profitable investment:

- 107-million tonnes carbon equivalent exchanged by projects in 2004 with the expectation that this rate will continue to grow

[1] Host countries define evaluative criteria that assess potential CDM projects against a set of environmental, economic and social sustainability criteria. At the local level, Pembina's interpretation of sustainable development has been that the livelihoods benefits resulting from improved access to energy services delivered through CDM projects also lead to reduced GHG emissions.

[2] Department for International Development. (2002). *Energy for the Poor: Underpinning the Millennium Development Goals.* London: DFID. Available at: http://www.dfid.gov.uk/pubs/files/energyforthepoor.pdf

- India, Brazil and Chile continue to dominate as largest suppliers of project-based CERs while Africa has produced only one large-scale project in the same period
- HFC_{23}-destruction projects continue to provide the greatest volume of emission reductions, followed by methane capture, hydro/biomass and landfill gas capture
- CER's are trading at US $3–$7.15 with a weighted average of US$5 with little price signal beyond 2012[3]

However, as revealed by the World Bank's market profile, small community-based CDM projects do not feature prominently in carbon trading. Africa in particular has seen little in the way of CDM investments. Although a number of small-scale project are in preparation, the World Bank reports: "Africa continues to be bypassed by the carbon market, with very small volume transacted from January 2004 to April 2005. . . . This under-representation of Africa raises deep concerns about the overall equity of the distribution of the CDM market." [4]

Consequently, the overall picture is that of a mechanism whose priority is on the delivery of low-cost and high-volume emission reduction credits with limited sustainable development benefits for local communities.

From the onset of the CDM, limited awareness and training have acted as significant barriers to project developers, including local, small and medium enterprises, and non-governmental organizations (NGOs), thereby preventing them from leveraging carbon financing to support local project activities. Recent initiatives worldwide have provided individual project-based CDM training in an attempt to encourage participation by smaller project developers and to generate CDM projects. However, even when increased participation results in CDM-ready projects, project developers often face a limited, if non-existent, market for their potential CERs. Investors of all stripes are hesitant to purchase from what they deem to be "risky" projects, often claiming that the quantity of CERs on offer is too limited to counter the perceived risks.

In an attempt to re-balance the CDM's dual objectives by increasing the offering of premium-quality marketable projects delivering sustainable development benefits, the Pembina Institute began promotion of its Small Projects Facility concept.

Canada's CDM Small Projects Facility

History of Development

In 2001, the Pembina Institute initiated the development of its first CDM Small Projects Facility based on the belief that there is good potential for using the CDM to support small-scale renewable energy and energy efficiency projects. The Facility concept was simple:

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[3] Lecocq, F., & Capoor, K. (2005). *State and Trends of the Carbon Market 2005*. Washington, DC: World Bank & International Emissions Trading Association (IETA). Available at http://carbonfinance.org/docs/CarbonMarketStudy2005.pdf

[4] Data limitations contribute to limited information on small-scale projects; Lecocq and Capoor (2005) relied on information supplied by international carbon fund brokers because no public registry of project-based carbon transactions exists.

To increase the CDM knowledge of NGOs and SMEs in the developing world, thus enabling them to potentially access additional financing in support of their community-based projects

The objectives of the CDM Small Projects Facility are four-fold:

- To promote small community-based renewable energy and other greenhouse gas reduction projects that qualify under the CDM simplified approval process;
- To increase CDM opportunities in countries and regions with existing investment barriers;
- To support communities, NGOs, small and medium enterprises (SMEs), and other potential project hosts in preparing project documents for small CDM projects; and
- To link Canadian CDM investors with viable community-based projects from developing countries.

The Facility itself is not a physical entity, but rather a construct within which the Pembina Institute acts as the Facility Secretariat responsible for the overall management of the project funds, liaison and reporting to donors, and monitoring results. The Pembina Institute also provides technical support and assistance in the identification of appropriate projects, input to the training process and review of completed CDM documentation.

A partner organization in each country provides a local base of operation with responsibility for identification of potential project developers, organization of training workshops, monitoring of document preparation, initial contact with potential investors and reporting to the Pembina Institute.

Results

Project developers have demonstrated an eagerness to participate in the CDM Small Projects Facility as implemented in India, Kenya and Nigeria. Their interest primarily stems from the opportunity to access alternative project financing, and they have admitted upfront that they have limited knowledge of the CDM, its regulations and the project activity cycle. The Pembina Institute's experience has shown that developers of small-scale CDM projects need ongoing assistance with respect to baseline selection, completion of the project design document (PDD) and assessment of the financial viability of using carbon financing.

Project developers place significant value on the practical experience in designing and developing CDM projects offered by the SPF. Project developers often lack access to the financing and skills required to develop successful CDM projects; SPF training helped to build the capacity of local project developers to make projects possible. Project developers trained in designing CDM projects, developing solid business plans and managing project activities have transferable skills that can be applied to the CDM and other development activities.

Over the past four years, the Facility has supported the development of eight small community-based CDM projects in India and five small community-based CDM projects in Kenya.

International investors have expressed interest in some of these projects. CDM project types have included

India	Kenya
Micro-hydro	Bagasse cogeneration
Solar lanterns	Treadle pump
Solar home systems	Solar PV lighting systems
Solar hot water systems	Biofuel production
Treadle pumps	
Vertical shaft brick kilns	
Biomass gasifiers	

Once implemented, these projects will make significant contributions to the development of the participant communities through improved services (lighting and hot water), income generation (small businesses), household savings (e.g., fuel), as well as providing local environmental and health benefits.

The Vanilla Jatropha Project, Kenya

The Vanilla Jatropha project undertaken through the Kenya Small Project Facility provides an example of the sustainable development benefits that can result from a small-scale CDM project that has generated interest from buyers. Local farmers will cultivate jatropha trees whose seeds will be harvested for expelling oil that will be used for production of jatropha oil. The raw jatropha oil will go through a transesterification process to produce bio-diesel and glycerol. The jatropha oil will replace the use of kerosene for lighting and cooking, and the bio-diesel will provide an alternative fuel for combustion engines such as generator sets. By-products include seed cakes that can be used as organic manure and glycerol that can be used to produce soap. Benefits to local families and farmers include both financial savings and income-generating opportunities, improved health benefits from using a clean fuel, and the additional benefit of organic fertilizer and glycerol production.

Another important outcome of the Facility's work is that it enabled the UNFCCC simplified procedures to be tested using actual small-scale projects. Gaps in the current procedures were identified and communicated to the UNFCCC. The recommendations included a proposed baseline methodology developed through the Indian Facility to allow for the replacement of kerosene lamps with solar lighting. In 2005, the CDM Executive Board approved a new option for small-scale renewable energy projects that allows for a trend-adjusted projection of historic fuel consumption to be used as a baseline for projects in which electricity from renewable energy technology replaces a fossil fuel-based technology.[5] This methodology supports the Facility's recommendation.

[5] See: Project Type I.A. Renewable Energy Projects, Electricity generation by the user (Option 3: A trend adjusted projection of historic fuel consumption is acceptable in situations where an existing technology is replaced) in *Simplified modalities and procedures for small-scale CDM project activities - Annex B: Indicative Simplified Baseline and Monitoring for Selected Small-Scale CDM Project Activity Categories*, Version 06: 30 September 2005.

Strengthening the CDM

Key Issues and Recommendations

The introduction of the CDM Small Projects Facility development model has resulted in numerous small-scale CDM projects as well as a trained cadre of local students and consultants knowledgeable about the CDM and its application to project development in India, Kenya and, most recently, in Nigeria.

The process has also facilitated a detailed review of the mechanism itself and how it is applied to small-scale community-based projects in developing countries. It is clear from this analysis that the mechanism has not evolved as originally foreseen nor has it been applied consistently. This section identifies key issues of particular concern in the application of the mechanism to small-scale projects and, based on practical application and results, provides recommendations for improving the current processes.

1. Sustainable Development Priority

With respect to the CDM, the Pembina Institute has interpreted the term "sustainable development" to refer to the livelihood benefits resulting from improved access to energy sources through projects that also lead to reduced GHG emissions. However, the key question to ask in reviewing the current stable of CDM projects is whether this term applies to communities or host countries. While renewable energy projects constitute a significant share of projects in the CDM pipeline[6] and have or will contribute to increased access to clean energy and reduced GHG emissions on a national scale, local communities may not have benefited directly, and in a meaningful way, from project activities.

The small-scale CDM projects developed under the CDM Small Projects Facility provide

1. access to reliable, clean energy, which can help improve standards of living and support sustainable livelihoods among rural and low-income urban populations thereby contributing to poverty alleviation; and
2. support of the transition to a low carbon economy that will strengthen developing countries' ability to meet rising energy demands using sustainable energy and limit the emissions intensity of future economic growth.

Under the Bonn Agreement, host countries were rightly assigned the responsibility for establishing sustainable development criteria for CDM projects. Aligning these criteria with national development objectives provides an opportunity for host countries to ensure the CDM

[6] According to calculations by the UNEP Risoe Centre (2005), renewable energy projects constitute 61% of validated CDM projects but only 20% of the potential CERs to be delivered by successful CDM projects.

delivers positive development benefits at the national level. However, some analysts argue that host countries face significant challenges in establishing and applying these criteria.

> "Host country DNAs have to balance short-term interests in terms of maximum foreign direct investment (FDI) with the more complex and long-term interest of restructuring the energy system in a sustainable way. Often, they lack the capacity and resources to assess the implications of their CDM involvement at all. Even with the right intentions it is hard for a host country to avoid seeing its sustainability criteria dragged into a race to the bottom in the competition for CDM investments. However, as easy-to-change sustainable development criteria are a factor in host country attractiveness ratings for investors, this will continue to happen."[7]

While host countries seek to maximize the benefits of CDM projects, these benefits may not extend to local communities. Consequently, additional sustainable development criteria have been suggested to help ensure the sustainable development benefits are delivered at the local level. Such efforts should not be considered an attempt to supersede host country authority, but rather as a tool to help ensure individual projects contribute to meeting local development needs and national development objectives as defined by host countries. In addition, such efforts may help project developers market their CERs by providing a consistent criteria by which to evaluate the contribution of projects.

The Gold Standard[8] is a recognized standard for providing premium-quality projects. The objective is to assure CER purchasers that projects meet sustainable development criteria, will provide direct community benefits and have been developed through measurable stakeholder participation. The Gold Standard seeks to reduce risks associated with financing, delivery delays and additionality concerns. Qualifying projects are expected to receive higher prices for generated CERs, upfront payments from investors and the benefits of enhanced stakeholder consultation.

The Gold Standard indicators ensure "that no potentially damaging effects of a project are overlooked and that suitable mitigation measures are found" by evaluating projects against

1. local, regional and global environmental issues;
2. social sustainability and development issues; and
3. economic and technological development issues.[9]

The Gold Standard's indicators focus assessment of sustainable development at the local level where the projects are to be initiated. The indicators developed by host countries along with those of the Gold Standard can work hand-in-hand to encourage the promotion of sustainable CDM.

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[7] Schlup, M.. (2005) "One goal is not enough.", Carbon Finance Vol.2 #21. Available at: http://www.carbon-financeonline.com

[8] Further information on the Gold Standard is available at www.cdmgoldstandard.org

[9] Schlup, M. *What can CDM projects contribute to sustainable development?* Available at: www.reeep.org/index.cfm?articleid=1200

In addition to the projects initiated through the Small Project Facilities, a few examples of the effective use of the CDM to promote sustainable development are emerging.

The Kuyasa Low-Cost Urban Housing Energy Upgrade Project, South Africa

The "Kuyasa low-cost urban housing energy upgrade project, Khayelitsha" in Cape Town, South Africa, was registered with the CDM Executive Board in August 2005. The project is a joint initiative between SouthSouthNorth (SSN) and the Cape Town City Council to provide energy efficient lighting, solar-powered hot water and insulated ceilings for 2,400 buildings in Kuyasa township. The project is expected to deliver a savings of 2.8 tonnes of carbon dioxide per year per household.[10]

Recommendation:

It is recommended that Canada and other Annex I countries purchase CERs from projects that deliver significant sustainable development benefits at the local level and therefore use criteria such as those set by the Gold Standard (or give preference to projects with Gold Standard accreditation) when assessing projects to include in their portfolios of CDM purchases.

2. Supply and Demand

In its application, the CDM has been set off course in its objective of supporting sustainable development in part because of Annex I investors' preferences. Currently, there are justified concerns that the demand from Annex I countries will exceed the supply of CERs available by the end of the first commitment period. The World Bank suggests several reasons for this imbalance, including

> *"Supply response to increased demand is slow*: There are indications that the incipient demand is high, with new buyers coming into the market with large amounts of money. For example, the capitalization of carbon funds worldwide has increased from approximately $275 million in January 2004 to about $950 million in April 2005, a 250% increase. Yet the long time required to find supply of projects, and regulatory uncertainty on the Executive Board has allowed only a small slice of this new purchasing power to be translated into new transactions (less than 5% so far)."[11]

While regulatory uncertainty — particularly around the issues of additionality — has limited the availability of potential CERs, investors are also contributing to the problem of slow supply response. While incipient demand may be high, the majority of investors (including

[10] *Gold Standard Scores First CDM Registration*, Newrelease, BASE and the Gold Standard, September 6,2005. Available at www.cdmgoldstandard.org.

[11] Lecocq, F., & Capoor, K. (2005). *State and Trends of the Carbon Market 2005*. Washington, DC: World Bank & International Emissions Trading Association (IETA). Available at http://carbonfinance.org/docs/CarbonMarketStudy2005.pdf

governments) give preference to end-of-pipe CERs purchases rather than investing in Verified Emission Reductions (VERs). This effectively limits the upfront carbon financing available to project developers and shifts the risks associated with project development and CERs delivery entirely onto project developers[12].

This situation is particularly problematic for small-scale project developers who often have limited access to conventional financing. While the CDM was originally designed with the intent of distributing risks between project developers and investors through the provision of upfront carbon financing, such arrangements have been extremely limited in practice. This situation has led to a Catch-22. Local banks and financiers consider the risks of project development to be extremely high because of uncertainty of carbon financing, and investors seek to avoid risks by end-purchasing on projects. The combined effects of this approach are fewer projects being developed because of a lack of upfront financing to project developers, creating a propensity for under-delivery on CERs because of insufficient financing.

> "The main barrier to RE/EE projects is not registration by the Executive Board, but the ability to find investors to finance the high upfront costs of the underlying projects. RE/EE projects gain a relatively small boost in their internal rates of return (IRRs) from carbon credit revenues. Increased IRRs through CER sales were exactly what was thought would attract more investors and bring more projects online through the help of the CDM."[13]

Carbon prices do not reflect the value of the risk assumed by the project developer. The results from the pilot CDM Small Projects Facility in India in 2003 demonstrated that "Small-scale CDM projects would benefit from higher carbon prices than that currently offered on the market at US$3–5 per tonne CO_2." Prices have not risen substantially since 2003, and the World Bank estimates that carbon prices will remain at US$5–10 per tonne CO_2 throughout the first commitment period.[14]

Recommendations:

It is recommended that Annex I parties invest in the development of CDM projects by providing low-interest loans to project developers or upfront financing through purchase agreements. Parties should also pay a premium price for premium-quality projects in recognition of the added value of these projects in delivering sustainable development benefits at the local level.

Actions such as these by Annex I parties will distribute the risk between project developer and purchaser, and help overcome financial barriers to participation on the part of the project

[12] Wilder, M., & Willis, M. (2004)."CDM legal issues: an alternative perspective". *Carbon Finance*,Vol. 1 #10. Available at: http://www.carbon-financeonline.com

[13] Schlup, M. (2005). "One goal is not enough.". *Carbon Finance*, Vol. 2, #(21. Available at: http://www.carbon-financeonline.com

[14] Bell, W. and Drexhage, J. (2005). *Climate Change and the International Carbon Market.* Winnipeg: International Institute for Sustainable Development (IISD). Available at www.iisd.org/pdf/2005/climate_carbon.pdf.

developer Those investors interested in supporting the CDM's sustainable development objective should be prepared and willing to pay a premium price for such projects.

3. Lack of Knowledge about the CDM

The development of CDM projects is a daunting task for developers, especially of small-scale projects. The detailed project cycle, emission baselines, regulations concerning grid connectivity, additionality issues, return on investment, processes of validation, verification and approval are complex issues that interested project developers must become familiar with if they are to produce accurate Project Inception Notes (PINs) and PDDs. Project developers will only take advantage of CDM financing if they understand how to use the CDM to leverage international funding to support local projects.

As evidenced by the results from Pembina's Small Projects Facility model, an investment in training and ongoing assistance has resulted in the development of marketable small-scale CDM projects in a range of technologies as presented (see above).

Additional methodological guidance has been forthcoming from organizations such as SouthSouthNorth and its "CDM Practitioners' Practical Toolkit."[15] The toolkit is designed to assist organizations initiate the project development process and offers excellent advice on strengthening the sustainable development benefits of projects and overcoming potential financial, regulatory and market barriers.

However, an area that project developers would benefit from further guidance in is that of the legal and political issues related to responding to project underperformance, market risks, CER title, timing of title transfer, remedies of a shortfall in project performance, definition of force majeure, dispute resolution, etc.[16]

Recommendation:

Developers of small-scale CDM projects need assistance with respect to baseline selection, completion of the PDD and assessment of the financial viability of using carbon financing. It is recommended that Annex I countries increase their support for capacity building and training programs for developing countries to enable project developers in these countries to increase their knowledge and awareness of the CDM such that they can proceed with the development of CDM eligible projects. The Pembina Institute SPF Model should be considered as a vehicle for providing this assistance.

UNEP's CD4CDM project has published a *Legal Issues Guidebook to the CDM*, which outlines the potential risks through the various stages of the project development cycle and proposes

[15] See: http://www.cdmguide.com

[16] Wilder, M., & Willis, M. (2004). "CDM legal issues: an alternative perspective". Carbon Finance,Vol. 1,#10. Available at: http://www.carbon-financeonline.com

numerous legal and contractual approaches that could be adopted to minimize the risks.[17] In addition to this type of guidebook, it would be very helpful to develop a body of knowledge providing examples of legal application and pitfalls that have arisen regarding, for example, issues of title transfer that would assist project developers, governments and investors alike in avoiding the same errors as well as promoting consistency of practice.

4. Operation of the CDM Executive Board

It is estimated that the **CDM Executive Board** (CDM EB) will approve approximately 70 CDM projects in 2005. In order for the CDM to have an impact on the global environment and contribute to sustainable development of host countries in a meaningful way, the approval rates of the EB must increase enormously. However, a shortfall in funding for the work of the EB (US$3.8 million for 2005) as well as the timing between meetings of the EB and the Methodological Panel responsible for setting rules and procedures has limited the rapid progression of the approval process.[18]

While none of the CDM Small Project Facility projects has reached the stage of approval by the EB, it is a concern when presenting materials to prospective project developers that there have been so few approvals by the EB to illustrate as positive examples demonstrating the effectiveness of the CDM. There is some concern among project developers as to whether the CDM is an administratively affordable mechanism in which to participate. This is especially true when viewed from the perspective of project developers (particularly NGOs) with limited funds and resources, including staff time, to dedicate to lengthy approval processes.

In May 2005, the EB put forth a number of proposals to streamline the methodology approval process. These included a proposal to increase the number of members on the Panel to 15) and to increase the interactions between the Panel and the Designated Operational Entities (DOEs).[19]

Recommendation:

IETA is calling for adequate resources and staff to enable the CDM EB to operate at an efficient level and with "level of credibility" for investors.[20] Based on the experience with the CDM SPF models, Pembina would also recommend a request for additional funds from Annex I countries to support the effective operation of the EB process.

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[17] United Nations Environment Program (UNEP) Riso Centre. *Legal Issues Guidebook to the CDM* available at http://www.cd4cdm.org/Publications/CDM%20Legal%20Issues%20Guidebook.pdf

[18] Nicholls, M. (2005) "CDM concerns cloud COP 10." Carbon Finance, Vol.2 #1. Available at: http://www.carbon-financeonline.com

[19] Untitled. (2005) Carbon Finance, Vol.2,#5. Available at: http://www.carbon-financeonline.com

[20] _____, "IETA calls for overhaul of CDM", Carbon Finance, Vol.2#21. Available at: http://www.carbon-financeonline.com

5. Bundling

The issue of bundling projects has been reviewed in detail by the IT Power Group (2005), and a proposal has been presented to remove limitations on size of projects to improve market access to higher volumes. The IT Power Group guide outlines the process of bundling a variety of projects including those within the same sector, from different sectors, etc. The intent of the bundling proposal is to enable small projects that would otherwise fail to meet minimum limitations on the volume of CERs to be developed under the CDM. The actual application of the bundling concept occurs fairly haphazardly and is not supported by all practitioners. The lack of simplified procedures to cover the bundling option is one barrier limiting its implementation.

Another option for bundling small projects is to adopt a sector-wide approach.[21] A proposed approach would enable projects to be developed at a sectoral level, shifting away from the single-project approval approach. Depending on its design, sectoral CDM could reduce the risks and transaction costs accrued by small-scale project developers because community-based projects would be pre-approved under specific guidelines. This would reduce existing administrative and financial barriers to participation for small-scale project developers, thereby allowing for greater sustainable development benefits to be delivered at the local and national level.

Many small projects have been proposed to the CDM Small Projects Facility that would deliver sustainable development benefits to local communities. However, the Facilities have not been able to incorporate these projects because the small amount of CERs has rendered the projects unviable at the current carbon price. The small numbers of projects that the Facility is pursuing to develop has limited the opportunities to test the bundling process.

Legal issues are a key concern for many project developers who are wary of bundling their projects because this would require them to shoulder the risk of under-delivery among the other projects. There is an inadequacy in the legal framework for the CDM to provide a way of following up on failed contracts.[22]

Recommendation:

Improving tools for aggregating small-scale projects into bundles to attract buyer interest and introducing risk mitigation measures to limit the risk to individual project developers participating in bundled projects would help to strengthen bundling as a viable option under the CDM.

[21] Samaniego, J., & Figueres, C. (2002). Evolving to a Sector-Based Clean Development Mechanism. In K. A. Baumert, O. Blanchard, S. Llosa & J. Perkaus (Eds.), *Building on the Kyoto Protocol: Options for Protecting the Climate* (pp. 89-108). Washington, DC: World Resources Institute.

[22] Conversation with Mr. S.C. Rajshekar, Symbiotec Research Associates, Consultant to Pembina's CDM Small Projects Facility work in India, Kenya and Nigeria.

Conclusions

The Pembina Institute's Small Project Facilities) in India, Kenya and Nigeria have demonstrated that small community-based CDM projects can deliver local sustainable development benefits while contributing to Annex I countries' efforts to meet their emission reduction targets set under the Kyoto Protocol. However, the experience of project developers participating in the Facilities also indicates that there are significant barriers to developing such projects. For the dual objectives of sustainable development and cost-effective emission reductions to be realized, the CDM must be strengthened to support the development of small-scale projects.

Recommendations based on the experiences of the Small Project Facilities highlight the need for Annex I parties to adopt a more active role in facilitating the delivery of sustainable development benefits through CDM investments. Project-level sustainable development criteria offer a means to screen projects based on their contributions to sustainable development. Investors who recognize the added value of local sustainable development benefits should realize the marginal costs of developing such projects may be higher than projects delivering high volumes of CERs and be willing to pay a premium for this added value. To ensure the availability of CERs that deliver the added value of local sustainable development benefits, it would be prudent of investors to support the development of small community-based projects by providing upfront carbon financing or low-cost loans rather than limiting their activity to end-of-pipe CERs purchases. Access to financing early in the project cycle will help project developers reduce the risk of non-delivery because of inadequate financing, thereby reducing the overall risk associated with the project.

Increased capacity building opportunities will also play an important role in realizing the dual objectives of the CDM. Awareness and understanding of the CDM remains limited among potential project developers such as small-scale enterprises and NGOs. As illustrated by the experience of the Small Project Facilities, practical training in developing CDM projects is critical in providing people with the skills and knowledge to successfully leverage carbon financing through the CDM to support the development of renewable energy and energy efficiency projects. The Pembina Institute's Small Project Facility is a proven model for capacity building with local project developers. However, further resources and training are required to provide project developers with assistance in the legal aspects of the CDM such as dealing with risks of underperformance and title transfers. Further funding of capacity building activities by Annex I governments will contribute to strengthening the CDM as an effective mechanism for supporting sustainable development and expanding the supply of CERs from CDM projects.

Addressing regulatory uncertainties and administrative issues such as the insufficient provision of resources to the CDM Executive Board would help to promote confidence in the CDM as a viable mechanism and improve the efficiency of the accreditation process. Adapting CDM regulations to incorporate recommendations on the bundling of projects and sectoral CDM would expand access to the CDM. Moreover, a sectoral CDM approach could help reduce transaction

costs for small project developers, lowering the cost of CERs from small-scale projects and thereby supporting Annex I investors in meeting their Kyoto targets more cost-effectively.

The experience of project developers participating in the Small Project Facilities underscores the need to strengthen the CDM, as discussed, in terms of market accessibility, capacity building and training, administrative and regulatory issues. While the Facility has been successful in enabling project developers to participate in the CDM, the sustainable development benefits delivered by these and other projects under the CDM will be limited unless the concerns outlined in this paper are addressed in a timely manner. .

Using the CDM to support sustainable development makes sense from a local, national and international perspective. In particular, renewable energy projects will help local communities access energy services and expand livelihood opportunities, thereby collectively contributing to poverty alleviation and increasing their resiliency to climate change. For host countries, such initiatives will also contribute to meeting national development objectives and strengthening developing countries' long-term capacity to limit emissions. From an international perspective, a Clean Development Mechanism that delivers on its dual objectives will contribute to meeting the priorities of the Millennium Development Goals (MDGs) while contributing to the reduction of global GHG emissions.

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