

PROJECT CLIMATE CHANGE

**The Clean Development Mechanism
(CDM) in Latin America and the
Caribbean: Regional-level lessons
learned paper**

Project: Climate Change

Date: January 2007



**Canadian International
Development Agency**

olade
Organización Latinoamericana de Energía



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Abbreviations

CIDA	Canadian International Development Agency
DNA	Designated National Authority for CDM
CABEI	Central American Bank for Economic Integration
CAEMA	<i>Centro Andino para la Economía y el Medio Ambiente</i>
CD4CDM	Capacity Development for the CDM
CDM	Clean Development Mechanism
CERs	Certificates of Emissions Reduction
UNFCCC	United Nations Framework Convention on Climate Change
EU ETS	EU Emissions Trading Scheme
ITL	International Transaction Log
CDM EB	CDM Executive Board
CDM	Clean Development Mechanism
OLADE	Latin American Energy Organization
KP	Kyoto Protocol
t CO _{2e}	Tons of carbon dioxide equivalent

Executive Summary

This paper was developed as part of the activities implemented during Phase 3 of the Energy and Climate Change Initiative of the Sustainable Energy Development Project developed by the Latin American Energy Organization (OLADE) and the University of Calgary, with financial support from the Canadian International Development Agency (CIDA).

The goal of this Initiative has been capacity building for OLADE's member countries to participate in the Clean Development Mechanism (CDM) by providing up-to-date information on CDM procedures and activities, reviewing CDM activities at country and regional levels, and implementing training activities for technical and institutional strengthening.

The Initiative was carried out from 2004 to 2006 and consisted of three phases: (1) situational and contextual analyses of the CDM institutional capacities and carbon market opportunities in the region; (2) capacity-building activities in El Salvador, Nicaragua, Cuba, and Jamaica for the purpose of contributing to CDM work in those countries; and (3) helping to detect the lessons learned in order to foster guidelines for continual deepening of CDM participation among the countries of the region.

The work presented in this paper is grouped into three large sections offering the major findings of the research performed. Chapter 2, named CDM Status in Latin America and the Caribbean, presents a comparative assessment of the CDM situation world wide and in the region of Latin America and the Caribbean, enabling a comparative retrospection between the baseline identified at the beginning of the Initiative in 2004 and the current CDM status. For this purpose, the key points taken were progress in regulatory environments, markets, and project supplies within this flexibility mechanism. It is clear that the 2005–2006 period saw much progress and consolidation on the different fronts under study, and the degree of regional CDM participation should be highlighted, as well as the level of institutional development and capacity building taken place.

The energy sector has been an active participant, from a regional perspective, in CDM project supplies. There has been a broad range of project experiences regarding cogeneration, and the addition of renewable energy capacities to the electric grids of many countries. It is also clear that there are major asymmetries in the institutional and project development environment in the region, caused by exogenous and endogenous factors of different types.

Chapter 3 concentrates on the generating lessons learned on CDM matters within the region of interest, using a CDM stakeholder network analysis as the optics for consideration. A summary is offered of the major lessons learned over time, based on a review of the lessons learned by other capacity-building support programs in the region (as is the case of the CD4CDM project) and country-specific actions implemented during Phase 2 of the Energy and Climate Change Initiative in four countries of the region. These lessons learned make it possible then to reflect on the status of the different networks under consideration: regulations, business, knowledge, and informal participation. It concludes that the major development has been in the operation and integration of regulatory and business networks, which is understandable since the CDM is a project-centered mechanism, and that there exist major asymmetries in the operation of knowledge networks, in which power is centered in business agents (whether carbon purchasers or go-between technicians providing technical services), with a lack of more formal programs for training agent participation. With regard to informal networks characterized by the participation of NGOs and local social actors, two different levels of involvement are observed: one by large international NGOs that continue active in CDM follow-up, and the other by local groups that usually participate at the level of issues under consideration in consultations with local stakeholders who might be affected by project development under the CDM.

Based on a review of present CDM stakeholder networks, the document centers on summarizing the lessons learned, as an important step towards identifying areas of common interest to strengthen involvement in the CDM.

These lessons are described in the document and focus primarily on the matter of institutions and their processes, and on the topic of project portfolios and their development, including issues regarding CDM impacts on project financing. These lessons learned are:

1. The institutional development of CDM Designated National Authorities has been represented by processes that follow perceived changes in the national regulatory and project promotion environment as well as in CDM regulations.
2. The relatively early CDM institutional development in some countries was not necessarily due solely to the prior existence of project portfolios, but rather included leadership elements both from key persons interested in this issue at an institutional level, and from the arena of project development.
3. The extent of financial sustainability and occupational stability for the staff of a CDM Designated National Authority is still critical to appropriate performance and continuity.
4. Country-level intra- and inter-institutional backing seems to be a determining factor operating a CDM Designated National Authority.
5. Assessing CDM project contributions to sustainable development through host country approval processes is highly important to institutional CDM regulatory activities.
6. Determining a country's CDM project development potential is an important tool for decision making and for taking action in a Designated National Authority's different areas of activity.
7. The initial CDM project portfolios focused mainly on renewable energy or solid urban waste management projects, which are important on the short term but limit medium and long-term portfolio development.
8. There is an interesting potential for developing "umbrella" or programmatic type energy sector projects in the countries, especially for issues relating to energy efficiency and rural energy service provision.
9. Project development from the concept stage to CDM registration faces a series of financial barriers that should be worked on at the national and international level.

After this series of lessons learned are described, Chapter 3 concludes by presenting detected needs to be met through CDM-strengthening activities:

- The need to continue with Designated National Authority capacity building in an emerging array of challenges: strategic, systemic strengthening aimed towards reengineering based on process bolstering, development of strategic alliances to share CDM promotion roles with other networks, capacity building to influence supplementary policies aimed to create portfolios of national interest, systematizing the regulatory knowledge required in the field of CDM contributions to sustainable development.
- The need to foster the involvement of new actors that facilitate technology transfer and financing, in arranging "umbrella" and programmatic intervention packages, in order to help eliminate the participation asymmetries detected among countries. This requires a switch in capacity building and in CDM forecasting and promotion in many smaller countries, starting out with specific projects aimed to facilitate a programmatic CDM.
- The need for those offering emissions reductions and participating with new business models of growing import to develop suitable marketing plan for their projects with the support of adequate, transparent access to strategic market information, regulations and actors involved.

Chapter 4 of this paper presents a few recommendations and actions that might contribute to a continual deepening of CDM involvement by the countries of Latin America and the Caribbean in the future. These recommendations and actions include:

1. Solving the asymmetries in CDM participation among the small countries of the region.
2. Deepening CDM Designated National Authority capacity building in an emerging array of new challenges.
3. Making concrete contributions towards establishing programmatic project development in the energy field.
4. Creating regional information forums that might contribute to information transparency on carbon markets.

1. Introduction

This document has been developed as part of the activities implemented during Phase 3 of the Energy and Climate Change Initiative of the Sustainable Energy Development Project¹ developed by the Latin American Energy Organization (OLADE) and the University of Calgary, with financial support from the Canadian International Development Agency (CIDA).

The goal of this Initiative has been the provision of capacity building for OLADE's member countries to participate in the Clean Development Mechanism (CDM)² by providing up-to-date information on CDM procedures and activities, reviewing CDM activities at country and regional levels, and implementing training activities for technical and institutional strengthening.

The Initiative has developed from 2004 to 2006, and its implementation consisted of three phases, which included:

Phase 1. Implementing activities aimed to understand the international and regional CDM situation and to approach different actors in major networks to strengthen the CDM, thus creating a frame of reference for Initiative development and activities. As a result of work done by an interdisciplinary team during 2004, two key documents were published:

- A paper titled “*Capacidades Técnicas Existentes y Actividades Relacionadas con el Mecanismo de Desarrollo Limpio en ALC*” offering a comprehensive review that identifies the current institutional structure for CDM in the region, the barriers and factors limiting more effective involvement in the mechanism, existing capacities for developing project activities, and identifies the requirements and needs for strengthening the region.
- A paper titled “*El Mecanismo de Desarrollo Limpio (MDL): Perspectivas Internacionales e Implicaciones para la región de América Latina y el Caribe*” presenting a review of the CDM regulatory situation by 2004, as a starting point to position the level of effort for CDM project development.

Phase 2. Implementing activities aimed to help OLADE's member countries carry out diverse institution-building actions for actors in the different networks involved in the CDM. This second phase included designing and implementing:

- Country-level case studies in four of OLADE's member countries to deepen the study of institution and project development in each country, identify capacity-building needs, and recommend actions and best practices to be implemented in order to bolster the capacity to participate in the mechanism. The four selected countries were Cuba, Jamaica, Nicaragua, and El Salvador.
- Country-level training and capacity-building workshops based on the technical and institutional requirements that were identified.

¹ For information on this initiative and the documentation produced, please refer to www.olade.org

² The Clean Development Mechanism acknowledges the importance of reducing the increase of greenhouse gas emissions and promoting sustainable development in developing countries. The CDM is one of the flexibility mechanisms established by the Kyoto Protocol, and it is here that the involvement of developing countries can be achieved.

- Lessons Learned Papers with a summary of lessons learned as found in the process of implementing CDM actions and identifying possible considerations for developing a strategy to improve national involvement in the mechanism.

Phase 3. Implementing activities aimed to generate regional lessons learned, based on experiences from Phase 2 that support the development of a lessons learned paper that will enable the region's countries to discuss elements they should consider in strengthening their CDM involvement.

This paper refers to the activities of Phase 3 and presents, in an integral fashion, the results of considering the lessons learned regionally based on the CDM involvement of Latin America and the Caribbean.

2. CDM Status in Latin America and the Caribbean

2.1. The CDM Today

The Energy and Climate Change Initiative developed by OLADE and the University of Calgary implemented its activities during the 2004–2006 period. It is important to note that important milestones were reached during that period, which determined the present CDM status.

The purpose for this chapter is to provide a general summary of these key developments that are important to gain perspective on later sections of the work done, some of the lessons learned over time, and the actions implemented by the OLADE / University of Calgary Initiative.

The period from the end of 2004 to the beginning of 2006 was very important for international agreements on climate change in general and for the Clean Development Mechanism (CDM) in particular. Major progress in the regulatory field and market development marked a year in which the CDM began to consolidate as an important mechanism, not only from a perspective of reducing GHG emissions, but also as a weighty financial instrument within the carbon market.

2.2. Regulatory Developments in CDM Project Development during 2005–2006

Three important CDM facts were seen between late 2004 and early 2005.

The first was filing the first project with the CDM Executive Board. The Brazilian project NovaGerar, using methane from a sanitary landfill for energy production, was registered on November 18, 2004.

Since then, to the date of this report,³ a total of 434 projects have been filed with the CDM Executive Board, 194 from the region of Latin America and the Caribbean, which is nearly 47 % of all projects filed. The total yearly average expected reductions from these projects in the region represent almost 26.65 million tons of CO₂ per year, which is 25.2 % of the expected CERs⁴ for all projects registered at this time. In addition, 44 projects are currently applying for registration under the CDM, 20 of which are in the region of Latin America and the Caribbean.

CDM project distribution by number and place of origin, per region, shows the Asia / Pacific region in first place followed closely by Latin America and the Caribbean and then Africa and other regions, with the first two predominant as they presently concentrate CDM project development.

In total, 16 countries of Latin America and the Caribbean have filled CDM projects so far, as is shown on Table 1.

³ December 2006

⁴ CER is the English acronym for Certified Emissions Reduction and is used in the Clean Development Mechanism as equal to 1 ton of CO_{2e} reduced.

Table 1. Projects Registered and Requesting Registration under the CDM (Dec 06).

COUNTRY	NUMBER OF PROJECTS	
	REGISTERED	REQUESTING REGISTRATION
Argentina	6	0
Bolivia	1	0
Brazil	80	6
Chile	14	0
Colombia	5	1
Costa Rica	2	0
Dominican Republic	1	0
Ecuador	8	0
El Salvador	2	0
Guatemala	5	0
Honduras	10	0
Jamaica	1	0
Mexico	63	13
Nicaragua	2	0
Panama	4	0
Peru	3	0
Total	194	20

Source: www.cdm.unfccc.int

Subsequently, on February 16, 2005, ninety days after Russia's ratification, the Kyoto Protocol entered into effect⁵, this event increased the regulatory uncertainty about the Protocol, added credibility to its flexibility mechanisms, and provided backing for ongoing efforts to develop emissions reduction projects. In the region of Latin America and the Caribbean, only Saint Kitts & Nevis and Suriname had not ratified the Kyoto Protocol at December 2006, which fully ensures the CDM participation of the other countries.

Finally, the first Certified Emissions Reductions (CERs) were issued for a CDM project in 2005. The "La Esperanza" hydroelectric project, located in Honduras, obtained its first CERs on October 20, 2005. Since then and to date, a total of 22,446,305 CERs have been issued, 4,948,357 of which were issued for projects located in the region of Latin America and the Caribbean (representing 22 % of all CERs emissions. Brazil, Chile and Mexico are the countries with the most certificates issued for projects located within their borders.

The events described above signify that throughout implementation of the Energy and Climate Change Initiative, it has evolved within the context of major regulatory developments and emerging carbon market consolidation.

With regard to the number of CDM projects developed, according to a report prepared by CD4CDM,⁶ on September 14, 2006, there were 1145 projects in the CDM project "pipeline,"⁷ including those already registered, undergoing validation, and in the process of registration. (This

⁵ The Kyoto Protocol was to take effect 90 days after its ratification by at least 55 of the participating parties, which were jointly to represent at least 55 % of all Annex I emissions for 1990.

⁶ UNEP Risø. CDM Pipeline Overview, available as updated at Nov 2006 in www.cd4cdm.org

⁷ The criterion for inclusion in the pipeline is for a project to be at least at the comments requesting stage under the validation process.

number may have grown considerably.) Of these projects, 415 or 36.24 % belonged to the Latin American region, as shown on Table 2.

Table 2. CDM Projects (September 06)

Project status	Total	LAC
Under validation (available for comments 30 days, LULUCF 45 days)	750	240
In the process of registration. Includes projects with a registration request, review request, correction request, and under review.	96	34
REGISTERED	299	141
Total Number of Projects	1,145	415

Source: CD4CDM, September 2006

The above information is based on official data that appear on the CDM Web site and does not include projects under formulation that have not passed over to the validation stage. According to the company Point Carbon⁸ specializing in the carbon market, the number of CDM projects under preparation recorded in their database jumped from 980 in 2004 to over 2,800 by late 2006. This means that throughout implementation of the Energy and Climate Change Initiative by OLADE and the University of Calgary, the total projects detected worldwide almost tripled, showing the rapid development of this market and of interest in the CDM.

By October 2004, according to the paper⁹ on the findings from executing Phase I of the OLADE / University of Calgary Initiative, 77 CDM projects under development had been detected, meaning an increase to nearly 415 projects during the 2005–06 period, multiplying the Latin American portfolio by a factor of five.

Obviously, the high degree of project development seen during this period in different stages of the CDM project cycle is a result of strengthening international CDM regulatory agencies and developing country–level regulations (relating to domestic CDM project approval processes).

All this time, the CDM Executive Board has been consolidating and strengthening regulatory aspects required for project development through various actions relating to methodology approval, provision of guidelines and supporting tools, and a broad range of procedures to create transparency and security for project developers.

During 2005 and 2006, the CDM Executive Board and its methodology panel underwent major procedural enhancements, resulting in a considerable rise in the number of approved methodologies and, as a consequence, in the number of projects proposed for validation and registration. The board’s decision to increase the number of members on the Methodologies Panel contributed notably to the approval procedures showing concrete results in relation to approved methodologies.

To date, the Executive Board has approved 78 methodologies, 43 of which are for large–scale projects, 20 for small–scale projects and 10 for methodology consolidations. Four large–scale methodologies and one simplified methodology for small–scale projects have been approved for forestry projects.

⁸ www.pointcarbon.org

⁹ OLADE / CIDA / University of Calgary. Climate Change “*Capacidades Técnicas Existentes y Actividades Relacionadas con el Mecanismo de Desarrollo Limpio (MDL) en los Países de América Latina y el Caribe.*” October 2004. Available at www.olade.org

It is good to remember that, to date, 17 rounds of methodology evaluation have been held and a total 230 methodologies have been submitted, 30 of which relate to forestry project activities. This means a 21.5 % approval rate for large-scale project methodologies. This shows that, although major progress has been made, CDM methodology approval is still a process that requires significant technical efforts and time.

The CDM Executive Board has generated a large number of tools and guidelines required for correct project formulation by developers. Although there is still some discussion regarding certain technical issues, a broad referential basis has been laid for their application. The most important of these guidelines has to do with addressing the matters of additionality and baseline scenario selection, which are essential to correctly determining the emissions reductions to be attributed to a project activity.

As for the energy sector, methodologies have been approved for a number of different types of project activities and there is clarity in fields such as adding renewable energy to national interconnected grids, cogeneration using biomass wastes, power applications for bioenergy, and energy efficiency projects in the industrial sector. Progress is being made in the direction of achieving baseline and monitoring methodologies in residential / commercial energy efficiency, as well as in the matter of biofuels.

One of the few factors of regulatory uncertainty about the carbon market and CDM is the lack of an electronic transaction logging system, which is indispensable for the exchange system that governs the functioning of the protocol's flexibility mechanism. However, the doubts about this system, known as the International Transaction Log (ITL), could begin to clear up over the coming months, because last August the Climate Change Secretariat awarded the contract for its construction and maintenance. According to the Secretariat, the system should begin operating in April 2007.¹⁰

2.3 Carbon Market Developments during 2005–2006

Perhaps the most important global development regarding climate change and the CDM is in the carbon market. Its evolution over the past year and a half not only demonstrated the possibility of an exchange system for an asset that only a few years ago would have been unthinkable given its intrinsic characteristics (tons of CO₂ equivalent not emitted / reduced), but also that a trade system based on that asset can become a business.

During the January 2005 – April 2006 period there were transactions on the global carbon market for some 992 million tons of carbon dioxide equivalent (t CO_{2e}) to the tune of nearly 18,538 million dollars, a financial value almost 50 times greater than in 2004, when only 94 million tons were traded for about 500 million dollars. Table 3 presents the distribution of transactions on this emerging carbon market.

¹⁰ http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/20060814_itl_contract_esp.pdf

Table 3. Carbon Market Transactions during the January 05 – April 06 Period¹¹

Type of transaction	Volume (millions of t CO ₂ e)	Value (millions of US\$)
1. Transactions based on Trade in Emissions Rights	539.1	14,923.0
2. Transactions based on Projects	453.3	3,615.0
Clean Development Mechanism (CDM)	421.8	3,431.1
Joint Implementation (JI)	21.1	101.7
Undefined	10.5	82.2
Total	992.4	18,538.0

The largest market segment in financial terms was that relating to transactions based on trade in emissions rights under the European Emissions Trading Scheme (EU ETS), for a total of US\$ 14,923 million, which is 539.1 million in allowances traded through brokers and exchanges or bilateral negotiations.

On the other hand, project-based transactions represented 453.3 million t CO₂e for a commercial value of US\$ 3,615 million. This means that in terms of total reductions, those achieved through projects occupy almost 46 % of the total transactions in terms of volume, but their commercial value only represented about 20 % of the total assessed from transactions during that time period.

It is important to note that until that time, the CDM held a preferential place in project-based transactions, which have represented some 93 % in volume of reductions and nearly 95 % in terms of actual transaction value.

A study¹² published recently by the Central American Bank for Economic Integration (CABEI) offered an interesting summary of international carbon market trends, which complements the data presented on transaction status and is contained in the following text box:

Current Carbon Market Features
<ul style="list-style-type: none"> ✓ The carbon market is not defined by one product type, a single contract type, or a sole system of buyers and sellers. ✓ The products traded on the carbon market arise from the establishment of the Kyoto Protocol and other parallel initiatives that seek to reduce or capture GHG emissions. ✓ There are two major products that derive from the CDM: The Emissions Reduction Certificates (CERs) that may be used for compliance under the Kyoto Protocol or to meet emission limits set under the European Union's Emission Rights Trade Scheme (EU ETS). Verified Emissions Reductions (VERs) can be used on voluntary markets. ✓ Due to the greater risks of certification and subsequent issuance, VERs are priced lower than CERs, presently about 40 % lower than the price for CERs.

¹¹ Karan Capoor and Philippe Ambrosi State and Trends of the Carbon Market 2006. World Bank. Washington. 2006.

¹² CABEI *El Mercado de Carbono bajo el Protocolo de Kyoto y Oportunidades de Intervención para el BCIE*. Produced by Sol Villa for the Head Economist's Office, Central American Bank for Economic Integration. Honduras. June 2006. Available by Internet at:
<http://www.oejbcie.org/library/OEJ%20EST%20SEC%20042006%20Carbono.pdf>

- ✓ Projects meant to produce CERs should complete a CDM project cycle involving at least 10 steps.
- ✓ The sellers of emissions reduction instruments have usually been project proponents, but a trend has been noted where intermediary buyers who later resell have appeared on the market, acting under a system of developing unilateral supply.
- ✓ The major CERs buyers have been multilateral and unilateral funds established by international institutions, governments or private businesses.
- ✓ The price constitutes the value assigned to GHG emissions reduction units for a project, and the current indicator of this price is the EU Allowance under the EU ETS.
- ✓ The real price of a CER depends on such factors as payment modality agreed upon, type of buyer and available information.
- ✓ The institutional and technical framework created to support market development based on both the UNFCCC and the Kyoto Protocol has been essential to developing this market.
- ✓ In the future, commercial market systems are expected to continue evolving and to grow in number and size.
- ✓ The trends relative to CER supply and demand are encouraging.
- ✓ With regard to prices, several factors are creating uncertainty. Among them are decisions set forth in US climate change policies, the degree of national or regional voluntary market development, and the results of negotiations for the second commitment period (known as post-Kyoto).
- ✓ A crucial factor of uncertainty regarding the future of the carbon market is the fact that AAU¹³ availabilities for Russia, the Ukraine and other economies in transition have not been resolved yet.
- ✓ In the long run, it is unclear which market will pay better prices or whether markets will be connected, which means that market behavior both within and without Kyoto should be watched carefully.
- ✓ Risk assessment for emissions reduction operations continues to be a critical aspect for the actors involved. This risk factor should be taken into account in the process of reviewing CDM projects and CER transactions.

The most important achievement regarding the carbon market was the commencement of activities regarding the European emissions trading system. On January 1, 2005, the European Union Emissions Trading Scheme (EU ETS) began operations, sending a strong signal to other market segments, including the CDM, regarding the existence of opportunities for project development under this new system.

According to European Commission directive 2004 / 101 / EC, known as the “linking directive,” the use of Kyoto Protocol flexibility mechanisms is allowed under this scheme. In other words, participating European corporations and countries may use emissions reductions from CDM projects or Joint Implementation (JI) to meet its reduction obligations under this system.

However, during the second quarter of 2006, events occurring on the market in April and May (see text box) caused a spectacular drop in prices, resulting in a record trade volume during those months. In May alone, nearly 90 million tons of CO₂e were traded in an environment of instability characterized by price volatility.

¹³ All countries having Kyoto targets were assigned a certain number of “Assigned Amount Units” (AAUs) that will set a cap on their emissions during 2008–2012; and these AAUs may be negotiated among countries.

Variability and Events on the Carbon Markets

By mid April 2006, market prices were still rising steadily, reaching a record level of 30.47 €/ EUA on the spot market on April 19. However, at that time some of the European Union countries said the outcomes of their emissions control efforts were better than expected and that they would probably have surpluses in their emissions allowances. This announcement put a heavy pressure on the market, which reacted with record trading volumes and a decline in prices, on both the spot and futures markets. This situation worsened on May 12 when, during the Carbon Expo conference, information was released that had supposedly been published on the Web site of the European Commission's Community Independent Transaction Log (CITL), according to which the 21 member states of the European Union reported 67.5 million metric tons below their combined emissions targets. That day, the price credit on sight dropped to 8.60 €/ EUA. Days later, prices began to recover slightly when the official report was released, according to which the market surplus was 44.2 million tons.

In recent months, spot market prices stabilized within a range of 14 to 16 €/ EUA, but the behavior of both the sight options and futures markets remains erratic and does not have the same growth trend of 2005, showing abrupt price reductions for offers to December 2007 at low values of around 1 Euro.

In any case, the events that shook the ETS in April and May were a clear signal to the carbon market that political and regulatory factors may still bear much weight on the transactions system.

The *Centro Andino para la Economía y el Medio Ambiente* (CAEMA) has presented data taken from a survey of international experts on price projections for CERs issued during the first Kyoto commitment period (without considering the USA in the market), which shows the expected price curve presented in Table 4.

Table 4. Price Projections for CERs Issued during the First Commitment Period, 2008–2012

Rank	Probability	Expected Price (CER issued)
High	25 %	From 22.88 to 29 Euros
Probable	60 %	From 15 to 22.88 Euros
Low	15 %	From 12 to 15.88 Euros

Source: Dr. Thomas Black. "El Mercado Internacional del Carbono 2006–2007." A presentation given at the VII Curso Regional de Diseño de Projects MDL en los Sectores Forestal y Bioenergía. Held at the CATIE, Costa Rica, October 2006.

In general terms, the expected behavior of market prices is promising and will depend on project quality, risk minimization, and strategic marketing for CERs actually issued for CDM projects.

CDM trading prices during the period under study (2005–2006) were indexed to transaction prices in Europe, and there are different price categories by contract type, as follow:

1. Price Category 1: Price range 3–6 Euros / t CO₂e. Non–firm volume, the buyer purchases what the seller offers, even when emissions reductions do not qualify as CERs.
2. Price Category 2: Price range 5–10 Euros / t CO₂e. Non–firm volume, contract contains preconditions such as projects achieving qualification under the CDM.

3. Price Category 3: Price range 9–14 Euros / t CO₂e. Firm volume, contract contains clauses regarding force majeure and rating of certificates to be generated.
4. Price Category 4: Price range 12–14 Euros / t CO₂e. Firm volume, no preconditions, i.e., maximum quality certificates.

2.4 CDM Status in Latin America and the Caribbean

The CDM situation in the region of Latin America and the Caribbean is presented from a perspective of each country's regulatory environment and project development situation, two key issues that were selected for the development focus of the OLADE / University of Calgary Energy and Climate Change Initiative.

Country-level Regulatory Environment Status

The region of Latin America and the Caribbean has shown more interest than most regions in the world in developing the CDM over time. On a country and regional level, environmental strengthening initiatives have been taken since the 80s in the region. The UNFCCC and Kyoto Protocol discussions and negotiations were bolstered by a region whose participation was instrumental in the initial development of modalities and procedures defined during the 90s.

According to Figueres¹⁴ (2004), the region of Latin America and the Caribbean showed early efforts at institutional development by mid 2004, which did not necessarily result in strong institutional frameworks both for country regulation / approval and for CDM promotion functions in the region.

The universe of countries from the Latin American and Caribbean region that were included in the OLADE / University of Calgary Initiative was that of OLADE's member countries. At October 2004, Suriname and Haiti were the only two OLADE members that had not ratified the Kyoto Protocol. At that time, there were other Caribbean countries (non-OLADE members) that had not ratified to date. At December 2006, only Suriname had not yet ratified the Kyoto Protocol, aside from Saint Kitts and Nevis.

One could say that the Designated National Authorities (ANDs)¹⁵ of Latin American countries have deepened their institutional strengthening over the past two years, despite which several institutional vulnerabilities remain.

A few points of this strengthening have been:

- Capacity building prior to granting national Letters of Approval for compliance with CDM modalities and procedures.

¹⁴ Figueres, C. "Institutional Capacity to Integrate Economic Development and Climate Change Considerations: An Assessment of DNAs in Latin America and the Caribbean." Inter-American Development Bank. Washington. June 2004.

¹⁵ All countries ratifying the CDM must mandate the establishment of a CDM Designated National Authority, its official representative for applying CDM modalities and procedures. In particular, these ANDs are responsible in developing countries to issue the so-called national Letters of Approval for CDM projects, necessary for international CDM registry.

- Implementing procedures and presenting more standardized documentation for national project assessments, usually centered on the Project Design Document and meeting domestic standards.
- Implementing terms and deadlines for national CDM assessments.
- Developing alliances for CDM promotion.
- Participating in training and capacity building programs¹⁶ generated by international institutions / organizations.

Some of the vulnerabilities found in the DNAs were:

- Relative fragility of DNA financing and stability, their institutional scope and the permanence of their staff members.
- The processes for assessing CDM project contributions to sustainable development are still a little *ad hoc* and therefore not entirely clear for the actors of different CDM building networks, especially social actors.

Of course, observations of the different DNAs for the CDM in the region show asymmetries due to a series of factors related to internal governance, interest in the CDM, active participation of development project proponents (or the requirement to develop national approval norms), country interest in the CDM, etc. Clearly, some countries show DNA strengthening over the past two years (linked to the active participation of some of these countries in project supply), as is the case with Brazil, Mexico and others, while in smaller countries such as those in the Caribbean, institutional strengthening has been harder to achieve.

Development of the Energy and Climate Change Initiative, delivery of this final summary document, and a series of lessons learned that are presented in later sections of this paper on CDM regulatory frameworks in the region.

Country-level Project Development Environment Status

As mentioned above, CDM is the most important mechanism within the project-based market segment. During the period from January 2005 to April 2006, the CDM was responsible for 93 % of the trade volume and 95 % of the total value generated in the project market. In sum, 421.8 million certificates were transferred for a total of US\$ 3,431.1 million (at an average price of 8.3 US\$ / CER).

The primary reasons for this growth internationally were:

- An increase in potential project supply. At September 2006, 1145 projects were at least at the validation stage or had already reached higher project cycle stages (including registration).
- The interest that some developing countries such as China, India, Brazil, Mexico, and others have shown in the CDM.
- The startup of a few large-scale projects, including the HFC-23 decomposition projects.
- Reducing uncertainty levels regarding the CDM, and greater efficiency and effectiveness in methodology and project approval by the Executive Board.

¹⁶ For example, the OLADE / University of Calgary Initiative has worked with Nicaragua, El Salvador, Cuba, and Jamaica, just as the CD4CDM has worked with other countries like Guatemala, Ecuador and Bolivia, in addition to Peru, Nicaragua and Cuba.

As mentioned above, during 2005 the number of projects in the CDM project “pipeline” grew significantly due to greater regulatory certainty regarding international agreements (Kyoto Protocol ratification, more explicit procedures and modalities, and the larger number of approved methodologies) and the trust generated by carbon market evolution during that period.

Internationally, by late 2006 CDM project supplies reflected a large percentage of projects in numerical terms coming from energy sector projects, followed by methane emissions reduction projects. However, with regard to total expected reductions, the main contributors were the few projects that capture and destroy HFC and N₂O.

Table 5 presents updated data on CDM project supply composition by sectors and on international CDM project supply composition by project type.

Table 5. International CDM Project Supply by Type and Category

Project Type	% by Number of Projects	% by Number of CERs Expected
Biomass	23	7
Hydro	17	5
Industrial Energy Efficiency	12	6
Wind	13	5
Agriculture	10	4
Landfill Gas	8	12
Fossil Fuel Change-over	4	1
Biogas	4	1
Cement	3	2
HFC	2	40
Fugitive emissions	1	4
Solar	1	0
Geothermal	1	1
Residential Energy Efficiency	0	0
N ₂ O	1	12
Energy Distribution	0	0
Service Energy Efficiency	0	0
Coal Mine Methane	0	0
Tidal	0	0
Transportation	0	0
Afforestation / Reforestation	0	0
Total	100 %	100 %
Sector Categories		
HFC and N ₂ O Reductions	2	52
CH ₄ Reductions	22	22
Renewable Energy	59	19
Energy Efficiency	13	6
Fuel Change-over	4	1
Afforestation / Reforestation	0	0
Total	100 %	100 %

Source: The UNEP Risø CDM Pipeline 2006 (available at www.cd4cdm.org)

Internationally, it is clear that in terms of project types the lion's share in the energy sector comes from biomass projects (power cogeneration), hydropower, wind, industrial energy efficiency, and fossil fuel changeover. Very few projects are related to other renewable energy sources and to efficiency in other final energy use sectors.

As for total projects by sector categories, projects in the renewable energy sector represent 59 % of all projects and 19 % of all expected CERs. Energy efficiency projects represent 13 % of all projects and 6 % of the anticipated reductions harvest; and fossil fuel changeover projects represent 4 % of all projects and 1 % of all expected CERs.

As for the region of Latin America and the Caribbean, one could point out that since the region's industrial infrastructure does not allow implementing mega-projects for HFC and N2O destruction, the contribution of renewable energy and energy efficiency projects is possibly a little higher based on regional supply than is shown by available global CDM statistics. It is important to mention that in this region, possibly the largest share of expected CERs comes presently from methane capture and destruction projects. However, the national CDM portfolios of different countries show that renewable energy projects are very representative of CDM participation in this Latin American region.

The available CDM information indicates that by mid-December 2006, project supply from Latin America and the Caribbean is sizeable. Table 6 presents available comparative information on projects for this region.

Table 6. CDM Projects for Latin America and the Caribbean¹⁷

	Projects Identified during Phase I of the OLADE / University of Calgary Initiative at October 2004	Total Projects entered for CDM validation at 14 / 12 / 06	Projects requesting CDM registry at 14 / 12 / 06	Registered CDM Projects at 14 / 12 / 06	Yearly estimated CERs from registered CDM Projects at 14 / 12 / 06
Argentina	0	13	0	6	1,765,007
Bolivia	6	6	0	1	82,680
Brazil	6	204	6	80	15,265,334
Chile	7	29	0	14	2,183,123
Colombia	5	10	1	5	345,410
Costa Rica	6	6	0	2	162,515
Cuba	9	1	0	0	–
Dominican Republic	0	2	0	1	123,916
Ecuador	8	14	0	8	357,900
El Salvador	2	7	0	2	360,268
Guatemala	2	14	0	5	279,694
Honduras	7	20	0	10	205,251
Jamaica	1	1	0	1	52,540
Mexico	2	142	13	63	4,837,981
Nicaragua	1	3	0	2	336,723
Panama	3	8	0	4	96,469
Peru	12	12	0	3	199,265

¹⁷ Table 5 includes data on the number of projects that the OLADE / University of Calgary Initiative had identified at October 2004, as well as projects appearing in the region at different stages of the project cycle, as reported by the official CDM Web site on 14/12/06.

	Projects Identified during Phase I of the OLADE / University of Calgary Initiative at October 2004	Total Projects entered for CDM validation at 14 / 12 / 06	Projects requesting CDM registry at 14 / 12 / 06	Registered CDM Projects at 14 / 12 / 06	Yearly estimated CERs from registered CDM Projects at 14 / 12 / 06
Uruguay	0	2	0	0	–
Total	77	494	20	194	26,654,146

Source: www.cdm.unfccc.int

The data shown on Table 6 clearly indicates that during the 2005–2006 period, CDM project supply in the region took an enormous quantitative leap. Based on an initial forecast performed during Phase I of the OLADE / University of Calgary Energy and Climate Change Initiative, the region went from 77 identified projects to 494 projects in the validation cycle and 194 that have successfully achieved CDM registry.

Clearly, countries like Brazil and Mexico have shown impressive project development, thus demonstrating their interest in using this type of flexibility mechanism under the Kyoto Protocol. Brazil shows balanced project development among different sectors (with significant power cogeneration with biomass and other renewable sources), while Mexico has seen speedy development in methane capture and destruction projects in the farming sectors.

Table 6 clearly shows some of the asymmetries in CDM participation over time. There is still a base of countries that have not developed CDM project portfolios, mostly among smaller countries such as the Caribbean island states.

The OLADE / University of Calgary Initiative concentrated on Phase 2 of its work in El Salvador, Nicaragua, Cuba, and Jamaica. So later sections of this paper offer some of the lessons learned as a result of looking more closely at CDM project activities in those countries. The purpose is to generate a basis of understanding that would make it possible to catapult innovative actions and so help deepen CDM participation among the region's countries, thus solving asymmetries and taking advantage of this type of market mechanisms.

3. CDM Lessons Learned

3.1 Actions Taken by the OLADE / University of Calgary Energy and Climate Change Initiative

While implementing Phase 2 of the Initiative, specific works and technical assistance activities were carried out in 4 target countries of the Latin American region: El Salvador, Nicaragua, Cuba, and Jamaica.

The work approach used in each of these countries included implementing:

- Country-level case studies: held in the four OLADE member countries to deepen the study of institution and project development in each country, identify capacity-building needs, and recommend actions and best practices to be implemented in order to bolster the capacity to participate in the mechanism.
- Country-level training and capacity-building workshops: based on technical and institutional requirements that were identified.
- Lessons Learned Papers with a summary of lessons learned as found in the process of implementing CDM actions and identifying possible considerations for developing a strategy to improve national involvement in the mechanism.

The conceptual focus used for the work done in Phase 2 (instrumental in generating lessons learned) was based on an understanding of the context and development of national networks of actors, key to CDM development and strengthening. Toward this end, efforts were made within the context of four main networks, namely:

Normative and Regulatory Networks: involving national actors in charge of domestic CDM approvals and other country-level norms that are essential to the CDM. Actors representing this type of network include the DNAs, ministries of energy and the environment, and other regulatory and normative actors.

Business Networks: involve actors from the CDM business and project milieu. The actors representing this type of network are, for instance, project developers and proponents, financial entities, and carbon market actors, both local and international.

Knowledge and Know-how Networks: involve formal and informal actors that play or could play an important part in understanding the CDM and developing programs aimed to deepen knowledge of the CDM. The actors representing this type of network include universities, international CDM strengthening programs and projects, groups of federated professional associations, etc.

Informal Networks: involve actors whose interest in the CDM is seen in social participation, participatory consultation development, socioeconomic impact assessment, etc. The actors representing this type of network are global and local NGOs, social community groups, mass media, etc.

This approach makes it possible to generate lessons learned locally within each country and from there contribute to regional discussions of lessons learned, which is the focus of this document.

3.2 Status of the CDM Networks

Work done in the target countries of the region that participated in the Initiative, made it possible to draw a few initial conclusions regarding the status of some of the networks that are essential to CDM development.

Figure 1 provides a summary of actor participation from the diverse networks involved in the work of the Initiative's Phase 2 target countries. The data given clearly indicate that throughout the process a wide array of organizations, institutions, businesses, and groups were contacted, although the CDM appears to attract more normative / regulatory and business networks, with not as much participation by actors from the knowledge and informal grassroots networks (at least within the period under review).

Figure 1. The Energy and Climate Change Initiative and CDM Networks



Work done in the countries of the region was based on issues set forth as of interest by each country's DNA, providing a differentiated basis that enriched its development and the specific lessons learned from Phase 2 of the Energy and Climate Change Initiative.

Figure 2 presents the issues per country as developed within the Initiative's framework, showing the universe of topics considered to be of interest by the CDM actors on a country level. It shows clearly that the work centered around two central poles: (1) regulatory matters relating to national approval and assessment of contributions to sustainable development; and (2) matters of project portfolio assessment and the search for opportunities to discuss the CDM in umbrella and programmatic type projects.

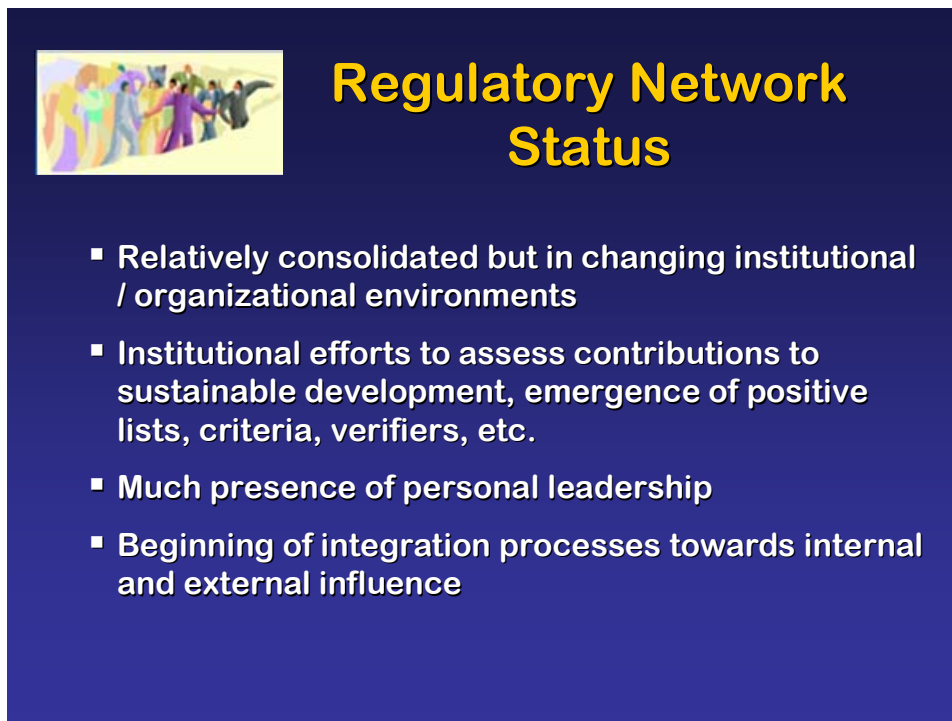
Figure 2. CDM Issues Addressed by CDM Strengthening in the Region’s 4 Target Countries



The work done during 2005 and part of 2006, concluding with the Initiatives participating in the First Latin American Carbon Forum on March 22–24, 2006, suggests a few conclusions regarding the status of networks of interest to the CDM. This is essential for putting the lessons learned into perspective and then outlining the strategic actions required to continue supporting and strengthening Latin America’s presence in the CDM.

Figure 3 provides data on the status of CDM regulatory network development.

Figure 3. CDM Regulatory Network Status in Latin America and the Caribbean

A slide with a dark blue background. In the top left corner, there is a small, colorful illustration of a group of people in business attire. To the right of the illustration, the title "Regulatory Network Status" is written in large, bold, yellow font. Below the title, there is a bulleted list of four points in white text.

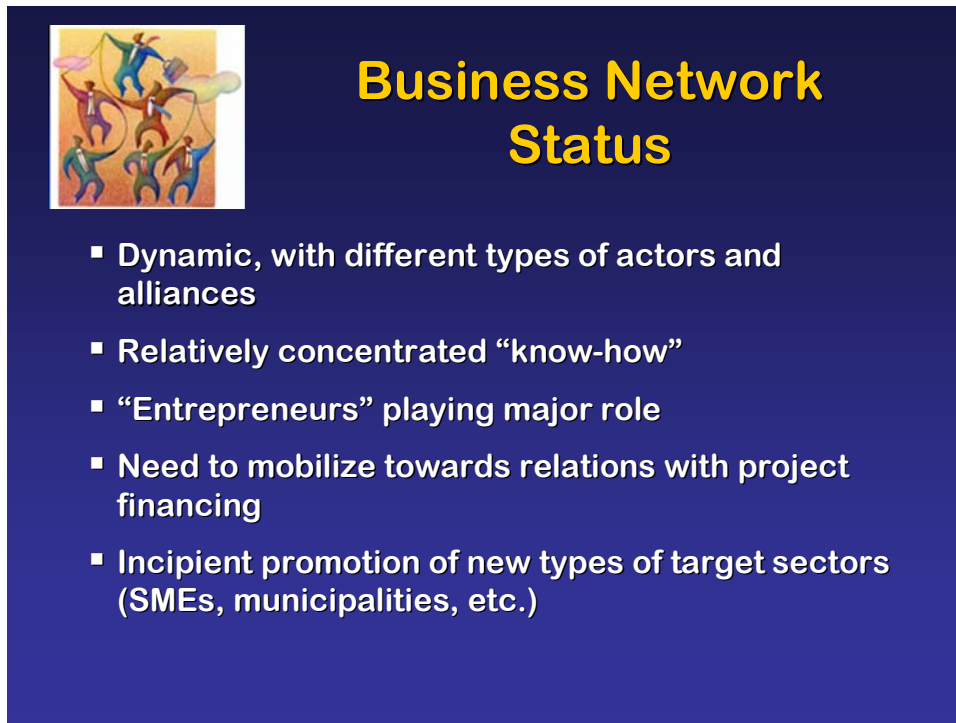
Regulatory Network Status

- Relatively consolidated but in changing institutional / organizational environments
- Institutional efforts to assess contributions to sustainable development, emergence of positive lists, criteria, verifiers, etc.
- Much presence of personal leadership
- Beginning of integration processes towards internal and external influence

There are major asymmetries among the regulations of different countries in the region. Only a few countries have sufficiently strengthened institutions and processes, while the vast majority still shows significant vulnerability in terms of stability and institutionalizing assessment procedures for project contributions to sustainable development. One issue that may have been solved in this network is the administrative issuance of national Letters of Approval. Experience over the past year indicates that basic expertise has formed around this issue, as most countries have relatively clear procedures for this process in response to the needs of project developers and in follow-up of national procedures.

Business networks, as seen in the figures presented above showing steep growth in CDM project development activities during 2005–06, are highly developed with very dynamic actors and entrepreneurs playing a major role. Figure 4 provides a few conclusions drawn on the status of business networks. It is important to note that despite this dynamism, know-how is concentrated in project development actors specializing in technologies or in carbon purchasing.

Figure 4. CDM Business Network Status in Latin America and the Caribbean



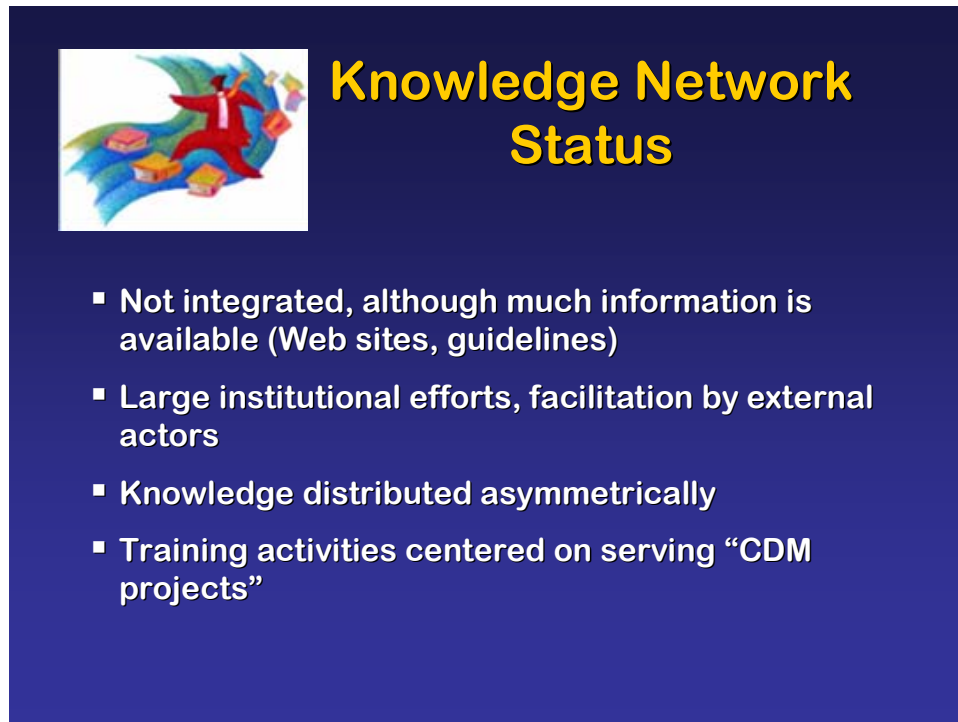
The slide features a dark blue background. In the top left corner, there is a small square image showing several stylized human figures in various colors (red, blue, green, yellow) holding hands and forming a circle, with some figures appearing to be in motion or dancing. To the right of this image, the title "Business Network Status" is written in a large, bold, yellow font. Below the title, there is a list of five bullet points in white text, each preceded by a small white square symbol.

Business Network Status

- Dynamic, with different types of actors and alliances
- Relatively concentrated “know-how”
- “Entrepreneurs” playing major role
- Need to mobilize towards relations with project financing
- Incipient promotion of new types of target sectors (SMEs, municipalities, etc.)

Figure 5 offers a few conclusions on the status of knowledge networks. Note that although external actors have made great efforts towards regional capacity building, the actors in these networks still show a lack of integration (even where access to information is significant). The most highly developed actors in these knowledge networks are the ones that interact dynamically with the business network, i.e., provide consulting services for CDM project design (which is reasonable considering that the CDM is a project-based mechanism). However, major asymmetries are seen in certain countries (those that have not been able to promote sufficient interest among project developers or in putting together CDM portfolios), in which knowledge is fragmented.


Figure 5. CDM Knowledge Network Status in Latin America and the Caribbean



One remaining topic of interest to the CDM and knowledge generation has to do with the fact that most services are aimed towards projects themselves, which is important during the initial stages of the CDM; but that at new stages of development that will be centered on programmatic issues, especially in the energy sector, indicate deficiencies that should try to be overcome by designing new actions for strengthening these networks in the CDM in Latin America and the Caribbean.

The status of informal networks in the CDM is given in Figure 6, although the actors in these networks show less participation during Phase 2 of the OLADE / University of Calgary Initiative. Except for a number of business-interest NGOs (BINGOs) and large international NGOs (very active in climate change issues), participation is still quite fragmented. This is probably because grassroots groups participate more actively in project development and implementation in the area of constructive environmental permits, and not so much in the open consultation processes established in the CDM project cycle. That is, when they do get involved it is reflected in processes taking place within local consultations among stakeholders who are affected by project development. It is also clear that cost structures for access in terms of human resources and time spent monitoring CDM development largely prevent many local groups from participating more actively in the openings provided by CDM activities.

Figure 6. CDM Informal Network Status in Latin America and the Caribbean



Informal Network Status

- Little coordination of roles by CDM actors (except for BINGOs)
- Very early participation as countries associated with the IEA to a greater or lesser extent
- High CDM access costs for many actors (locally)

The graphic consists of a dark blue rectangular background. In the top-left corner, there is a small square image showing colorful, abstract shapes resembling buildings or structures. To the right of this image, the title 'Informal Network Status' is written in a bold, yellow, sans-serif font. Below the title, there is a bulleted list of three items, each preceded by a small white square bullet point. The text in the list is white and in a sans-serif font.

The next section provides an outline of some lessons learned in the Latin American region from CDM capacity building activities implemented over the past two years.

3.3 CDM Lessons Learned in Latin America and the Caribbean

Alongside the work done by OLADE / University of Calgary, it is significant that another major source of CDM lessons learned in the region arose from the interventions of other actors who have been actively involved in CDM capacity building.

One concrete case is that of the CD4CDM Project Initiative, which has operated in the region within the context of countries such as Ecuador, Bolivia and Guatemala during the initial stages, and is now commencing activities in Nicaragua, Cuba and Peru. This initiative of the United Nations Environmental Program's Risø Centre has generated several lessons learned that were recently discussed during the Final Regional Meeting for Phase I held in Argentina during September 2006.

The text box below compiles some of the lessons learned that were presented during that activity and are included in this paper as a supplement for its readers, to help go beyond country levels to a regional scale.

UNEP / RISØ CD4CDM Project Contributions to CDM Lessons Learned

1. In some countries, capacity building is a vital prerequisite for CDM strengthening. In others, the essential precondition is linked to the dynamism shown by project developers, especially in the private sector.
2. The capacity building efforts made in the region have been significant, and governments need to be committed to internalize further the institutionality created in order to reduce their current vulnerabilities.
3. DNA financial sustainability is still a critical issue for CDM institutionality on a country level.
4. CDM capacity building has been a long, dynamic process, and needs to be continued.
5. CDM promotion requires the attendance and involvement of different actors who should be encouraged to interrelate by developing alliances for co-participation among such actors.

Source: Hinojosa, Miriam. “*Desarrollo de Capacidades para el MDL: Resultados Fase I.*” Final Regional Workshop. UNEP Risø Centre. Held in S.C. Bariloche, Argentina. September 5–7, 2006. Available at www.cd4cdm.org

It is clear that there are several CDM lessons learned in the Latin American region. Most of those included in the above text box clearly point to some common denominators in the region:

- CDM development is somewhat linked to active private sector involvement, at least during the initial stages of developing project supply. This means that over-institutionalization in the early stages of the CDM did not necessarily result in participation and CDM project development.
- Although there are still significant asymmetries in DNA institutional development, the Latin American region has taken major steps towards consolidating these agencies and its governments need to deepen further their commitment to help strengthen them with a view to reducing institutional vulnerabilities due to financial sustainability issues.
- Although regulatory and business actors seem to have integrated their operations, capacity-building efforts need to be sustained, considering that carbon market supplies, participatory conditions and behaviors are highly dynamic and require integrating and balancing out the involvement of actors from among the 4 networks of interest to the CDM.

3.4 CDM Lessons Learned through the Energy and Climate Change Initiative

Table 7 contains the overall lessons learned in each of the four countries worked with during Phase 2 of the Initiative. Although some are fairly specific, they lay the groundwork for extracting more general lessons learned when putting these activities into perspective along with those of other regional initiatives. For each of the target countries considered by OLADE / University of Calgary, Table 7 presents a few lessons learned that are clearly referenced to the two main focuses of the Initiative:

1. DNA strengthening and institutionalization as key entities in the national CDM approval procedure.
2. National capacity and experience in CDM project formulation and development, where an important point of observation was the country’s ability to promote the mechanism itself.

Table 7. CDM Lessons Learned in the Target Countries of the OLADE / University of Calgary Initiative

El Salvador	Nicaragua	Jamaica	Cuba
<p><u>Lesson Learned # 1.</u> The institutional development seen in El Salvador is represented by a process of adaptation due both to the evolution of CDM regulations and to emerging trends in the way that most National CDM Authorities in developing countries are proceeding.</p>	<p><u>Lesson Learned # 1.</u> The institutional development seen in Nicaragua is a result of an initial strategic planning process that made it possible to set guidelines consistent with the evolution of international CDM regulations and enabled institutional consistency regarding national approval procedures.</p>	<p><u>Lesson Learned # 1.</u> Certain factors that appear to be key determinants for early CDM regulatory development were not forthcoming in Jamaica, which had an early impact on the type of CDM institutional development.</p>	<p><u>Lesson Learned # 1.</u> Cuba’s interest in participating in the CDM has played a decisive role in the Cuban institutional framework having the basic elements needed to fulfill what is established in the international regulations. Cuba has remained relatively up-to-date on international CDM provisions, as seen in the papers developed to implement the mechanism in that country, although a few important factors for consolidating an adequate institutional infrastructure were not available.</p>
<p><u>Lesson Learned # 2.</u> El Salvador’s relatively early CDM institutional development was not due to a prior portfolio of potential projects or to projects within the CDM project pipeline, but rather to both the expectations created initially regarding the mechanism and to the interest in participating and complying with the regulations and international agreements.</p>	<p><u>Lesson Learned # 2.</u> Nicaragua’s relatively early CDM institutional development was not due to a prior portfolio of potential projects or to projects within the CDM project pipeline, but rather to both the expectations created initially regarding the mechanism and to the interest in participating and complying with the regulations and international agreements.</p>	<p><u>Lesson Learned # 2.</u> A determining factor in Jamaica’s CDM institutional development was the existence of a CDM project in the later stages of formulation that required a national letter of approval for the CDM.</p>	<p><u>Lesson Learned # 2.</u> The existence of potential CDM projects, particularly in the CDM “pipeline,” was essential to strengthening an institutional framework for the mechanism, especially in regulatory matters of national approval.</p>
<p><u>Lesson Learned # 3.</u> The existence of a forum for exchanges and discussion, and the enhancement of communication channels between DNAs and the region, may contribute to adequate institutional development.</p>	<p><u>Lesson Learned # 3.</u> This issue of DNA financial and staffing sustainability is still critical to its performance.</p>	<p><u>Lesson Learned # 3.</u> The political and policy environments have played an important role in the DNA designation process, as seen in the process of temporary DNA designation in this country and subsequent formal CDM institutionalization processes.</p>	<p><u>Lesson Learned # 3.</u> Determining a country’s potential to develop CDM projects should be an important tool for decision making regarding the nature, roles, duties, and activities of the respective CDM Designated National Authority and availability of funds to sustain that structure.</p>
<p><u>Lesson Learned # 4.</u> Having a person with ample experience in this topic heading the CDM offices, the lack of personnel that characterizes them does not appear as a factor hampering the development of the necessary procedures and criteria to support the national project approval process</p>	<p><u>Lesson Learned # 4.</u> CDM project contribution to sustainable development is an issue that is becoming central to the offices.</p>	<p><u>Lesson Learned # 4.</u> Jamaica has the institutional capacity required to establish its DNA definitively.</p>	<p><u>Lesson Learned # 4.</u> Cuba’s project portfolio is centered on “umbrella” and programmatic type project activities, so mechanism promotion developments should be aimed at having CDM project executing agencies that help reduce implementation risks.</p>

El Salvador	Nicaragua	Jamaica	Cuba
required by international regulations.			
<p><u>Lesson Learned # 5.</u> Country-level intra- and inter-institutional backing seems to be a determining factor for operating the CDM approval functions.</p>	<p><u>Lesson Learned # 5.</u> The opinions of local “actors” are essential to the process of deciding whether or not to approve a given project, and enhance the transparency of this procedure.</p>	<p><u>Lesson Learned # 5.</u> The Jamaican exercise in determining potential CDM projects in the energy industry indicates that small countries have an interesting potential for implementing programs such as energy efficiency and others.</p>	<p><u>Lesson Learned # 5.</u> In the Cuban case, CDM project development is linked to fund raising and interest in investing in the country, which is doubtless unique in the carbon market. The presence of energy efficiency projects in the Cuban portfolio offers opportunities to move CDM development forward through clusters of projects that can overcome barriers to implementation, because these types of activities are not necessarily governed by major seed capital barriers but by national regulatory, funding, and user behavior change issues, which may be more easily overcome on the short term.</p>
<p><u>Lesson Learned # 6.</u> CDM project contribution to sustainable development is an issue that is becoming central to the DNA.</p>	<p><u>Lesson Learned # 6.</u> The initial CDM project portfolios are relatively focused on project activities for renewable power generation interconnected to the grid, which are important on the short term but limit medium and long-term portfolio development.</p>	<p><u>Lesson Learned # 6.</u> The Jamaican experience with setting up a “call for proposals” for CDM projects shows a new approach that is useful for developing CDM promotion activities.</p>	
<p><u>Lesson Learned # 7.</u> The initial CDM project portfolios are relatively focused on project activities for renewable power generation interconnected to the grid, which are important on the short term but limit medium and long-term portfolio development.</p>	<p><u>Lesson Learned # 7.</u> Although there is interesting potential for developing “umbrella” projects in the Nicaraguan energy sector to help deepen contributions to sustainable development, their formulation depends highly on correctly reading the national policies and programs environment and on identifying organizations and institutions that are capable of putting these projects together.</p>	<p><u>Lesson Learned # 7.</u> Taking into account the experience of having involved other Caribbean nations in the capacity-building activities implemented in Jamaica, we conclude that the Caribbean region has asymmetries in both institutional building and CDM project development.</p>	
<p><u>Lesson Learned # 8.</u> Standardizing emissions factors for the interconnected grid has not posed any major technical issues for Project</p>			

El Salvador	Nicaragua	Jamaica	Cuba
Design Document formulation.			
<u>Lesson Learned # 9.</u> The large number of geothermal projects in El Salvador's current CDM portfolio requires considering the inputs for developing referential scenarios for the future of this country's energy sector.			
<u>Lesson Learned # 10.</u> The involvement of actors from diverse networks, which characterizes new market developments, contributes to the initial work of DNAs and CDM promotion entities.			

3.5 Summary of the CDM Lessons Learned

The data based on country experiences and a survey of other experiences in the region enable us to draw some more general CDM lessons for the region as presented below:

The institutional development of CDM Designated National Authorities has been represented by processes that follow perceived changes in the national regulatory and project promotion environment as well as in CDM regulations.

The new DNA operating systems no longer include, as they once did, the employ of expert personnel in energy and forestry issues for the purpose of assessing compliance with CDM eligibility criteria. When international regulations determined assessment of these criteria to be the sole responsibility of Designated Operational Entities (DOE) in charge of the validation process, DNAs took it upon themselves to eliminate this requirement from their procedures, maintaining in the best of cases a non-binding review of these criteria for the purpose of presenting comments. However, the general tendency seen among CDM Designated National Authorities is to center efforts on the institutional development process, basically in relation to two overriding issues:

1. Contribution of proposed CDM projects to sustainable development and how best to assess these contributions in support of the national letter of approval issuance process; and
2. Search for alternative mechanisms to enhance CDM promotion within a scenario of DNAs with limited financial and human resources and with very clear responsibilities regarding project approval.

Accordingly, although different internal procedures are followed within the particular context of each country during the host country approval process, there appears to be a general move towards greater specificity and transparency in such procedures and in criteria for assessing national CDM project contributions to sustainable development.

Formal and informal evolution is being seen in the national approval procedures of many countries. This is normal during the early stages of implementing regulations and means that as regulatory practices are generated, procedures can be built upon sufficient DNA capacity to make them operational.

The relatively early CDM institutional development in some countries was not necessarily due solely to the prior existence of project portfolios, but rather included leadership elements both from key persons interested in this issue at an institutional level, and from the arena of project development.

In most countries where the OLADE / University of Calgary Initiative worked, during the initial stages of CDM institutional development, the presence of *avant-garde* projects played quite a significant role in achieving early institutional development, together with the determining factor of local institutional leaders taking it upon themselves to develop such institutions. The presence of both types of entrepreneurs was essential to launching most of the institutional arrangements in the region. CDM over-institutionalization was not necessarily seen to result in project development. It is clear that success measured as numbers of projects depends on a great many factors such as mobilizing the actors involved, creating opportunities to facilitate project development, and preactive institutional arrangements containing consistent, transparent regulatory elements.

The creation and development of many CDM Designated National Authorities was in response to initial expectations regarding the Mechanism and the need to identify and materialize a project portfolio and build the capacity to promote the mechanism. This in some instances produced positive results, but should clearly go hand in hand with *avant-garde* projects and the development of local environments that favor the activities of project developers.

The extent of financial sustainability and occupational stability for the staff of a CDM Designated National Authority is still critical to appropriate performance and continuity.

Although the offices are moving towards simpler modes of operation, with very little staff to perform basic CDM tasks, the matter of human resource sustainability and securing funds for their operations is still an important issue in small countries where the project portfolios are not necessarily large at this early stage of the CDM. This is evident in the frequent turnover of trained personnel in some offices, given the financial impossibility of keeping a permanent team.

Likewise, in the hypothetical case of a large project flow, depending on procedural complexity, the project assessment and approval process itself may be affected by the reduced response capacity of understaffed offices.

Meanwhile, the lack of financial and human resources significantly affects activities such as promoting the mechanism and building national capacities, which are important to adequate participation in the CDM. These activities are taken over in many cases by the DNAs, given the absence of other institutions with the capacity and knowledge to perform these tasks.

Currently, some of the ANDs are seeking to establish internal alliances with other governmental or non-governmental actors for CDM promotion. At the same time, some may undergo organizational restructuring in host institutions, which does not necessarily affect the regulatory activities of the CDM DNA. This is beginning to occur in small countries with no CDM portfolios under development, in which institutional pressures force national agency personnel to share their time with other issues (such as additional environmental regulation duties, coordinating among United Nations conventions, or other climate change units).

Country-level intra- and inter-institutional backing seems to be a determining factor for operating a CDM Designated National Authority.

Institutional support for the national DNA director is essential to fulfilling this task in a timely, effective manner. Direct support and communication between office directors and their respective ministers, common in most countries under study, expedites action and facilitates the work.

Similarly, the involvement and support of other sectors in the project assessment and approval process strengthens the office's decisions regarding specific projects, and significantly reduces subsequent questioning. In this regard, the inter-institutional councils or inter-agency committees participating in the process make important contributions in sharing the responsibility for decisions under the direction of the office.

This visibility in the administrative and policy-making arena creates new opportunities to influence in making the supplementary policies that are required to intensify the participation of new country-level actors in the CDM.

Assessing CDM project contributions to sustainable development through host country approval processes is highly important to institutional CDM regulatory activities.

Having gone beyond the debate over the need to assess CDM project eligibility, the issue of project contributions to sustainable development appears to have renewed importance among national authorities, primarily due to the lowering of expectations regarding the financial benefits the mechanism would bring to most countries of the region. In the framework of countries with very specific development goals and few resources for investment, the approval of a CDM project based on well-defined sustainable development criteria is a very important element when deciding on the allocation of those resources.

The enhanced internal transparency in ministerial procedures and the existence of a “paper trail” supporting clear processes facilitate the work of ministries charged with undersigning country approval of a given project.

Now then, although progress has been made thus far in holding project-level consultations on the issue of sustainable development, some countries of the region still show certain weakness regarding the establishment of suitable criteria and indicators to perform this assessment, and for weighting them in the host country approval process.

It is important to point out that assessing contributions to sustainable development requires a multidimensional approach. DNAs seeking to influence national policy-making processes face a gradual process that involves other national actors and that identifies and includes other elements in the analysis such as indicators and verifiers making it possible to consider the social, economic and environmental dimensions of sustainable development and lend efficacy to the assessment process.

Finally, the impending discussions regarding the Kyoto Protocol’s second commitment period seem to have created a need for elements that will help explore the actual benefits that developing countries are now obtaining from the CDM.

Determining a country’s CDM project development potential should be an important tool for decision-making and for taking action in a Designated National Authority’s different areas of activity.

The exercises done with the DNAs of each target country in the Energy and Climate Change Initiative (El Salvador, Nicaragua, Cuba, and Jamaica) which forecasted CDM potentials for different sectors (with an emphasis on energy, cleaner production and urban solid waste management), shed new light in each country on potential areas for new CDM project development. The data generated on potential projects, sectors of interest, sector-specific barriers, and participating actors has become an important tool for CDM institution development, because it offers a new panorama of efforts to be made to promote the mechanism and difficulties in the accompanying policy-making forums that are or could be necessary to create a favorable climate for project development, as well as the peculiarities of each sector and its actors for project development.

The CDM environment is highly dynamic from a perspective of both the “pull” factors of market signals and actors and the “push” factors of involvement of projects, programs or sectors with an interest in participating in the mechanism. Therefore, DNA design strategies, especially when performing capacity building and promotion duties, should be flexible and adaptive in order to

accomplish the alliances and facilitation that will attract developer participants in project management.

The initial CDM project portfolios were more focused on renewable energy or solid urban waste management projects, which are important on the short term but limit medium and long-term portfolio development.

In many countries of the region, the first CDM portfolio projects concentrated primarily on interconnecting renewable energy sources to the power grid. The chief projects have been hydropower and interconnected sugar refinery cogeneration, so it has not been complicated for developers to handle the issue of additionality, because of the various barriers faced by this type of project. On the other hand, the high level of portfolio concentration on some of these sources poses a significant challenge when selecting referential scenarios, an aspect of great importance to achieving robust concepts of additionality in the future.

This initial situation regarding CDM project portfolios, also seen in other countries of the region, has resulted in:

- Relative specialization in terms of the type of project developers involved in the CDM, i.e., entrepreneurs interested in the CDM as supplementary funding for projects adding capacity to power grids.
- CDM project formulation capacities specializing in this type of interconnected generation, which has made it possible to build local formulation capacities in areas relative to calculating emissions factors and managing additionality concepts.
- A portfolio centered around and defined by a country's capacity-building needs, based on anticipated demand growth, which therefore determines a finite number of possible CDM projects for the first Kyoto commitment period.

There is an interesting potential for developing "umbrella" or programmatic-type energy sector projects in these countries, especially for issues relating to energy efficiency and rural energy service provision.

It will be very important for the region's energy industries to begin thinking up new types of CDM project ideas, of both "umbrella" and programmatic types, in important areas of energy efficiency and fuel changeover, as well as non-sustainable rural biomass management.

In any case, this change requires that industry actors receive training in this area, in order to achieve effective participation and to ensure that the sustainable development benefits of these projects are distributed further and better. Likewise, it is necessary to work together on project assessment, concepts and development.

It is important to note that, in order to develop these types of projects, the following key requirements should be met:

- Adequate discussion and evaluation of national rules, regulations and policies for the rural electrification sector, in order to formulate solid baseline scenarios.
- Detection of clear institutional leadership in order to support the processes of assembling and grouping participants for successful CDM formulation processes. Due to their characteristics,

the typical developer for these projects is not the traditional private developer interested in installing renewable technologies, but rather institutional types of developer, whether governmental, local non-governmental actors, or chambers of associates, which require greater dedication during the stages of formulating their own business plans.

- National discussion on establishing funds locally or with international cooperation to manage the transaction costs of this type of CDM projects that, lacking national goals of universal coverage for rural electrification, usually contribute small volumes of carbon to the market.
- Methodological developments that are applicable to CDM programmatic projects.

Project development from the concept stage to CDM registration faces a series of financial barriers that should be worked on at the national and international level.

Monitoring of national portfolios of projects interested in the CDM in different countries clearly shows that a large proportion of projects never materialize due to the presence of different kinds of financial barriers, both in terms of access to financial arrangements of their debt / capital stock ratio and the initial financial costs of CDM transactions.

The existence of “enabling” financing is essential in order to further the cause of sustainable development in the Latin American region. National CDM actors linked through different types of networks, especially normative / regulatory and business ones, should coordinate efforts to sensitize and train actors from national and regional banks regarding the need for new financing systems in which the CDM might help mitigate risks and facilitate new types of financial business.

3.6 CDM Trends Observed

The lessons learned that have been drawn are a very important input for subsequent discussions on what actions might be needed to continue strengthening the participation of the region’s countries in the CDM.

However, before having this discussion, it would be advisable to review the data collected on the CDM in order to contextualize some of the observed trends that may mark progress in the regulatory, market and project development areas. It is in these areas that the actions of different networks considered in this study should act promptly to further regional CDM actions.

Carbon Market Trends

The carbon market continues to be established, and its consolidation promises a hopeful future in terms of CER demand generated under the CDM. This demand is backed by the proportion of CDM CER in the total transactions negotiated within the context of project-based mechanisms and their share in the total trade volumes for last year.

The demand for CDM CERs is aimed at certificates from high-quality projects that are able to establish adequate marketing schemes for the types of buyers who are involved most aggressively on the markets.

It is foreseeable that during the first commitment period there will be regulatory demand peaks coming from the requirements of the Kyoto Protocol itself as well as from the regulations being implemented in the European transaction permit markets, which remain predominant for demand management. It is also foreseeable that monitoring those markets and their price signals and,

consequently, the monetization indexing for CDM CERs, will continue to be very important, as they will dominate market signal matters.

Price expectations during the first commitment period are appealing and will depend largely on how developers place their emissions reductions. This matter calls attention to the need for suppliers under the unilateral marketing model, which is gaining popularity, to develop suitable marketing schemes (an area that should be considered one in which to deepen the capacities of new project developers entering the CDM).

It is foreseeable that some uncertainties regarding market demand structures will remain. The controversial issues will continue to be the direction of negotiations during the new commitment period, which should take clearer form in 2007–2008, US climate change policy trends, and whether or not it is necessary to use the so-called hot air of ex Soviet Union countries. A key connectivity issue among network actors is the proactivity and role that the region's countries decide to take on vis-à-vis these negotiations, and here there seem to be opportunities to intensify the capacity-building work done so far in the region of Latin America and the Caribbean.

Trends in the Regulatory Environment

CDM institutional development in the region has been influenced by the need to discharge country responsibilities taken on by ratifying the protocol, responding to needs for host-country project approval, and the presence of individual leaders who are clearly identified in the particular institutional development of many countries.

The DNAs of the region have developed highly diverse institutional structures, and it is clear that those functioning best have clear missions and have developed adequate coordination of support to promote the presence and participation of new driving agents. There has been a trend towards continual learning regarding the development of national approval procedures that are usually adapted to the project developers.

A move has been seen towards deepening the criteria for assessing contributions to sustainable development, and there is still a worldwide tendency to feel that these contributions deserve closer assessment, considering that one of the CDM goals is to further this change of direction in development. The range of approaches used in the region for this country-level assessment is very broad, and it is impossible really to extend this regional assessment, although the signals per project type are adequate, at least in the energy field. This matter is emerging as a potentially important topic for continuing to strengthen CDM efforts in the region, as it may make it possible to gradually solve some of the asymmetries in participation (for example, actors in informal networks), thus generating greater transparency in society.

Another evident trend is that DNAs and climate change institutions in general are gaining ground in the policy-making arena, and this entails a new series of actions in which those national agencies might be positively involved. In this emerging role, there are also opportunities for strengthening it, meaning that the climate change issue should permeate a broad range of policy-making activities in the countries of Latin America in the future. The need for innovative action by sectors, resulting in the creation of portfolios, especially in programmatic CDMs or the so-called umbrella projects, poses the need for the DNAs to further the debate on important national rulings that may or may not provide complementary support for these potentialities to develop. In the energy sector, this is clear in the topics of energy efficiency, distributed generation systems, and generation balance in rural projects with renewable energy sources. Other sectors, such as cleaner production, have the same

type of normative and regulatory dilemmas that complementarily help to create signals for business networks to intervene in putting together CDM proposals.

There would appear to be a clear need to continue with DNA capacity building in this emerging array of needs: strategic, systemic strengthening aimed towards reengineering based on bolstering of processes, development of strategic alliances to share CDM promotion roles with other networks, capacity building to influence supplementary policies aimed to create portfolios of national interest, and systematizing the regulatory knowledge required in the field of assessing CDM project contributions to sustainable development.

Trends in the Project Development Environment

The region has been very successful in CDM project development and in generating emissions reductions. There are clear asymmetries in the involvement in project development: some countries have very aggressive portfolios (such as Brazil and Mexico), while others have portfolios with a dozen projects (most of Central America and the Andean Region), and the involvement of the Caribbean is much weaker.

As we have seen, most project portfolios, especially in small countries, are centered on renewable energy projects interconnected to the power grid and on methane capturing in solid waste management facilities. It will be necessary to encourage the involvement of new actors that facilitate technology transfers in arranging umbrella and programmatic intervention packages in order to overcome the asymmetries that have been detected. This requires a switch in capacity building and in CDM forecasting and promotion in many of these small countries, starting out with specific projects and working towards a programmatic CDM.

In order to achieve this, it is necessary to launch a series of catalyzing assistance actions aimed to assemble project participants and manage programmatic methodologies that are essential to the opportunities detected in the region.

4. Recommendations to Support CDM Participation and Capacity Building in Latin America and the Caribbean

The lessons learned presented in the preceding chapters of this paper open the floor for recommendations and suggestions as to catalyzing actions that would make it possible to deepen CDM participation and capacity building in this region.

Some of these recommendations and action proposals are:

Solving the Asymmetries in CDM participation among the Small Countries of the Region

So far, the Caribbean region and other small countries of Latin America have been at the margin of participating in the MDL, due of several endogenous factors and other exogenous ones. However, these countries are exposed to a number of climate and power supply vulnerabilities, which makes having energy efficiency programs and including renewable energy through distributed, decentralized generation very important for their economies on the medium and long term.

Removing the participatory asymmetries observed consistently throughout OLADE / University of Calgary's Energy and Climate Change Initiative requires conjoint support efforts in this target universe of small Latin American and Caribbean countries, furthering the work done so far and considering focusing capacity-building endeavors on emerging areas of CDM project development and institutional strengthening.

For this purpose, there is a lot of synergy deriving from the results of the United Nations Framework Convention on Climate Change Conference of the Parties held in Nairobi in late 2006, as the United Nations is committed to establishing a aid fund to overcome CDM participation asymmetries.

An institutional catalyzing agent will need to assume leadership by forming coalitions of actors from different regional networks, in order to drive the actions required to help balance out CDM participation asymmetries detected in the Latin American region. The next Latin American Carbon Forum, to be held in late 2007, offers a unique concrete opportunity to mobilize the will and establish the coalitions that will send clear signals of regional action towards balancing out the CDM participation asymmetries in the region.

Deepening DNA Capacity Building in CDM for an Emerging Array of New Challenges

Throughout the work done by OLADE / University of Calgary over the past two years, it is clear that the DNAs for the CDM face new challenges due to the maturation and development of the carbon markets, which require strategic, systemic strengthening aimed towards reengineering based on bolstering of processes, development of strategic alliances to share CDM promotion roles with other networks, capacity building to influence supplementary policies aimed to create portfolios of national interest, and systematizing the regulatory knowledge required in the field of assessing CDM project contributions to sustainable development.

Some countries of the region have been successful in their CDM participation, whether in building functional institutional arrangements or promoting and developing projects. Much experience is available, which can be disseminated in both fields as input for reflections and discussions on how to enhance regulatory practices, promotion activities and responses to the trends seen in the CDM to date.

Accordingly, there are two intervention opportunities for sharing regulatory experiences with an aim to achieve continual improvement in host country approval procedures and in developing criteria and procedures for assessing CDM project contributions to sustainable development. This regional exchange continues to play an important role in consolidating regional leadership in terms of sustainable development, an issue to which the countries of Latin America and the Caribbean are committed. One concrete action that was detected could be structuring services to foster strategic strengthening of CDM Designated National Authorities in the selected areas, which could be supported with the resources of different regional agents interested in sustainable development and the directions it takes over time.

Making Concrete Contributions towards Establishing Programmatic Project Development in the Energy Field

As seen in this study, the depth of most countries' portfolios leads indisputably to considering "programmatic" projects. The experience gained while implementing this Initiative clearly indicates the existence of an interesting potential for developing energy efficiency projects and providing rural energy services in the region, which could be included under programmatic CDM projects.

The input of the CDM could be instrumental in supporting this type of projects with a high incidence of contributing to sustainable development, serving to catalyze organizational arrangements, technology transfers or innovative funding approaches.

The countries require assistance to first forecast the potential for this type of projects in the region and then generate direct support for their formulation, design and implementation.

One vehicle for support may be to set up a fund to promote formulation of this type of projects in Latin America and the Caribbean for the energy sector. This could be capitalized and operated by a regional institution during the initial time period required to gain experience and CDM success stories, through a call to bid on specific projects that could receive support to cover the transaction costs, technical assistance to develop their CDM structures and successful organization of suitable policy making to provide them with backing.

Creating Regional Information Forums that might Contribute to Information Transparency regarding Carbon Markets

It is clear that strategic information and positioning of those offering CERs on the market are key factors for the future, especially if we are to maximize the profits that can be made by participating in this way. The unilateral CDM transactions model has been gaining popularity lately, and there appear to be intervention opportunities to lower the cost of access to strategic market information that could be used by new, innovative actors in the region with an interest in marketing CERs.

It is deemed necessary to take supportive action to enhance market transparency, so that those selling carbon emissions reduction certificates might receive assistance in defining contractual arrangements, lawful ways of managing project risks, competitive public bidding systems, and other matters that are inherent to the transactions to be negotiated.

In view of the large programmatic potential of the CDM, the matter of mobilizing national actors involved in this potential development urgently requires assistance to enhance its transparency and understand the markets and their transactions.