UNITED NATIONS

ECLAC

ANALYSIS OF THE PRESENT SITUATION AND FUTURE PROSPECTS OF THE CLEAN DEVELOPMENT MECHANISM (CDM) IN THE FEALAC MEMBER COUNTRIES

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1. Introduction: The Kyoto Protocol and the Clean Development Mechanism (CDM)

1.1 History of the negotiations of the UNFCCC and the Kyoto Protocol[1]

Climate change is considered to be one of the most serious threats to sustainable development, with adverse impacts expected on the environment, human health, food security, economic activity, natural resources and physical infrastructure. Global climate varies naturally, but scientists agree that rising concentrations of anthropogenic greenhouse gases in the Earth's atmosphere are leading to changes in the climate. According to the intergovernmental Panel on Climate Change (IPCC), the effects of climate change have already been observed, and scientific findings indicate that precautionary and prompt action is necessary.

The international political response to climate change began with the adoption of the United Nation Framework Convention on Climate Change - UNFCCC in 1992. The UNFCCC sets out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases to avoid "dangerous anthropogenic interference" with the climate system. Controlled gases include methane, nitrous oxide and, in particular, carbon dioxide. The UNFCCC entered into force on 21 March 1994, and now has 189 parties. The parties to the UNFCCC typically convene annually in a Conference of the Parties (COP), and twice a year in meetings of the subsidiary bodies – the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA).

1.1.1 The Kyoto Protocol

In December 1997, delegates at COP 3 in Kyoto, Japan, agreed to a Protocol to the UNFCCC that commits developed countries and countries making the transition to a market economy to achieve emissions reduction targets. These countries, known under the UNFCCC as Annex I Parties, agreed to reduce their overall emissions of six greenhouse gases by an average of 5.2% below 1990 levels between 2008-2012 (the first commitment period), with specific targets varying from country to country. The Protocol also establishes three flexible mechanisms to assist Annex I Parties in meeting their national targets cost-effectively: an emissions trading system; joint implementation (JI) of emissions-reduction projects between Annex I Parties; and the Clean Development Mechanism (CDM), which allows for emissions reduction projects to be implemented in non-Annex I Parties (developing countries). Following COP 3, parties began negotiating many of the rules and operational details governing how countries will reduce emissions and measure their emissions reductions. To date, 155 parties[2] have ratified the Kyoto Protocol, including 37 Annex I Parties representing 61.6% of 1990 Annex I greenhouse gas emissions. The Kyoto Protocol entered into force on 16 February 2005.

1.1.2 Buenos Aires Plan of Action

The process for finalizing the rules and operational details of the Protocol was agreed at COP 4 in 1998 in a document known as the Buenos Aires Plan of Action. The Plan set COP 6 as the deadline for finalizing these rules and operational details and strengthening implementation of the UNFCCC. In November 2000, parties met at COP 6 in The Hague, the Netherlands, to complete these negotiations. These were not successful and delegates suspended COP 6 until July 2001, when it reconvened in Bonn, Germany. After further talks, delegates agreed to adopt a political decision, the Bonn Agreements. While this decision provided high-level political direction on the implementation of the Kyoto Protocol, delegates were still unable to finalize text on some issues, and agreed to forward all the draft decisions to COP 7 for final resolution.

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[1] This chapter is based in the summary report of The COP/MOP1 done by the Earth Negotiations Bulletin: International Institute for Sustainable Development "COP/MOP 1 FINAL" Earth Negotiations Bulletin – A Reporting Service for Environment and Development negotiations. Vol 12 No 291. Published by the International Institute for Sustainable Development (IISD). Monday, 12 December 2005. www.iisd.ca/climate/cop11/

[2] Ratification and accession 155 parties; approval 5; acceptance 2. Source: www.unfccc.org KYOTO PROTOCOL STATUS OF RATIFICATION, last modified on: 28 February 2006

1.1.3 Marrakesh Accords

In late October and early November 2001 at COP 7, delegates resumed their discussions and reached agreement on the Marrakesh Accords. These Accords consist of a package of draft decisions on many of the details of the flexible mechanisms, reporting and methodologies, land use, land-use change and forestry (LULUCF) and compliance with the Kyoto Protocol that should be adopted by the first COP/MOP. The Accords also address support for developing countries, including capacity building, technology transfer, responding to the adverse effects of climate change, and the establishment of three funds – the Least Developed Countries (LDC) Fund, Special Climate Change Fund (SCCF), and Adaptation Fund.

Delegates built on the Marrakesh Accords at COP 8- New Delhi and COP 9 - Milan, agreeing on "Rules and procedures for the CDM Executive Board", and on "Modalities and procedures for afforestation and reforestation project activities under the CDM". Parties also discussed how to integrate findings of the IPCC's Third Assessment Report into the work of the UNFCCC, and agreed on two new agenda items focused on adaptation and mitigation.

1.1.4 COP 10

At COP 10 in Buenos Aires in December 2004, delegates agreed to the Buenos Aires Programme of Work on Adaptation and Response Measures. Parties also took decisions on technology transfer, LULUCF, the UNFCCC's financial mechanism, and education, training and public awareness. However, some issues remained unsolved, including items on the Least Developed Countries Fund, the Special Climate Change fund, and Protocol Article 2.3 (adverse effects of policies and measures). Also in this COP the last remaining gap in basic CDM rules was completed. It referred to the detailed rules applicable to CDM small scale afforestation and reforestation projects. Meanwhile, lengthy negotiations were held on the complex and sensitive issue of how parties might engage on commitments to combat climate change in the post-2012 period. The Kyoto Protocol requires parties to begin considering the post-2012 period by 2005.

1.1.5 COP 11 & COP/MOP 1

While expectations for the eleventh session of the Conference of the Parties to the Framework Convention on Climate Change (COP 11) and the Conference of the Parties serving as the first Meeting of the Parties to the Kyoto Protocol (COP/MOP 1) held in Montreal on December 2005 varied greatly, it was clear that some form of success was imperative. A successful outcome in Montreal would not only serve to make the Protocol operational, it would also send a positive signal around the world about the future of the climate regime beyond the end of the first commitment period in 2012. Failure could undermine the Protocol in the near-term and send mixed, or even negative, signals about the future of the multilateral climate regime.

As a way to measure the success of the COP 11 and COP/MOP1, this document put forth three key goals based on a proposal of the president of the COP/MOP, Stéphane Dion:

1. **"Implementation "** of the Protocol, especially the Marrakesh Accords, and other decisions needed to make the Protocol function effectively;
2. **"Improvement"** of " the operation of the Protocol and the Convention;
3. **"Innovation"** by exploring "options for future cooperation in a manner that reflects the full range of interests of the Convention. That includes the issue of regime beyond the end of the first commitment period in 2012"

These "three issues" became the standards by which the outcomes of the COP 11 and COP/MOP1 meetings would be judged.

1.1.5.1 Implementation of the Kyoto Protocol

The most urgent objective in Montreal was to implement the Kyoto Protocol. The Protocol's entry into force in February 2005 may have made it a legal instrument, but without the formal adoption of the Marrakesh Accords, which set out the technical details key for its functioning and integrity, the efficacy of the Protocol and its mechanisms, at least in the near-term, would be greatly reduced. Many felt that without the Accords the entire Protocol could unravel and the delicate balance reached at COP 7 in Marrakesh in 2001 would be difficult, if not impossible, to re-establish.

The COP/MOP at Montreal adopted all 19 decisions recommended by COP-7, under the terms of the Marrakesh Accords agreed in 2001, including:[3]

- Operating rules for the Protocol's three flexibility mechanisms – emissions trading, joint implementation (JI) and the Clean Development Mechanism (CDM).
- Rules for crediting of domestic sink activities, including reforestation, forest management and agricultural management.
- A compliance regime to review countries' eligibility to use the Protocol's flexibility mechanisms, and to impose consequences for non-compliance with a party's emissions target.
- A detailed system for reporting and review of national emissions.

Delegates quickly adopted the Accords and set Protocol implementation in motion. Even the thorny issue of how to adopt the compliance mechanism was overcome relatively early in the second week. Saudi Arabia had invoked Article 18 of the Protocol, which indicates that in order for this mechanism to be legally binding, the Protocol must be amended. Since the compliance mechanism is necessary to define eligibility to use the flexible mechanisms, most other parties preferred immediately adopting it by a COP/MOP decision and considering an amendment later. Saudi Arabia eventually agreed to this approach, possibly due to pressure from those members of the G-77/China who stand to benefit from the CDM. By adopting the compliance system, delegates established the most elaborate compliance regime of any existing multilateral environmental agreement.

Even those elements that were not fully resolved in the negotiations, including the Special Climate Change Fund and the Adaptation Fund, were safely deferred for consideration in the next meetings of the subsidiary bodies. In the meantime, the major operational pieces of the Protocol, including the flexible mechanisms, will be up and running, giving carbon markets a major boost.

1.1.5.2 Improvement of the operation of the Kyoto Protocol

Heading into COP/MOP 1, adaptation to climate change impacts and the Clean Development Mechanism (CDM) had emerged for many as those items most in need of "improvement": the former because its absence from the Convention has long been seen as a lacuna, and the latter because a more efficient CDM that is able to handle a large number of project proposals is viewed by many as a prerequisite for its success. One of the greatest achievements of this COP was the simplification of CDM methodologies and the strenghtening of its rulebook.

While formal adoption of the CDM rules by the COP/MOP was achieved without difficulty, many parties and other actors had pushed hard for reforms, albeit with different objectives. The private sector and some developing countries in particular want to dramatically increase the number of CDM projects. These parties were frustrated because of the long time required to secure approval of projects by the CDM Executive Board, and wanted to find ways to clear the "logjam" and expedite the flow of CDM projects. Some parties also sought to expand the type of projects that could be approved under the CDM. On the other hand, many NGOs and parties such as small island states have emphasized the need to ensure environmental integrity of emissions reductions from CDM projects. These parties agree on the need for more projects, but not if it means projects whose emission reductions are questionable.

The discussions covered various issues including CDM governance, methodologies, additionality, regional distribution, capacity building and resources for the CDM administrative bodies. Several parties, including the EU, highlighted the need to expedite the CDM Executive Board's work in order to cope with the large number of projects expected in the coming years.

- Thailand called for transparency in the Board's decision-making, including written reports of the reasoning behind project approval/rejection. China and others noted the need to streamline procedures.
- Several developing countries, including Chile and Peru, raised concerns over the Board's proposal to levy US$0.20 per CER to cover its administrative expenses and called for differentiation according to the size of the project in emission reductions.

[3] Excerpt from: PEW Center on Climate Change "Summary of key decisions from COP 11 and COP/MOP 1, held in Montreal, Nov. 28 - Dec. 10, 2005". www.pewclimate.org/what_s_being_done/in_the_world/cop11/index.cfm

- Russia proposed increasing the levy to US$0.50 to accommodate the financial concerns that the G-77/China raised in the JI contact group. Brazil responded by proposing a levy on proceeds from JI projects and emissions trading to be channeled to the Adaptation Fund.
- Mexico, India, Panama and others noted the need to consider additionality, while Brazil highlighted that environmental integrity must be ensured when improving the CDM.
- The G-77/China called for a signal on the CDM's continuity beyond 2012, but Japan and EU argued that this issue must be resolved in the Article 3.9 contact group. The Africa Group lamented the uneven geographical distribution of projects and called for capacity building in Africa.

The COP/MOP adopted a decision that seems to strike a reasonable balance between these objectives. In this decision (FCCC/KP/CMP/2005/L.7), the COP/MOP recognizes **the need to ensure the CDM's continuity beyond 2012**. It extends the deadline for retroactive crediting for "prompt start" CDM projects. Project activities that started in the period between 1 January 2000 and 18 November 2004 and have not yet requested registration but have either submitted a new methodology or have requested validation by a designated operational entity by 31 December 2005 can request retroactive credits if they are registered by the Executive Board by 31 December 2006 at the latest

Most importantly, it outlines measures relating to the Board's functioning, transparency and efficiency. The decision addresses CDM administration, requesting the Board to **identify measures aimed at strengthening the CDM and its responsiveness to the needs of Parties and stakeholders**. It indicates that the Board must give adequate explanations for its decisions.

On the share of proceeds to cover the Board's administrative expenses, the decision adopts a progressive approach, with the first 15,000 CERs per project being subject to a lower levy of US$0.10 and the subsequent to US$0.20. In addition to this decision, Annex I countries responded to the CDM Executive Board's financing gap by pledging US$8,188,050 in funds. with the largest donations coming from Canada (US$1.5 million), Germany (US$1 million), Japan (US$1 million), Italy (US$1 million), the UK (US$740,000) and Spain (US$500,000).

The COP/MOP requests the Board to call for public input on new ways of demonstrating additionality and improving the "additionality tool." **It highlights the need for further progress regarding baseline and monitoring methodologies, decides that projects under "a programme of activities" can be registered as a single project, and states that large-scale projects can be bundled**.

The Board is also requested to develop a simplified methodology for small-scale projects switching from non-renewable to renewable biomass. Parties are invited to make submissions on carbon dioxide capture and storage under the CDM. The Secretariat is requested to organize a workshop in conjunction with SBSTA 24, and the Board is requested to consider proposals for carbon dioxide capture and storage project methodologies. COP/MOP 2 will give further guidance on carbon dioxide capture and storage.

1.1.5.3 Innovation – future commitments beyond 2012

The issue of future action and commitments was addressed in the COP/MOP under three major points:

1. Consideration of Annex I countries commitments for green house gas (GHG) emission reductions in subsequent periods beyond 2012. This issue is introduced on Article 3.9 of the Kyoto Protocol.
2. Review of the Kyoto Protocol. Introducing the possibility to reformulate the Kyoto Protocol, including opening the discussion of including non-Annex I countries in GHG emission reduction commitments in future periods. The issue of review is introduced on Article 9 of the Protocol.
3. President Dion's COP/MOP proposal for long-term cooperative action to address climate change action under the Convention (UNFCCC).

In their plenary statements, parties stressed the importance of future action and commitments under these three points:

- Canada, Switzerland and others called for broad participation, while Zimbabwe and others emphasized that Article 3.9 refers specifically to Annex I countries.
- China suggested an *ad hoc* working group, and Tuvalu suggested a world summit on climate change. Greenpeace, speaking for environmental NGOs, called for a "strong response."

Initially, three proposals were submitted by the G-77/China, the EU, and Japan:

1. Reaffirming that no new commitments shall be introduced under the Protocol for non-Annex I Parties, the G-77/China proposal called for an open-ended *ad hoc* group to consider further commitments from Annex I countries with a view to adopting a result at COP/MOP 4.
2. The EU proposed, in accordance with the Kyoto Protocol Article 9 (on the review of the Protocol), to initiate consideration of Annex I commitments in accordance with Article 3.9, and invited parties to make submissions for further consideration at SB 24.
3. Also recalling Article 9, Japan's proposal recognized that the Protocol is only a first step. Noting that emissions in non-Annex I countries are growing rapidly, Japan proposed initiating further consideration of Annex I commitments and preparing a review under Article 9, and recommended that COP 12 starts a review of the UNFCCC to construct an effective framework in which all parties participate to take action.

The major decisions adopted in COP/MOP 1 in Montreal on the future of the climate regime were:

a) Review of the Kyoto Protocol Article 9 (opening the door for adoption of GHG emission reduction commitments to non annex I countries)**:**

- Although there was no separate decision on the review of the Protocol (Article 9), parties agreed on President Dion's proposal to include in the report of the meeting an invitation for parties to submit relevant information and views on how best to proceed under Article 9, by September 2006.

b) Dialogue on long-term cooperative action to address climate change:

- The COP resolves to engage in a dialogue to exchange experiences and analyze strategic approaches for long-term cooperative action to address climate change including advancing sustainable development goals, adaptation, technology and market-based opportunities;
- Further resolves that the dialogue will be non-binding and will not open any negotiations leading to new commitments (US proposal);
- Agrees that the dialogue will be informed by the IPCC;
- Agrees that the dialogue should identify actions to promote sustainable development, mitigate and adapt to climate change, and explore ways to promote access by developing countries to climate-friendly technologies; and
- Decides that the dialogue will take place in workshops and will report to COP 12 and COP 13.

c) Consideration of commitments for subsequent periods for parties included in Annex I to the Convention under Article 3.9 of the Kyoto Protocol:

- The COP/MOP decides to initiate without delay a process in an open-ended ad hoc group to consider further commitments by Annex I Parties beyond 2012;
- Agrees that the group should aim to complete its work and have it adopted by the COP/MOP in time to ensure that there is no gap between commitment periods; and
- Further agrees that the group will meet at SBSTA 24.

The final outcome on "future commitments" for GHG emission reductions by parties beyond 2012 will depend on the progress of three interlinked negotiation processes listed above. As Protocol Article 3.9 only involves Annex I countries, many hope that Article 9 (review of the Protocol) will open the door to some form of adoption by developing countries of GHG emission reduction commitments.

These three processes will run in parallel, thus offering several possibilities for future action on climate change including the sensitive issue of how parties might engage on commitments to combat climate change in the post-2012 period. FEALAC countries face the challenge of building consensus and consolidating negotiating positions on these important issues as negotiations continue to shape the future of the multilateral climate regime. Given that there are no easy answers on these matters and there is an impending need to create political consensus, both at the national and regional levels, promoting an open discussion of these issues in national and regional level forums such as FEALAC will be increasingly important in the years ahead.

2. Structure and operation of the CDM market

2.1 The international carbon market and the flexibility mechanisms under the Kyoto Protocol

The Kyoto protocol established the architecture for an international market (the so called carbon market) for green house gas emission reduction activities. The legally binding emissions targets for Annex I[4] parties in the Kyoto Protocol create the demand for certified emission reductions in this market. To meet their targets Annex I countries seek the most cost-effective emission reductions, either through actions in their own territories, or acquiring certified emission reductions in the international market through the three flexibility mechanisms established for this purpose in the Kyoto Protocol. The three flexibility mechanisms are market-based systems that allow Annex I countries flexibility to achieve their Kyoto emission reduction targets:

a. **Emissions trading:** allows Annex I countries to trade Assigned Amount Units (AAUs)[5] with other Annex I Parties which have an emission level below their Kyoto Protocol cap or are able to reduce emissions in a more cost-effective fashion. The European Union, Canada and Japan – have already been developing their own trading systems along these lines.
b. **Joint Implementation (JI**): is a project-based mechanism which allows Annex I countries to meet their emission reduction targets through joint projects with other Annex I countries. JI projects can only be implemented between industrialized countries which are already committed to emission reduction targets. One or more investors (Governments, companies, funds etc) will agree with partners in a host country to buy Emission Reduction Units (ERUs) from project activities, in order to use them for compliance with targets under the Kyoto Protocol.
c. **The Clean Development mechanism (CDM):** is the mechanism for project-based emission reduction activities in developing countries. The CDM is designed to meet two main objectives: to address the sustainable development needs of the host country, and to increase the opportunities available to Parties to meet their emission reduction commitments. Annex I investors in Clean Development Mechanism (CDM) projects buy certified emission reduction units (CERs) for the amount of greenhouse emission reductions achieved by their CDM projects, in order to use them for compliance with targets under the Kyoto Protocol.

The 16 of February 2005, the Kyoto Protocol entered into force and industrialized countries became legally bound to meet quantitative targets for reducing or limiting their greenhouse gas emissions and the international carbon trading market became a legal and practical reality. However, four industrialized countries have not yet ratified the Kyoto Protocol: Australia, Liechtenstein, Monaco and the United States. Australia and the United States have stated that they do not plan to do so; together they account for over one third of the greenhouse gases emitted by the industrialized world.

Therefore, the total demand in the international Carbon market can be divided into two separate parts:

1) Demand for emission reductions under the flexibility mechanisms of the Kyoto Protocol composed by the international demand for CERs (CDM market), AAUs (Emissions Trading) and ERUs (Joint Implementation); and
2) Voluntary market demand for emission trading initiatives of USA and Australia.

The present study in mainly concerned with the analysis of the CDM market, involving the demand for certified emission reductions (CERs) generated by projects in developing countries

[4] Industrialized countries listed in the Kyoto Protocol with green house gas emission reduction commitments. GHG reduction or limitation targets are prescribed for 38 developed countries and for the European Community as a whole. These targets are listed in Annex B to the Protocol. In total, the achievement of these targets was expected to lead to at least a 5 per cent reduction in annual GHG emissions for these 38 Parties taken together on average during the first commitment period from 2008 to 2012. The 15 member States of the European Community (prior to the EU expansion to 25 states in May 2004) agreed to redistribute their reduction targets among themselves, forming the so-called "EU bubble". Source: Caring for Climate. A guide to the Climate Change Convention and the Kyoto Protocol. UNFCCC (2005). Page 25.

[5] The assigned amount is the total amount of greenhouse gas that each country is allowed to emit during the first commitment period of the Kyoto Protocol. This total amount is then broken down into measurable units that can be traded. (Source: CO2e.com)

(non-Annex I countries) under the CDM flexibility mechanism established in the Kyoto Protocol. The major demand blocks in the CDM market are the European Union Emission Trading Scheme (EUETS), Canada and Japan.

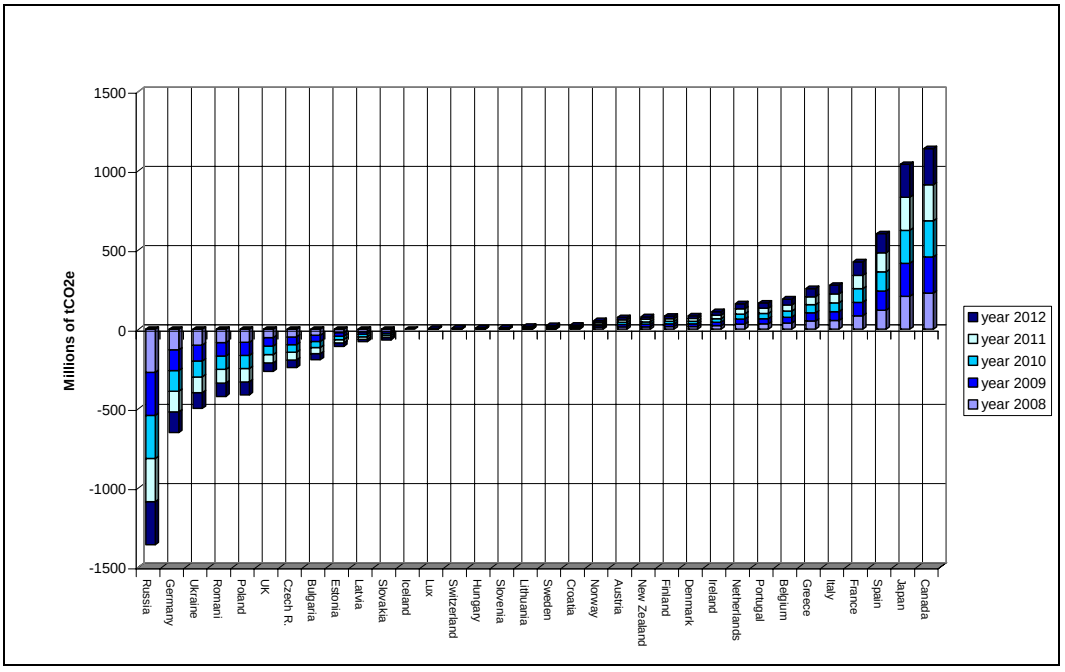
2.2 Estimated demand in the CDM market

Based on projections of the UNFCCC based in the last national communications[6] and business as usual trends, the EU represents a potential demand of more than 500 MTCO2e[7] of emission reductions per year and as such represents the largest demand block. The European Union Emissions Trading Scheme (EUETS) comprises about half of that demand. Canada and Japan have a potential demand of 228 and 208 MTCO2e of emission reductions per year respectively. These three blocks represent practically 100% of the total Kyoto Protocol demand for the three flexibility mechanisms, CDM, JI, and Emission Trading.

If US and Australia were part of the Kyoto Protocol, their demand would add around 2,340 and 81 MtCO2e per year respectively to the total demand for emissions reduction under the Kyoto Protocol. However since these countries do not intend to ratify the Kyoto protocol and their domestic initiatives for emission reductions have mainly a local and voluntary nature, demand for emission reduction projects in developing countries from USA and Australia is expected to remain marginal.

The figure below ranks Annex B countries in the Kyoto protocol according to their share in the demand or supply for international emission reductions.

FIGURE 1
EMISSION REDUCTION DEMAND AND SUPPLY ANNEX B COUNTRIES
COMMITMENT PERIOD 2008-2012



Source: Author elaboration based on KEY GHG DATA Greenhouse Gas (GHG) Emissions Data for 1990 – 2003 submitted to the UNFCCC. UNFCCC. November 2005. GHG Projection page 85. Data for Ukraine projections: Elaborated by Ecosecurities in Carbon Market Intelligence reports Executive Summary. Prepared for PCF plus by Ecosecurities Ltda. PCF plus Report 9, Washington DC, March 2002.
Note: The projections in the "KEY GHG DATA" document do not include the LULUCF sector. In the figure the LULUCF sector emission contribution has been added based on 1990 information since it is assumed to be stable for Annex B countries.

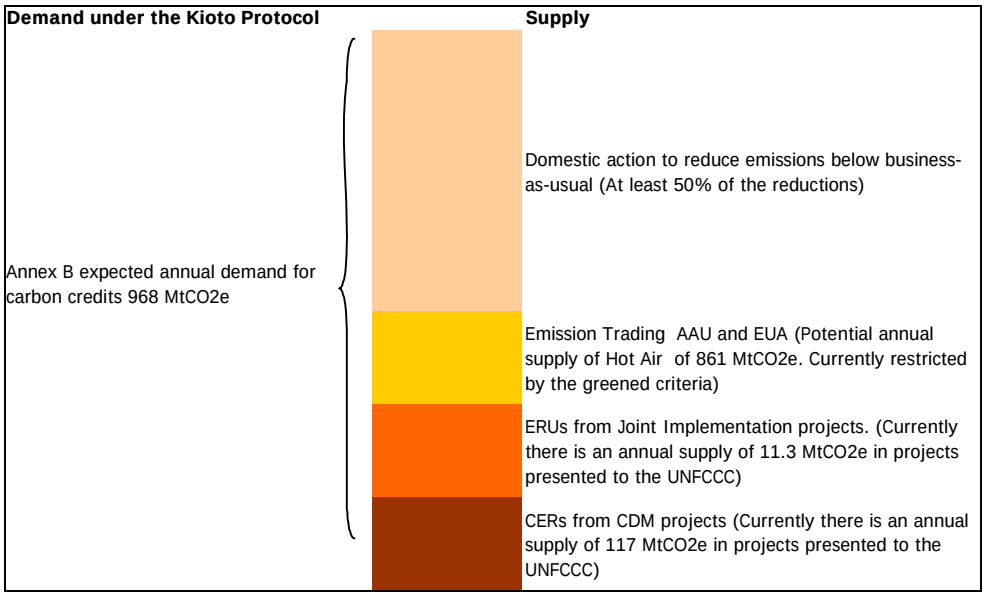
[6] KEY GHG DATA Greenhouse Gas (GHG) Emissions Data for 1990 – 2003 submitted to the UNFCCC. UNFCCC. November 2005. GHG Projection page 85.

[7] MTCO2e: million tons of CO_2 equivalent. This measure includes emissions of greenhouse gases other than CO_2 converted to their CO_2 equivalent taking into account their different global warming potential.

The total potential demand for emission reductions is expected to be 968 millions of tones of CO_2e per year, or a total 4842 millions of tones of CO_2e during the five years of the first commitment period 2008-2012. The country with the largest potential demand is Canada, followed closely by Japan. Other important demand countries are Spain, France, Italy Greece, Belgium, Portugal, Netherlands and Ireland; all of them part of the EUETS. These countries, which are now emitting over their Kyoto targets can meet their obligations through a variety of means: They might take domestic action to bring their projected emissions during 2008-2012 below the business as usual projections; If that is not sufficient to meet their commitments these countries might acquire emission reduction units through the Kyoto flexible mechanisms: CDM, JI or Emission trading;[8] and/or attempt to increase their removal of greenhouse gases from the atmosphere by forest management and other activities.

The figure below illustrates the available supply options to satisfy this estimated demand.

FIGURE 2



Source: Author elaboration based in a design of PCF 2001.

The total supply of emission allowances that can be traded through the Emission Trading flexibility mechanism in the form of Assigned Amount Units (AAU) is estimated to be 861 millions of tones of CO2e per year, or a total of 4307 millions of tones of CO2e during the five years of the first commitment period. Russia and Eastern Europe are the main potential suppliers of allowances jointly with Germany and the UK. This excess of allowances is called Hot Air in the multilateral climate regime jargon. This available supply of excess allowances could be used to meet the demand, however, The EU, Japan and Canada have already indicated that they will not purchase surplus AAUs that resulted from the economic contraction experienced by Eastern Europe and the Former Soviet Union after 1990 unless they are "greened" (i.e. linked to new emission reduction activities, whether directly or indirectly).[9] In addition, Hot Air trading is limited by the Kyoto Protocol *suplementarity principle*, which requires a 50-percent limit on the use of foreign-sourced emission reductions or allowances[10] to comply with Protocol targets. Therefore it is still not clear what will be the definite amount of AAUs that will be allowed to enter the international carbon market.

[8] United Nations Framework Convention on Climate Change. The First Ten Years. UNFCCC (2004). Pag. 90.

[9] Rosenzweig, Richard and Rob Youngman. Looking forward from 2005: more surprises to come? *Natsource. 2005.* In "Greenhouse Gas Market 2005: The rubber hits the road" Editor**:** Robert Dornau. International Emission Trading Association (IETA).2005. Page 10.

[10] Allen, James and Anthony White. Carbon Trading**.** Electric Perspectives. Copyright Edison Electric Institute Sep/Oct 2005. Provided by ProQuest Information and Learning Company. http://www.findarticles.com/p/articles/mi_qa3650/is_200509/ai_n15351002

2.2.1 Prices and CDM Market transactions

Before the year 2005, when both the Kyoto protocol and the EUETS entered into force, the historic prices for CERs were very low due to the uncertainty of the carbon market. Transactions were limited mainly to forward contracts which are agreements to buy or sell an asset at a certain time in the future for a fixed price, generally called Emission reduction Purchase Agreement - ERPA. This market was controlled mainly by ERPAS of the World Bank which bought on behalf of Annex I countries and corporations. The risks of delivery as well as the risk that the Kyoto protocol would not enter in force pushed prices down to around 3.5 dollars per TCO2e. After 2005 the entering into force of the Kyoto protocol and the beginning of the operation of the EUETS, effectively eliminated these risks and the global international emission reduction market was officially born pushing CER prices up.

Another development has been the appearance of a new type of carbon transaction, the unilateral generation of CERs by non-Annex I countries developing CDM projects without the participation of Annex I country parties. Unilateral CDM projects are projects which aim to sell the CERs generated directly in the spot market once the CERs are registered. This transaction eliminates all risk for CERs buyer which acquires them directly instead of relying on a futures contract. In theory these CERs would command the same price as the equivalent EUA or a AAU in the spot market since all of them offset 1 TCO2e for Kyoto Protocol compliance purposes. ERPAs future contracts will remain attractive for CDM projects with financing constraints and/or seeking project finance for their development. ERPA contracts reduce the risk of payment default, might provide funds in advance, and in general the buyer will cover the transaction costs associated with the CDM project registration process.

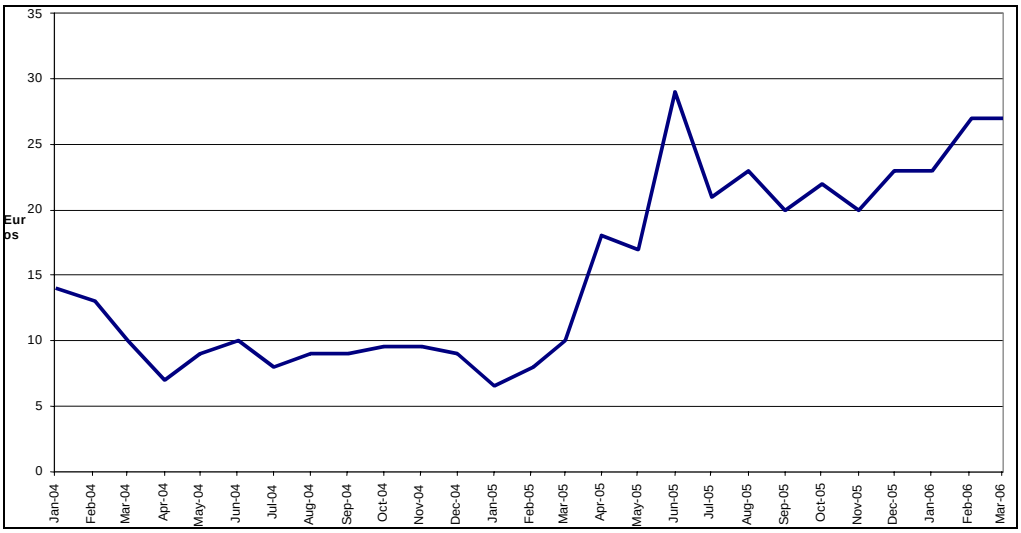
At present the spot price of the European Union Allowance (EUA) has become the reference price for all the different types of contracts observed in the CDM market. For forward contracts (ERPAs) the EUA reference price is discounted to reflect the risk of CER registration, delivery, and future market behavior uncertainties. These uncertainties are determined by: a) the absence of any price signal for emission reductions beyond 2012, these uncertainty limits the availability of carbon finance for CDM in projects with regular lead times beyond the first commitment period; B) The uncertainty on the amount of AAUs (Hot Air) that Russia and Ukraine will eventually inject as additional supply to the market; and C) The uncertainty on the supply of JI ERUs, and the ultimate amount of CERs that China and India will eventually supply to the market.

There are reasons to believe that current prices of EUAs do not reflect long term equilibrium price between supply and demand on the European Union Emissions Trading Scheme (ETS). Few entities in the ETS are currently selling EUA allowances, there are still large uncertainties over some national allocation plans, and weather and high oil prices have had an important impact on EUAs prices. Relatively thin volumes traded so far have also resulted in high price volatility[11].

As the following figure illustrates the EUA price has remained above 20 euros since June 2005. In recent transactions the prices of CERs in forwards contracts have been between 5 and 10 euros[12]. If we consider a very conservative average price of US$7.5 (6 euros) per CER the FEALAC current CDM project portfolio of around 90,304,587 expected CERs could represent an annual value of US$ 677,284,403. Implying an estimated potential market value of around US$ 3,4 Billion for the five years 2008-2012 of the first commitment period.

[11] Carbon market Update for CDM Host Countries. UNEP Riso Centre CD4CDM project and IETA. Issue No 2. Sept. 2005.
[12] The authors contacts with projects developers as well as buyers

FIGURE 4
EUROPEAN UNION ALLOWANCE PRICE EVOLUTION
JANUARY 2004 - MARCH 2006
EUROPEAN UNION EMISSION TRADING SCHEME



Source: Own elaboration. Data Source: Green House Gas Emission Markets. Weekly market update Issue 12/2006: Monday 20-Mar-06 (09:14 GMT). Evolution Markets LLC.
http://www.evomarkets.com/reports/weekly/ghg/060320_wkmk_ghg.html

2.3 Supply in the CDM market

2.3.1 FEALAC countries as suppliers in the CDM market

The figure bellow shows the total supply of projects which have been presented to the UNFCCC to be registered as CDM projects to date (projects already registered plus those pending approval by the Executive Board). For a total of 589 projects presented as of March 15, 2006, 141 projects have been registered and the rest have a very high probability to be finally registered.

The next figure shows the participation of countries and region in the supply of CDM potential projects.

FIGURA 5
PROJECTS PRESENTED TO THE EB - ALL STATUS
MARCH 15, 2006)

	Expected CERs per year		Number of Projects	
	tCO2e per year	%	Number	%
LAC Countries	**37,571,886**	**32%**	**231**	**39%**
Brazil	19,441,976	16.6%	114	19.4%
Mexico	9,565,742	8.2%	28	4.8%
Chile	2,584,332	2.2%	18	3.1%
Argentina	2,250,760	1.9%	8	1.4%
Peru	820,067	0.7%	6	1.0%
El Salvador	434,595	0.4%	4	0.7%
Nicaragua	426,839	0.4%	3	0.5%
Ecuador	424,971	0.4%	9	1.5%
Guatemala	424,361	0.4%	6	1.0%
Honduras	306,376	0.3%	15	2.5%
Colombia	290,370	0.2%	6	1.0%
Bolivia	260,191	0.2%	4	0.7%
Costa Rica	173,009	0.1%	3	0.5%
Panama	98,405	0.1%	4	0.7%
Jamaica	52,540	0.0%	1	0.2%
Dominican Republic	11,588	0.0%	1	0.2%
Uruguay	5,764	0.0%	1	0.2%
East Asia Countries	**52,732,701**	**45.0%**	**89**	**15.1%**
China	38,086,047	32.5%	30	5.1%
Korea	11,136,805	9.5%	8	1.4%
Thailandia	1,228,865	1.0%	12	2.0%
Viet Nam	829,619	0.7%	4	0.7%
Indonesia	792,178	0.7%	5	0.8%
Malaysia	335,801	0.3%	9	1.5%
Philippines	283,406	0.2%	20	3.4%
Cambodia	39,981	0.0%	1	0.2%
Total FEALAC	**90,304,587**	**77.1%**	**320**	**54.3%**
India	**19,823,227**	**16.9%**	**234**	**39.7%**
Rest of the World	**6,998,401**	**6.0%**	**35**	**5.9%**
Total	**117,126,215**	**100.0%**	**589**	**100.0%**

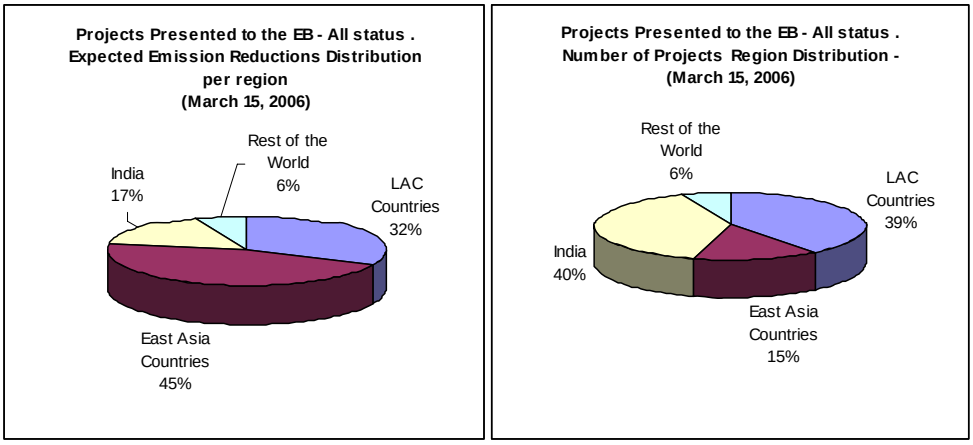
Source: Author elaborationbased in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

- **FEALAC countries account for 77% of the emission reductions from all worldwide CDM projects presented to the UNFCCC and 54% of the number of projects.**
- **Latin America countries have 32% of the yearly total potential emission reductions**. Brazil is the main country followed by México, Chile y Argentina.
- **East Asia countries represent 45% of the emission reduction and only 15% in number of projects.**[13]

[13] This is because China and Korea have been registering only a small number of very large projects based in the destruction of high global warming potential gases HFC 23 y N2O. Looking to the future China appears as the main supplier of projects, not only because of the size of its projects, but also due to the huge potential to introduce renewable energy (including biomass and manure management), fuel switching, landfills and energy efficiency opportunities. These sectors remain still unexploited by the CDM market and will probably be developed once the very large project opportunities are finished, which is expected to happen soon. India is also one of the main players in the CDM market.

In total all the CDM Project emission reductions presented to the UNFFCC represent 117 millions tCO2e per year, around 10% of the potential demand in emission reductions of Annex I countries. Natsource, based on a review of an economic model[14] estimates that Annex I countries would demand CERs in the 2008-12 period in the range of 150-250 Mt/year, (between 15% and 25% of its total potential demand for emission reductions). This means that the current supply of projects probably is about half of what it should be to meet the amount of CERs that Annex I countries will demand during the first commitment period 2008-2012.

FIGURE 6



Source: Author elaboration based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

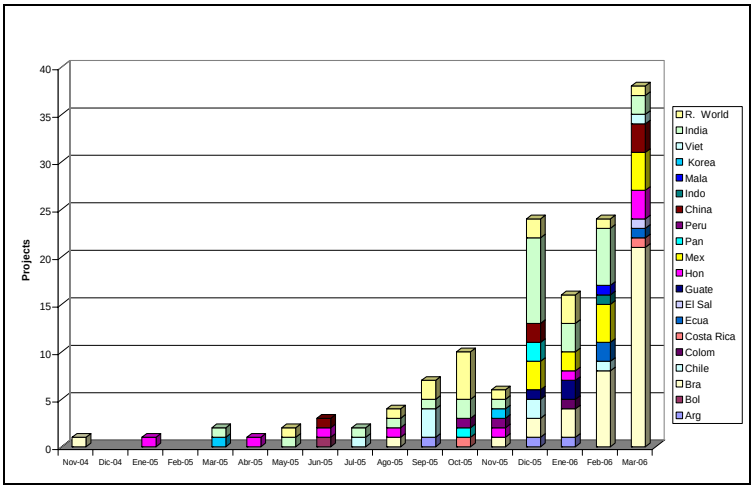
2.3.2 Recent boom in CDM project registration

By July 2005, five months after the Kyoto protocol had entered into force, only 12 CDM project had been registered. However, in the last months a boom in the amount of registered CDM projects is noticeable as illustrated in the figure bellow. The observable boom in CDM project registration is due to the following factors:

1. Since the Kyoto protocol has been entered in force, many parties such as the European Union, have been pressuring the Executive Board (EB) to be more expedite in project approval.
2. The EB has shown increasing flexibility in its acceptance of projects and its capacity has been strengthened with more resources.
3. A critical mass of approved methodologies and registered projects has created a precedent that leads to faster registration of similar project types.
4. The publication by the EB of the *Additionality Tool* has greatly reduced the uncertainty and discretionality formerly plaguing the interpretation of additionality criteria for CDM projects approval.
5. The accumulated stock of CDM projects left waiting to be registered in the pipeline had reached an unacceptable number (approximately 600 projects).
6. It is expected that this boom will recede once the stock of accumulated CDM projects is depleted and a stable rate of registration is achieved.
7. Most developing countries have finished the process of establishing the DNA and Letter of Approval (LoA) procedures.

[14] Rosenzweig, Richard and Rob Youngman. Looking forward from 2005: more surprises to come? . *Natsource. 2005.* In "Greenhouse Gas Market 2005: The rubber hits the road" Editor**:** Robert Dornau. International Emission Trading Association (IETA).2005. Page 9.

FIGURE 7
EVOLUTION OF REGISTERED CDM PROJECTS



Source: analysis based on the project pipeline data produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. updated by Lorenzo Eguren based on UNFCCC information. March 15, 2006.

The FEALAC regions accounts for a the larger share of registered projects to date with 68% of the total, representing 83% of the total volume of emission reductions generated by all the registered projects.

FIGURE 8
REGISTERED PROJECTS (MARCH 15, 2006)

	Expected CERs per year		Number of Projects	
	tCO2e per year	%	Number	%
LAC Countries	**14,312,152**	**28%**	**85**	**60%**
Argentina	634,505	1.3%	3	2.1%
Bolivia	82,680	0.2%	1	0.7%
Brazil	10,454,485	20.7%	37	26.2%
Chile	764,795	1.5%	7	5.0%
Colombia	27,510	0.1%	1	0.7%
Costa Rica	162,515	0.3%	2	1.4%
Ecuador	258,261	0.5%	3	2.1%
El Salvador	183,725	0.4%	1	0.7%
Guatemala	142,245	0.3%	3	2.1%
Honduras	177,636	0.4%	9	6.4%
Mexico	1,318,144	2.6%	13	9.2%
Panama	60,343	0.1%	3	2.1%
Peru	45,308	0.1%	2	1.4%
East Asia Countries	**27,787,385**	**55%**	**11**	**8%**
China	16,524,340	32.7%	6	4.3%
Indonesia	3,500	0.0%	1	0.7%
Malaysia	32,545	0.1%	1	0.7%
Republic of Korea	10,550,000	20.9%	2	1.4%
Viet Nam	677,000	1.3%	1	0.7%
Total FEALAC	**42,099,537**	**83%**	**96**	**68%**
India	**7,612,445**	**15%**	**28**	**20%**
Rest of the World	**789,676**	**2%**	**17**	**12%**
Total	**50,501,658**	**100%**	**141**	**100%**

Source: Author elaborationbased in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

2.3.3 FEALAC countries supply prospects and performance for the first commitment period 2008 - 2012

Several studies[15] based on economic models of emission abatement costs estimate a CDM market volume of around 200 to 250 MtCO2e per year for the 2008-2012 commitment period. This amount of certified emission reduction (CERs) is approximately 20% of the total emissions that Annex I countries are currently emitting above their Kyoto targets and must find ways reduce for the first commitment period. Thus the total estimated potential demand in the CDM market should be approximately 200 – 250 MtCO2e per year during the 2008–2012 period.

To date the total emission reductions by all CDM projects seeking registration represent 117 MtCO2e per year. Thus the current pipeline of CDM projects (117 MTCO2e) is already almost half of the necessary yearly supply of CERs (200 –250 MTCO2e) that Annex I countries will be demanding in the CDM market in the first commitment period. **According to these estimates the total CDM market potential could demand at least 100 million of additional CERs relative to the current levels of supply during each year of the commitment period.**

The following table compares the theorical potential supply of CERs based on abatement cost model results (Jotzo, F and Michaelowa, A. 2001) with the current situation. The predicted regional share in CERs supply differs dramatically in the case of Brazil. The model assumed that Brazilian supply of CDM projects would be very limited since hydroelectricity is the predominant source of energy and emissions per unit of output are comparatively low. Reality however has turned out differently from these results and Brazil has become a very important player in the CDM market.

FIGURE 9

	Theorical Potential CERs[1]		**Current Expected annual CERs from projects presented to the UNFCCC[2]**	
	Mt CO2e/year	%	Mt CO2e/year	%
China	120	57%	38	33%
Rest of east Asia	30	14%	15	13%
India	29	14%	20	17%
Brazil	1	1%	19	17%
Other Lac	7	3%	18	15%
Rest of the world	25	12%	7	6%
Total	212	100%	117	100%

1 Data based on: Jotzo, F. and Michaelowa, A., 2001, "Estimating the CDM Market under the Bonn Agreement," HWWA.Pag.25.

2. project portfolio of 589 projects presented to the UNFCCC bases in database done by The Pipeline was produced by Jørgen Fenhann, UNEP Risø Centre and updated by the author.

According to Jotzo, F. and Michaelowa, A. (2001) developing countries that rely heavily on coal for their energy needs and/or countries where the major energy users are relatively inefficient would have the greatest potential to develop large and low-cost CDM projects, if they have access to low-carbon alternatives such as natural gas or hydro power. Countries with high levels of emissions from oil and gas production also have significant low-cost emission reduction opportunities. In the absence of any barriers to CDM investment, countries with these characteristics could expect to capture a relatively larger share of the CDM market.

China relies heavily on coal and has a large number of relatively old power plants with low energy efficiency so it is expected that these opportunities will attract the largest share of the CDM project market.

India is also expected to attract a significant share of CDM projects, again associated with the predominance of coal and relatively low efficiency in the energy sector (i.e., supply-side efficiency).

[15] Jotzo, Frank y Axel Michaelowa "Estimating the CDM market under the Bonn agreement" "Discussion Paper 145. Hamburg institute of International Economics (HWWA) 2001. / Rosenzweig, Richard and Rob Youngman. Looking forward from 2005: more surprises to come? *Natsource. 2005.* In "Greenhouse Gas Market 2005: The rubber hits the road" Editor**:** Robert Dornau. International Emission Trading Association (IETA).2005. Page 9.

Indonesia has an important potential from gas flaring CDM projects– that is, using gas that is currently burned off as a side product of oil and gas extraction for electricity generation.

In Brazil and many other Latin American countries, options for low-cost, large-scale CDM projects in the energy sector are scarce. Hydroelectricity is the predominant source of energy, and emissions per unit of output are already comparatively low. However, Brazil is one of the most active CDM countries in terms of the number projects and amount of CERs generated. Brazil's performance is the result of explicit governmental policy to promote renewable energy, and a very active private sector. The portfolio of Brazilian projects relies principally in landfill, biomass energy projects, and one large project of N2O destruction.

The above results suggest that given the current growth prospects for the carbon market and the general positive governmental attitude from FEALAC countries to participate in the CDM, in equal conditions, the larger economies will offer more CDM project opportunities than the smaller ones. Under similar conditions in terms of institutional quality, transparency of regulation, rule of law, transaction cost, and general absence of barriers for CDM projects, investors and project developers will probably exhibit a preference for the larger economies such as China, Brazil, India, Mexico etc.

The quality of domestic institutions and procedures, internal political stability and efforts to market CDM projects to investors will be crucial for small countries to secure their share in the CDM market. Small economies with supportive environment and clear rules for CDM investment should be able to compete for a share in the market. That is the case of Chilewhich has gained importance in the CDM market in spite of the relatively small size of its economy by offering clear rules and an attractive environment to foreign investors.

The following chart shows the expected annual CER supply from a group of FEALAC countries along with other variables that influence their performance in the CDM market, such as: a) size of the economy (GDP); b) annual GHG emissions; and c) proxies for CDM institutional support (measured by number of CDM projects with Letters of Agreement (LoA), and the time spent in the process of obtaining these LoA.

The chart suggests a correlation between expected CERs supply and size of the economy (GDP and inventories), with no clear correlation with institutional support measures.

FIGURE 10

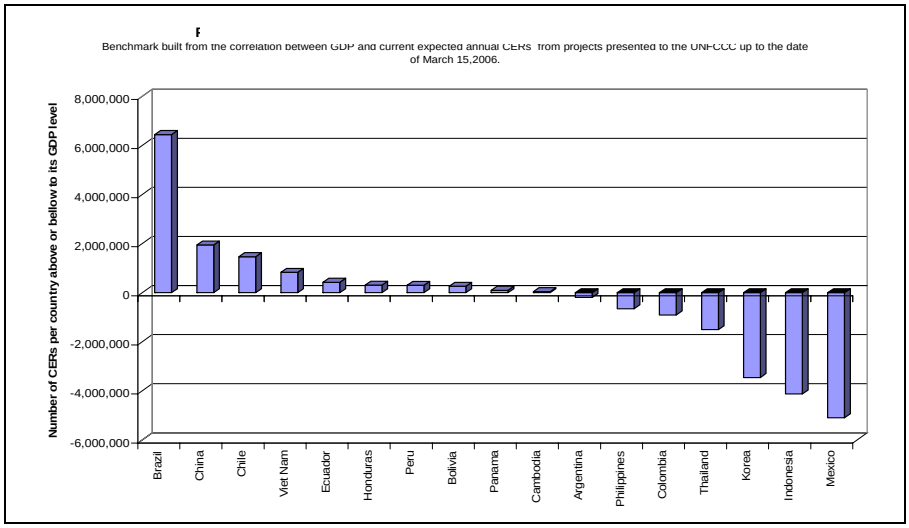
	Expected annual CERs for projects presented to the UNFCCC (March 16, 2006)	Total annual Emissions without LULUCF millions tCO2e (National inventories 1994)	GDP 2004 billions of dollars. (World Bank data)	Number of projects with LoA (Data mainly from web information of DNAs)	Duration of the process to issue a LoA (Data mainly from web information of DNAs)
China	38,086,047	4,057	1,600	18	60
Brazil	19,441,976	659	605	50	
Korea	11,136,805	289	674	5	
Mexico	9,565,742	383	677	29	30
Chile	2,584,332	55	94	13	30
Argentina	2,250,760	264	151	8	40
Thailand	1,228,865	224	164	1	twice a year
Viet Nam	829,619	84	45	1	
Peru	820,067	58	68	9	45
Indonesia	792,178	323	258	5	30
Ecuador	424,971	31	30	2	45
Honduras	306,376	11	7	9	
Colombia	290,370	137	97	2	45
Philippines	283,406	101	86	1	60
Bolivia	260,191	21	9	2	15
Panama	98,405	11	14	7	
Cambodia	39,981	13	5	1	60

R: Correlation CERs- GHG Inventories	0.92
R: Correlation CERs- GDP	0.96
R: Correlation CERs- Number of LoA	0.59

Source: Own elaboration. Data Source: Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006. / KEY GHG DATA Greenhouse Gas (GHG) Emissions Data for 1990 – 2003 submitted to the UNFCCC. UNFCCC. November 2005. page:108./ Key Development Data & Statistics In World Bank web page. /DNA web information.

This apparent correlation between the expected CER supply and size of the economy (GDP) can be used to assess country performance in the CDM market. A benchmark was constructed by regressing GDP and the number of expected CERs from CDM projects presented to the UNFCCC for all countries. The chart bellow compares data for 17 FEALAC countries relative to this benchmark of expected number of CERs given GDP. The chart can be interpreted as follows: countries above the benchmark are doing relatively better than the rest in terms reaching their potential as CER suppliers; whereas countries bellow the benchmark seem to have difficulties in achieving their expected potential.

FIGURE 11
FEALAC COUNTRIES CURRENT CDM PERFORMANCE
ACCORDING TO THEIR GDP LEVEL



Source: Own elaboration. Data Source: Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006. / KEY GHG DATA Greenhouse Gas (GHG) Emissions Data for 1990 – 2003 submitted to the UNFCCC. UNFCCC. November 2005. page:108./ Key Development Data & Statistics In World Bank web page. / DNA web information.

According to the graph Brazil is doing well, along with China, Chile, Vietnam, Ecuador, Honduras, Peru and Bolivia. These outstanding performances can be attributed to clear rules and active policies to promote CDM and market themselves as hosts countries for CDM investment. The graph shows the expected CERs per country in absolute terms. If the amount of expected CERs is compared as a percentage of the benchmark, then Chile seems to be performing better than Brazil and China. Also small countries like Ecuador, Vietnam, Honduras, Bolivia, Panama and Cambodia seem to be performing very well in spite of the theoretical assumption that they would not be attractive countries for CDM project investment given the small size of their economies.

According to this analysis Argentina, Filipinas, Colombia, Thailand, Korea, Indonesia and Mexico seem below their potential. One plausible explanation for these results is that CDM institutional arrangements and promotion activities have entered relatively late in Argentina and Mexico. Also the recent macroeconomic crisis faced by Argentina surely slowed down CDM development. In Mexico the power generation sector and oil industry are mainly owned by the government and CDM promotion and development has not been given a high priority. Thailand and Philippines have lengthy LoA procedures under implementation. Colombia, although it has established good CDM institutional arrangements and promotion activities, has been hindered by perceptions of country risk affecting also other types of foreign investments in the country.

2.4 Types of projects in the CDM market

The largest types of CDM projects observed to date are HFC23 and N20 destruction projects, as well as methane capture and destruction in landfills. All of them are designed to destroy green house gases with high Global Warming Power (GWP). These projects achieve large emission reductions particularly those destroying HFC23 and N2O. These two types of gases represent 57% of the total emission reductions achieved by all registered CDM projects to date, but only 2% of the total number of projects. However, opportunities for tlarge projects HFC23 and N2O destruction projects are not common, and in the case of the HFC 23, are limited to existing facilities. Thus it is expected that in the medium term opportunities for these types of large projects will run out while the share of other projects types like renewable energy will take on more importance.

FIGURE 12
EXPECTED CERs PER TYPE OF PROJECT

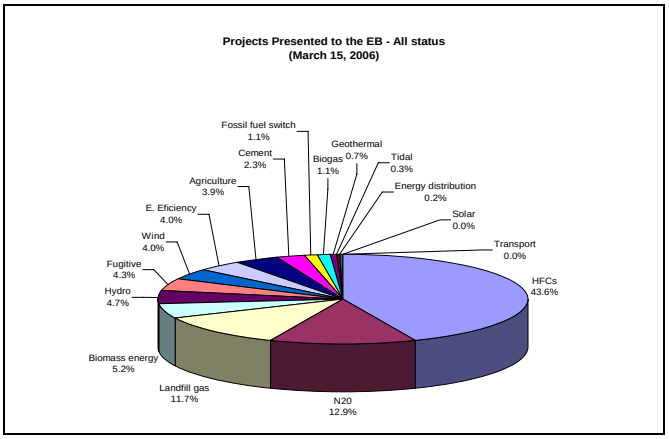
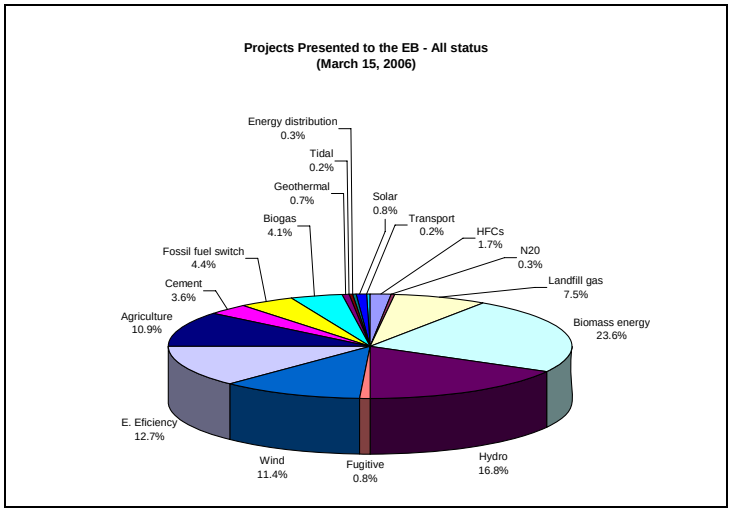


FIGURE 13
NUMBER OF PROJECTS PER TYPE



Source: Author elaborationbased in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

2.4.1 Approved CDM project methodologies

To be registered, a CDM project must follow an approved baseline and monitoring methodology. Currently, there are 25 large scale approved methodologies, 9 consolidated approved methodologies and 19 small scale methodologies.[16] Up to March 15 2006, only 23 methodologies have been used by the registered projects. The chart bellow shows the methodologies in use.[17]

[16] Small scale projects are: 1) Renewable energy Project activities with a maximum output capacity equivalent of up to 15 MW(or an appropriate equivalent). 2)Energy efficiency improvements projects activities which reduce energy consumption, on the supply and /or demand side, by up to the equivalent of 15 GWh per year, 3) Other project activities that both reduce anthropogenic emissions by sources and directly emits less than15 thousand tones of carbon dioxide equivalent annually.

[17] Although there are only 141 registered project at march 15, 2006, the list consider 153 because there are projects that use more than one methodology.

CHART 1
METHODOLOGIES USED IN REGISTERED PROJECTS

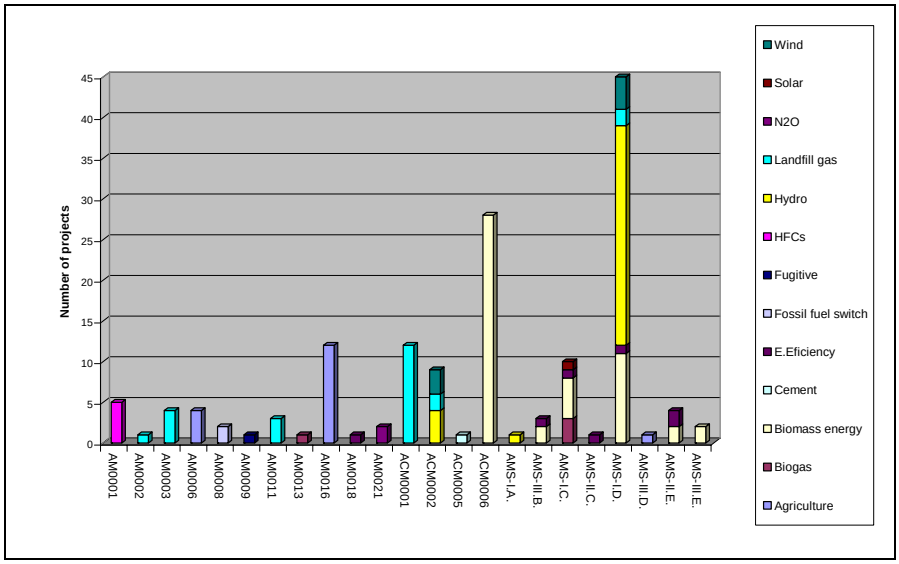
Code*	Title	Registered projects	Participation
AMS-I.D.	Grid connected renewable electricity generation	45	29.4%
ACM0006	Consolidated methodology for grid-connected electricity generation from biomass residues	28	18.3%
AM0016	Greenhouse gas mitigation from improved animal waste management systems in confined animal feeding operations	12	7.8%
ACM0001	Consolidated methodology for landfill gas project activities	12	7.8%
AMS-I.C.	Thermal energy for the user	10	6.5%
ACM0002	Consolidated methodology for grid-connected electricity generation from renewable sources	9	5.9%
AM0001	Incineration of HFC 23 Waste Streams	5	3.3%
AM0003	Simplified financial analysis for landfill gas capture projects	4	2.6%
AM0006	GHG emission reductions from manure management systems	4	2.6%
AMS-II.E.	Energy efficiency and fuel switching measures for buildings	4	2.6%
AM0011	Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario	3	2.0%
AMS-III.B.	Switching fossil fuels	3	2.0%
AM0008	Industrial fuel switching from coal and petroleum fuels to natural gas without extension of capacity and lifetime of the facility	2	1.3%
AM0021	Baseline Methodology for decomposition of N2O from existing adipic acid production plants	2	1.3%
AMS-III.E.	Avoidance of methane production from biomass decay through controlled combustion	2	1.3%
AM0002	Greenhouse gas emission reductions through landfill gas capture and flaring where the baseline is established by a public concession contract --- Version 2 (206 KB)	1	0.7%
AM0009	Recovery and utilization of gas from oil wells that would otherwise be flared	1	0.7%
AM0013	Forced methane extraction from organic waste-water treatment plants for grid-connected electricity supply	1	0.7%
AM0018	Steam optimization systems	1	0.7%
ACM0005	Consolidated Methodology for Increasing the Blend in Cement Production	1	0.7%
AMS-I.A.	Electricity generation by the user	1	0.7%
AMS-II.C.	Demand-side energy efficiency programmes for specific technologies	1	0.7%
AMS-III.D.	Methane recovery	1	0.7%
	Total	153	

**AM - Large scale, ACM - Consolidated Methodologies, AMS - Small scale*

Source: Author elaborationbased in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

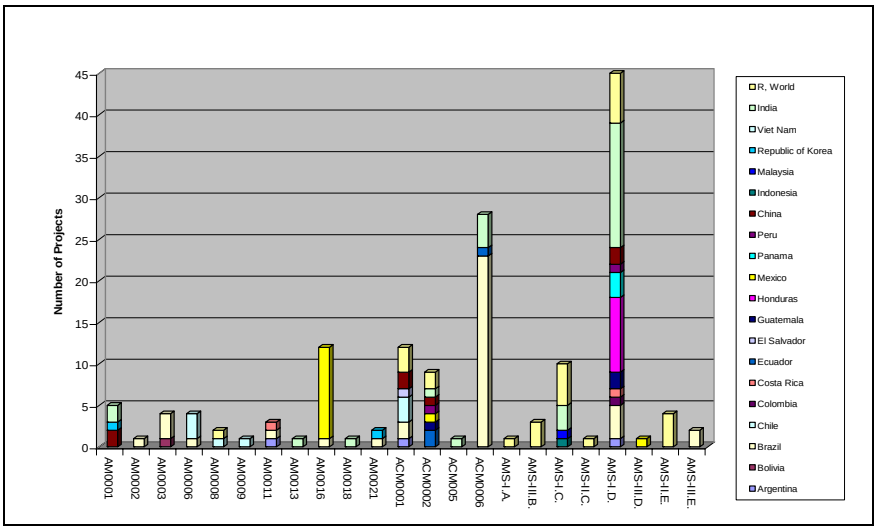
The small scale methodology AMS ID comprises almost 30% of the registered projects and is mainly used by hydroelectric projects and biomass energy projects. The second most used methodology is the ACM 0006 for grid connected biomass energy projects which are dominated by bagasse energy projects located in Brazil. The consolidated methodology for landfills ACM0001 and the methodology for waste animal management AM0016, dominated by Mexican projects are also used very often. The figure below illustrates the use of methodologies by type of project and by countries.

FIGURE 14
USE OF METHODOLOGIES IN REGISTERED PROJECTS
PER TYPE OF PROJECT



Source: Author elaboration based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

FIGURE 15
USE OF METHODOLOGIES IN REGISTERED PROJECTS
PER COUNTRY

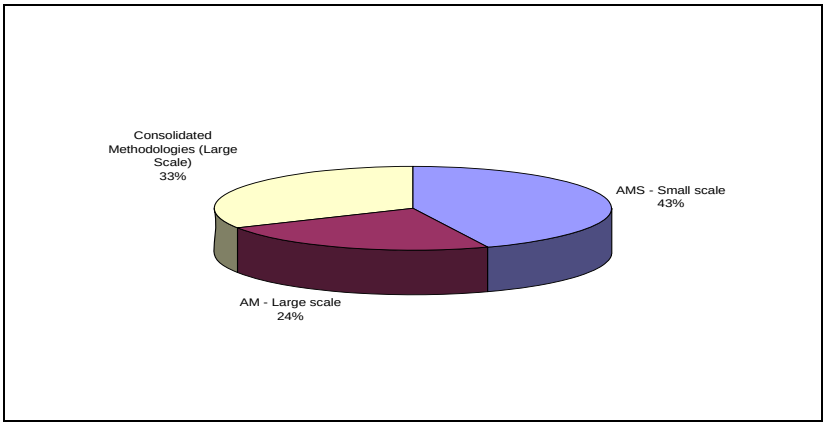


Source: Author elaborationbased in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC.

March 15, 2006.

From the total amount of registered projects 43% are small scale projects and are dominated by hydroelectric and biomass energy. Large scale projects are dominated by animal waste management, landfill, cement and biomass energy projects. It seems that because of the reduction of transaction cost as well as an improvement of CERs prices, that small scale projects are getting an important participation in the CDM market at least in number of registered projects.

FIGURE 16
METHODOLOGIES IN REGISTERED PROJECTS
PER SIZE

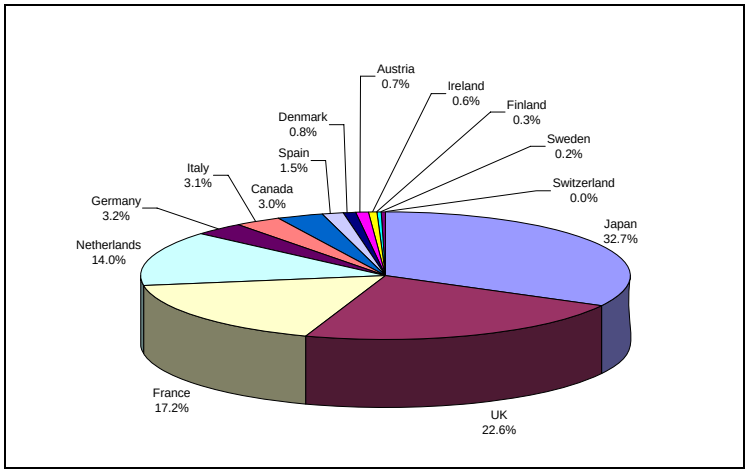


Source: Author elaboration based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

2.5 Major buyers and regional demand blocks in CDM market

Currently there is an important activity from developed countries looking to buy CERs in the CDM market. The figure below shows the main CERs buyers based on information provided by the UNFFCC regarding projects that have submitted documentation (PDDs) to the Executive Board up to March 15, 2006.

FIGURE 17
CERs DISTRIBUTION PER COUNTRY BUYER
ALL STATUS PROJECT PORTFOLIO, MARCH 15, 2006

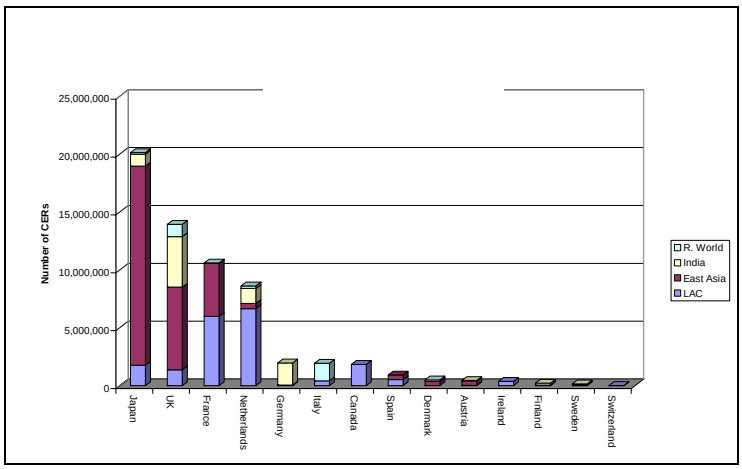


Source: Author elaborationbased on the project pipeline data produced by Jørgen Fenhann, UNEP Risø Centre January, 2006, and updated by Lorenzo Eguren based on information of the UNFCCC. March 15, 2006.

Japan is the main buyer, mainly through its private sector buyers like Mitsubishi, TEPCO, and J-Power among others. Japan's portfolio is concentrated in East Asia and in big projects. China has been a natural supplier given its availability of large projects and government policy to facilitate CER future contracts (ERPA contracts).

The UK is the second largest buyer. Although UK emissions are expected to be bellow their Kyoto Protocol, the principal carbon market intermediaries are hosted in the UK (i.e. Natsource and Ecosecurities among others). France is the third buyer but its portfolio is concentrated in two very large NO2 destruction projects, one in Brazil and the other in Korea, both belongings to a single French chemical company, Rhodia. The Netherlands was the pioneer in the carbon market through governmental initiatives, which first bought directly and then through intermediaries (mainly multilateral banks). Its portfolio is concentrated in Latin America. The figure bellow illustrates the regional shares for Annex I countries CER buying activity.

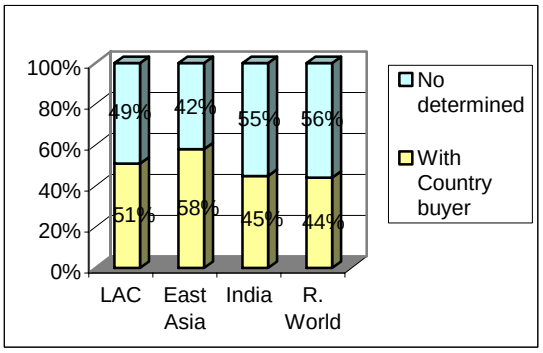
FIGURE 18
CERs COUNTRY BUYERS PER REGION
ALL STATUS PROJECT PORTFOLIO, MARCH 15, 2006



Source: Author elaboration based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

Only about 50% of the CDM projects presented to the UNFCCC report involvement by an Annex I party. For the rest it remains unclear, and it is expected that many of these projects are unilateral initiatives.

FIGURE 19
CERs PERCENTAGE WITH COUNTRY BUYER
ALL STATUS PROJECT PORTFOLIO, MARCH 15, 2006



Source: based in the project pipeline data produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

Activity of Carbon Funds in the CDM market

The project CD4CDM[18] in 2005 prepared a summary chart[19] of carbon funds. Carbon Funds can be divided into funds managed by Multilateral banks, by governments, or by the private sector. All carbon funds togethermanage funds by around 2,224 million dollars in total. Multilateral carbon funds are the main players with 962 million dollars in funds, practically concentrated in the World Bank. Public funds represent 343.75 million dollars and private funds 918 millions dollars.[20]

[18] UNEPs 4-year project on Capacity Development for the CDM with funding from the government of the Netherlands. http://cd4cdm.org/

[19] Carbon market Update for CDM Host Countries. CD4CDM project. UNEP Riso Centre and IETA. Issues No 1 and No 2. May and Sept. 2005.

[20] Please refer to the Annex A.5 for a complete list of active carbon funds and their main characteristics.

At present Carbon funds, especially the ones from multilateral banks, face difficulty in securing CDM projects. Their rigidity in prices and contracts (most of them forwards contracts) does not allow them to compete easily in the international carbon market. Consulting firms offering different types of tailored contracts, covering the whole range from unilateral project development to future contracts and mixed contracts in between have become major competitors for carbon funds. These firms also keep lists of carbon buyers including corporations that are open to offer better prices for forward contracts. The revenue of these consulting firms comes from commission and service payments and can be adapted practically to any kind of carbon deal.[21]

2.5.1 Major demand blocks in the CDM market

2.5.1.1 The EU Emissions Trading Scheme (EUETS)[22]

In an effort to ensure collective compliance with Kyoto protocol by all EU member States, the EU created its own cap-and-trade emission reduction system, the EU Emissions Trading System (EU-ETS) in 2003 (Directive 2003/87/EC). The EU's "Linking Directive" (Directive 2004/101/EC) creates the conditions to use credits generated by emission reduction projects certified by the Kyoto Protocol, CERs and ERUs, within the EU ETS market. It allows member States who obtain such credits to convert them into allowances and use or trade them within the EU ETS.

The EU ETS commenced operations in January 2005 becoming the largest GHG emission trading scheme currently operating. The scheme is based on the allocation of GHG emission allowances (EUAs), which may be traded, to specific industrial sectors through national allocation plans (NAPs) with oversight by the European Commission (EC). NAPs set out the overall emissions cap for the country and the allowances that each sector and individual installation covered under the Directive receives. The allowances will be distributed to energy installations with a rated input greater than 20 MW, plus installations greater than a certain size in the steel, minerals and paper industries. The first phase of the EU ETS covers the period 2005-2007, while the second phase coincides with the Kyoto Protocol's first commitment period, from 2008 to 2012. The first phase of the EU ETS applies to some 7,300 companies and 12,000 installations in six major industrial sectors across the enlarged EU. These industrial sectors include: utility combustion plants; oil refineries; coke ovens iron and steel plants; energy-intensive industry, such as cement, glass, lime, brick and ceramics. The EU Emissions Trading Scheme (EU ETS) is expected to cover 45% to 50% of the EU's total carbon dioxide emissions and is set to create the world's largest mandatory greenhouse gas emissions trading scheme.

Failure in participants to fulfills its cap, will result in a fine of euro 40 per ton of CO2 in excess during Phase I (2005-07), rising to euro100 ($120) per ton (equivalent) in Phase II (2008-12). And paying the fine does not remove the obligation to retire the missing certificates. CERs from the clean development mechanism could be used in Phase I and Phase II, while (JI) credits only in Phase II. The scheme allows for future extension to other greenhouse gases as well as to other sectors such as transport. It also allows for links to other national emissions trading schemes from non-EU states.

2.5.1.2 Canada[23]

Actual emissions trading in Canada in 2005 was limited to very few trades, mainly in the electricity sector, a significant decline from previous years. The rules for offsets projects were not yet in place. Canadian companies showed little interest in JI and only few Canadian CDM projects had received

[21] The major carbon consulting firms are: 2E Carbon Access, AgCert, Ecoinvest, Ecoenergy, ECOsecurities, MGM international, Pricewaterhouse Coopers, ahlcarbono, etc.

[22] Source:

1) Linking Kyoto with the EU Emissions Trading Scheme . Presentation document of A two-day seminar on Linking the Kyoto Project-Based Mechanisms with the European Union Emissions Trading Scheme (EU ETS) took place from 15-16 September 2005, in Vienna, Austria. Organized by UNIDO in cooperation with UK Trade and Investment and the Government of Hungary. Vienna, Austria 15 - 16 September, 2005.http://www.unido.org/doc/42327 ,
2) Allen, James and Anthony White. Carbon Trading**.** Electric Perspectives. Copyright Edison Electric Institute Sep/Oct 2005. Provided by ProQuest Information and Learning Company. http://www.findarticles.com/p/articles/mi_qa3650/is_200509/ai_n15351002
3) United Nations Framework Convention on Climate Change. The First Ten Years. UNFCCC (2004).

[23] This section is a Summary of: Page, Bob. The Canadian scene: Liquidity constraints. Transalta. In "Greenhouse Gas Market 2005: The rubber hits the road" Editor**:** Robert Dornau. International Emission Trading Association (IETA). 2005.

registration. There was no platform yet for trading, although the Toronto Stock Exchange and others had expressed strong interest.

Canada has been a strong supporter of the Kyoto market mechanisms and will probably be a large purchaser in the international market. They have sponsored missions and helped to cover transaction costs for JI or CDM projects. They have bilateral agreements with about 15 countries. But the domestic price cap (to be discussed later) complicates international credits purchasing or linkage to other emission trading systems. Given the risks involved with JI and CDM projects many Canadian companies appear to be relying on purchasing the $15 credits from the Canadian Government to meet regulatory obligations.

The perception of Canadian business is that the CDM approval process is long, costly, and inefficient. As part of the role as host and chair for COP XI, the Canadian Environment Minister is leading an effort for CDM reform, to speed approvals and increase the flow of CDM credits into the international market.

Canadian domestic emissions trading: In April 2005 the Government unveiled its long awaited $10 billion climate program which brought clarity in some areas, but not emissions trading. The focus was on price certainty and government credits purchasing, along with a downplaying of the role for domestic and international emissions trading. In the fall of 2005 more policy papers are expected as well as sector-by-sector negotiations.

The focus of this plan is on the Large Final Emitters (LFE) which includes oil and gas, thermal electricity, mining and manufacturing, or about 50% of Canadian emissions. Their emission intensity target is to cut 15% from a baseline still to be established. In absolute terms it is 45 MT annually out of a Canadian target of 270 MT. These LFE companies will be the main private sector buyers in the Canadian market.

For traders, the most important feature of the Canadian market is the Price Assurance Mechanism (PAM). Given the level of financial risk for the fossil fuel intensive Canadian economy, the Government promised a $15.00 (Canadian) price cap to ease political opposition at the time of ratification. This is now translated into a policy allowing companies to purchase required credits at this price directly from the government. In turn the government will generate a large pool of credits through domestic or international Purchases. These credits will not be traded, but must be used directly for regulatory compliance. Thus Canada will create a baseline and credit system with a price cap of $15.00 (Canadian) or 10.50 Euro per ton, which is fundamentally different in structure and approach than the EU system.

The Canadian plan also includes public expenditure through three large funds to incentivate action and pool credits. The first is a $1 billion per year Climate Fund to purchase domestic or international credits at going market prices including ERUs, CERs, or AAUs. The Government says will purchase a total of 75-115 Mt per year. The second fund is the Technology Fund to be financed by contributions from industry. The basic concept was to divert some potential offshore purchasing into domestic technology change. The incentive to companies to invest was provided by the issuance of credits ($15.00 per ton) and the access to project funding. The credits issued could only be used for compliance purposes and would not trade. The third is a partnership fund with the provinces and other parties whereby large pools of capital could be created for mega projects such as clean coal or CO2 sequestration. Many of the details of this fund are still not available including credits creation and potential for trading. The emission cuts from these projects would be largely post 2012.

Given EU prices, Canadian industry is strongly in favor of price certainty as opposed to an integrated international emissions trading market. This means the Canadian market will be very limited and separate from the EU for at least 2008 – 2012. A Canadian survey[24] developed in 2005 by The Conference Board of Canada to 60 medium-sized and large electricity generation, mining and manufacturing companies on issues related to the implementation of the Kyoto Protocol and Canada's 'Large Final Emitter' legislation found the following:

- 84 per cent of respondents feel their companies moderately or strongly understand how a carbon-constrained future will affect them;

[24] Source:Canadian companies ready to act on and disclose carbon emissions risks, February 2. CNW. http://www.cnw.ca/fr/releases/archive/February2006/02/c3393.html. 2006.

- 63 per cent have assessed how emissions regulations might affect their financial positions;
- 83 per cent indicate that they will meet their compliance obligations by maximizing energy efficiency, investing in new technologies or purchasing emissions reduction credits;
- 72 per cent of respondents say their boards of directors have a high level of understanding of carbon-related business risks and opportunities.

2.5.1.3 Japan[25]

In April 2005, Japan issued the 'Kyoto Protocol Target Achievement Plan'. The Plan has the projection that Japan stands to acquire 1.6% of its base year emission reductions (roughly 20Mt CO2) through the use of Kyoto's flexible mechanisms. This is based on the assumption that all other sectors achieve the targets according to the Plan, which is a formidable task, given the current emissions trajectory and the gradual scaling back of new nuclear development in Japan.

Japanese Domestic emissions trading: Unlike the EU, domestic emissions trading, along with environmental taxation, remains a contentious issue. Industry, which stands to be virtually the sole target of a domestic ETS (Emission Trading System) in Japan, has been the only sector able to maintain its emission levels, and remains firmly opposed to domestic emissions trading on the grounds that this may seriously hurt them. Industry skepticism remains since there is a large discrepancy between the industry's own voluntary target (stabilization at 1990 levels) and industry's target according to the Plan (8.6% reduction from 1990 levels), which amounts to more than 40Mt-CO2 in further reductions. If the electricity sector is isolated, the discrepancy between its voluntary target and what is expected under the Plan amounts to 60Mt-CO2 if total generation is considered.

The Ministry of Environment (MoE) is the key driving force behind domestic emissions trading in Japan, hoping to couple with an environmental taxation scheme in the style of the UK emissions trading scheme. From 2005, MoE has allocated nearly $30 million for a voluntary emissions trading scheme, with funds to be used to facilitate in-house emission reduction activities and establish baseline emissions. Implementation of the scheme is expected to continue during 2006. The MoE scheme resembles more an emissions reductions credit purchase scheme, or a subsidy aimed towards dissemination of efficient technologies, rather than a full fledged cap-and-trade scheme in its strictest sense.

Keidanren (Japan Business Federation) has expressed its opposition to a cap-and-trade type ETS since implementation of such a scheme risks increasing government-mandated energy regulation, bearing in mind the paucity of domestic emission reduction opportunities in Japan. This is an important factor in considering the difficulty in reducing GHG emissions domestically in Japan. Contrary to EU, more than 90% of Japan's GHG is CO2 (much of it energy consumption-related), and important emission sources such as landfill gas methane or aluminum-derived PFC have already been controlled or do not exist.

JI and CDM activities: In view of remaining uncertainties for emissions trading in Japan, and also under increasing pressure to meet its considerable potential gap to achieve its Kyoto target, the Japanese government has gradually stepped up its efforts on the project based flexibility mechanisms, especially CDM. Government-assisted feasibility study programs have been up and running for the past few years, and there have been a few notable breakthroughs
in the last year, as follows:\

- The Japan Greenhouse Gas Reduction Fund (JGRF) was launched in December 1, 2004 with an endowment of $141.5 million USD from the Japan Bank for International Cooperation (JBIC), the Development Bank of Japan (DBJ) and 31 Japanese private companies. Eleven electricity and gas companies provided $55 million USD, followed by 12 manufacturing companies ($33.5 million) and six trading companies ($32 million). A joint stock company Japan Carbon Finance (JCF) was set up to act as an intermediary between projects and the fund. It engages in emission reduction purchase agreements with the former and emission resale agreement with the latter.
- The Japan Kyoto Acceleration Program (JKAP) was launched in March, 2005 in an attempt to integrate the often fragmented Kyoto mechanism-related programs (regarding study, capacity

[25] This section is a Summary of: Kenichiro Yamaguchi, Using the Kyoto Mechanisms: Recent trends in Japan *Mitsubishi Research Institute Inc.* In "Greenhouse Gas Market 2005: The rubber hits the road" Editor**:** Robert Dornau. International Emission Trading Association (IETA). 2005.

building, financing and implementation) across ministries, and link it with the Japanese official development assistance (ODA) which provides the underlying finance (thereby, it is hoped, sidestepping the still pending question of CDM and ODA). A notable feature of the JKAP is the "Upfront Payment" scheme which aims to transfer up to 50% of the total project cost to the project developers. For Annex I countries, this is expected to be an important precedent for a "green investment scheme", where AAUs are transferred under a government-to-government basis and its revenues earmarked for additional emissions reductions and other environmental purposes. To this end, 8 billion JPY (approx. 73 million USD) has been allocated for FY2005, and 10 billion JPY (approx, 90 million USD) has been requested for FY2006 for direct purchase of Kyoto Units. Key agencies include Ministry of Environment, Ministry of Economy, Trade and Industry, and Japan Bank for International Cooperation, to name a few.

The private sector in Japan has also stepped up its efforts to identify / implement potential CDM projects. The electric power industry is in the forefront of such activities since the industry has been exposed to rapid increase in electricity consumption in the commercial and residential sector, and nuclear development has been less than expected. Closer look at the power generation industry reveals differences between companies with respect to their present and planned generation mix. Oil and gas companies anticipate both opportunities and risk. Trading companies, not emitters themselves, are entering into the market, looking into the potential opportunities of the emissions market as well as that of equipment transfer as part of JI and CDM projects.

According to a Japan survey[26] results regarding Japanese companies participation in the CDM and JI, 13.8% of respondents have introduced/ will introduce CDM or JI projects in their business activities, 42.0% have an interest in doing so but have no concrete action plan, and 40.1% have no plans/ interest to introduce such mechanisms in the future.

Among firms that have introduced/ will introduce Kyoto mechanisms, 62.9% cited "corporate social responsibility for environmental conservation" as their reason for participating in the mechanisms, followed by "possibility of increased business opportunities (from selling/ brokering products and technologies for CDM/ JI projects)" (40.2%) and "need to achieve voluntary emissions targets set within a company or related industry organization" (33.3%). Asked about the nature of their participation in the Kyoto mechanisms, firms cited "sales of environment-related products/ technologies" (24.2%), "investments in CDM/ JI projects" (19.7%) and "sales or brokering of emissions credits" (7.6%).

Survey results also showed that Japanese firms are keen on undertaking CDM/ JI projects in China and the rest of Asia. Firms that indicated they will introduce Kyoto mechanisms were asked which country/ region they would select for introducing such projects. China was the top pick (51.1%), followed by India (12.8%) and other Asian countries (20.2%).

Among the 30 respondents planning "investments for energy saving at production facilities", 66.7% of firms would make such investments in China, reflecting the fact that the country is home to a large number of Japanese manufacturers.

Asked about their main requirement for participating in the mechanisms, nearly half (49.3%) of respondents cited "dissemination of practical information, including governmental efforts/ supports and success stories by Japanese firms". Respondents also pointed to the necessity of improving legal frameworks and regulations both domestically and internationally, citing "revision in corporate accounting systems to provide tax benefits for firms involved with CDM/ JI projects" (42.6%), "making international consensus on a future framework for the post-Kyoto Protocol period starting in 2013" (21.1%), and "setting up regulations to impose emissions limits on individual company/ factory, penalties and additional taxes for violations" (20.0%).

[26] Survey of a total of 960 companies in manufacturing, trading, finance, construction, transportation and other service sectors who conduct or have interests in international business by The Japan External Trade Organization (JETRO). Source: "Survey on Japanese Firms Participation in Kyoto Mechanisms, March 8". ACN Newswire. http://www.acnnewswire.net/article.asp?Art_ID=31288&lang= . March 2006.

2.5.2 Voluntary market demand

2.5.2.1 USA[27]

The Bush administration continues to encourage companies from energy intensive industries to take voluntary action to reduce their emission of green house gases and has declared not intention to neither ratify the Kyoto protocol nor regulate GHG in the country. This political climate has left the creation of a US GHG market trading in a limbo. As United States is no part of the Kyoto protocol, therefore it is outside of the central treaty driving global trading in the carbon market.

In the US, until December 2005, Massachusetts and New Hampshire were the only two states that have passed legislation establishing a state level trading system to meet GHG caps. In addition, the Chicago climate Exchange (CCX) has been operating a voluntary but legally binding cap and trade system for its members. While the state run systems are still in their infancy with a very small number of affected parties and almost no trading volume, The CCX initiated trading in December 2003. In addition, the CCX allow project developers from certain types of landfill methane, agricultural methane, forestry, and soil carbon sequestration projects based in the US, Canada; Mexico or Brazil sell credit to CCX members.

In December 2005, the governors of seven Northeastern and Mid-Atlantic states agreed to the Regional Greenhouse Gas Initiative (RGGI),[28] a cap-and-trade system covering carbon dioxide (CO2) emissions from regional power plants. To facilitate compliance with reduction targets, RGGI will provide flexibility mechanisms that include credits for emissions reductions achieved outside of the electricity sector. The successful implementation of the RGGI model will set the stage for other states to join or form their own regional cap and trade systems and may encourage the program to expand to other greenhouse gases and other sectors. RGGI states, along with Pennsylvania, Massachusetts, and Rhode Island, are also developing a GHG registry called the Regional Greenhouse Gas Registry.

In the absence of regulation and limited cap, in the US there is market for Verified Emissions reductions (VER). These are project based emission reductions and are the primary GHG commodity in the US. As opposed to allowances of a cap system, VERs are mainly used for voluntary commitments. To date, voluntary GHG reduction commitments by a relative small number of companies, such as Entergy, Dupont and others have been the primary force driven VER demand in the US. VER buyers are motivated by specific commitments to meet emissions reduction targets that have been made either independly or as part of a larger voluntary program such as the EPA Climate leaders, DOE Climate Challenge, or the CCX.

The Asia-Pacific Partnership on Clean Development and Climate it is a multilateral initiative led by US for clean technology transfer between the other members states3 like Australia, China, India, Japan and The Republic of Korea that will not incorporate binding commitments or target to reduce greenhouse emissions but will develop, deploy and transfer existing and emerging clean technology to promote economic growth while enabling significant reduction in greenhouse gas intensities4. All this relies on voluntary measures to encourage the take-up of greenhouse reducing investments while members states say “the Partnership will complement, but no replace, the Kyoto Protocol”5 its detractors say is rather designed to undermine it.

The lack of mandatory GHG reduction requirements implies that the primary purpose of most VER transaction is to either purchase low cost credits now for future use, to gain trading experience or to fill public relations goals. Because of the lack of a truly comprehensive nationwide VER tracking system, seller can increase the potential value of their VERs by documenting them with an established registry such the one of California.

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[27] A summary of: Zaborowsky, Peter and Jeffrey Reamer Reality Check for the US GHG Market. Evolution Markets. Executive Brief. Edition 22. April 26. 2004.

[28] Source: Learning from State Action on Climate Change. March 2006 Update. Pew Center on Global Climate Change. March 2006.

[3] China, India, Japan and The Republic of Korea have ratified the Kyoto Protocol.

[4] Vision Statement of Australia, China, India, Japan, the Republic of Korea and the U.S for a New Asia-Pacific Partnership on Clean Development and Climate, July 28 2005.

[5] *ídem*

2.5.2.2 Australia[29]

To the outside observer, Australia must seem a nation of contradictions when it comes to climate change policy. The Federal Government has argued that ratification of the Kyoto Protocol will result in economic hardship, yet has committed to meeting the required emission reductions, while locking Australia out of the Protocol's flexibility mechanisms. The Government's approach to climate change relies heavily on future technological development, yet it has not matched its 'technology push' approach with the necessary 'market pull' to ensure adoption and maturation of new technologies.

The Federal Government has shown no interest in developing a carbon market, yet all eight regional (sub-national) state and territory governments have been working on the development of a national emissions trading scheme. Interestingly, the scheme aims not only to assist in meeting Australia's Kyoto target, but also to position Australia for a carbon constrained future and emission reductions beyond 2012. In the absence of national leadership on greenhouse policy, Australian State and Territory Governments established the Inter-jurisdictional Emissions Trading Working Group in early 2004. The working group is developing an emissions trading scheme for consideration by State and Territory Governments which will: Provide a framework to meet Australia's Kyoto Protocol target and Position Australia for emission reductions beyond 2012.

Following a report from the group in late 2004, State Premiers and Territory Chief Ministers released a joint communication in March 2005, endorsing ten key design propositions as a basis for further scheme development based on a national cap and trade system in line with international commitments. Although the State Premiers and Territory Chief Ministers have not committed to implement the scheme, they have asked the group to keep working. Their interest in developing a scheme for consideration is of note for three key reasons:

- It is highly unusual for the state governments to collectively advance a national policy reform without the active engagement of the Federal Government.
- The need for a nationally consistent approach to longer term emission reductions is becoming more compelling as Governments and businesses begin to understand the magnitude of the task ahead.
- There is increasing support from the private sector for a national emissions trading scheme to provide a market framework that can drive investment into low emissions technologies.

Meanwhile in 2003, the New South Wales (NSW) Government introduced a mandatory greenhouse emissions trading scheme – The Greenhouse Gas Abatement Scheme (GGAS). GGAS is a baseline and credit trading scheme that requires electricity retailers to reduce annual emissions from 8.65 to 7.27 ton CO2 equivalent per capita. They can achieve these targets by offsetting their liability with credits created from renewable energy and low emission generation, tree planting and energy efficiency. To date, over 150 projects have been accredited to create abatement certificates under the NSW scheme and more than 16 million certificates have been created. The scheme has been successful in providing an incentive for emission reductions and in building capacity for emissions trading in NSW without competitively disadvantaging the state against interstate competitors.

[29] This section is a Summary of: Alex Gordon, National emissions trading in Australia – a step closer The Australian policy context. In "Greenhouse Gas Market 2005: The rubber hits the road" Editor: Robert Dornau. International Emission Trading Association (IETA). 2005.

3. Institutional framework and constraints to CDM development in FEALAC countries

This chapter focuses on the analysis of the CDM Institutional Framework and the process for the issuance of the Host Country Letter of Approval[30] (LoA), as well as the CDM market strategies that FEALAC countries have displayed to date. For the present study, information regarding CDM institutional framework and Host Country Letter of Approval (HC- LoA) procedures were collected from DNA web pages and/or based on information from FEALAC members. Data was collected from 11 Latin American and 7 East Asia countries. Although, each country has its own particular CDM arrangements some key general findings are highlighted.

3.1 General findings on FEALAC countries CDM Institutional Framework and Approval Process

3.1.1 CDM Institutional framework

All 17 countries surveyed have established a CDM Institutional framework and approval procedure except for Venezuela. However in some countries like the Philippines, regulation is still not fully in operation.

Designated National Authorities (DNA): Are the authorities in charge of issuing the Letter of Approval and managing the CDM project approval process. In general the DNA is located under a Ministry, ofter the Ministry of Environment or the Ministry of Natural Resources or Energy. However inter-ministerial commissions are also established to act as DNAs (Brazil, Mexico, China, Korea and Indonesia). Aside from issuing the host country's Letter of Approval for CDM projects, many DNAs also carry out CDM promotion and information diffusion activities in their countries, and participate in UNFCCC negotiations. In some countries, such as Peru and Ecuador, a separate office has been established for promotion of CDM investment and project opportunities.

Intersectorial Committee: Is in charge of evaluating if the proposed CDM project meets the sustainable development criteria of each country. This committee is usually composed of public sector agencies and technical bodies involved in sectors within the scope of the project. This committee has a consultative purpose and issues a recommendation to the DNA for the approval or rejection of the proposed CDM project. However, in practice the decision to approve or reject a project is usually determined by the committee. This approval process can become difficult if committee members are not familiarized with the CDM project approval process. Thailand is an extreme case where the cabinet of ministers has to grant its approval to proposed CDM projects.

3.1.2 Approval Process

To grant approval the majority of countries require the official CDM Project Documentation (PDD), as well as compliance with local regulation and environmental impact assessment requirements, and local consultation when required. For Chile, Peru, Argentina, Bolivia, Ecuador, Honduras, Panama, Korea, meeting those conditions is also sufficient to demonstrate that the project contributes to the host country sustainable development.

Other countries, have established an additional sustainable development criteria that the project has to comply with. The sustainable development criteria comprises three requirements: Environmental (Clean energy or activity), Social (participation of local inhabitants) and Economic (improvement of local economy). In these countries the process to get the Letter of Approval generally is more difficult. Countries which require compliance with sustainable development criteria in addition to compliance with routine local regulation are: Colombia, Mexico, Cambodia, Indonesia, Philippines, Thailand, and Vietnam.

[30] The issuance of a Letter of Approval by a Host Country, is a prerequisite to the submission of a validation report to the CDM EB by a third party duly accredited by the United Nations known as a Designated Operational Entity, requesting the registration of the project activity under CDM.

In Brazil, to obtain the Letter of Approval CDM projects have to be validated first by an Kyoto Protocol Operational Entity and need to ensure compliance with the relevant requirements of the Brazilian legislation.

In Korea a letter of approval from an Annex I buyer, or a Validation report by an Operational Entity, is a requirement to get the Host country letter of approval.

In China government intervention in the approval process is strong based on environmental and economic priorities and interests. In addition to requiring a minimum price for the CERs generated, China has established three rules for the local development of CDM projects:

a. If no foreign buyer is involved by the time a project is submitted for approval, it must be indicated in the PDD that the emission reductions (CERs) will be transferred into China's national account in the CDM registry and can only be transferred out with the authorization of China's DNA for CDM.
b. CERs shall be owned jointly by the Government of China and the project owner, according to the following ratios: the Government takes 65% of CERs from HFC and PFC projects; it takes 30% of CER from N2O projects; it takes 2% CERs from CDM projects in priority areas defined as energy efficiency, new and renewable energy, and methane recovery and utilization.
c. Only Chinese funded or Chinese-holding enterprises within the territory of China with foreign partners are allowed to develop CDM projects.

Duration of approval process

All country approval process in the sample last little more than 2 months except in Vietnam where the LoAs are issued only twice a year. The most active countries in promoting the CDM, particularly in Latin America, have committed to simplify the approval process and to reduce the time of the approval procedure. The most effective countries issue the LoA in between 30 and 45 days. In Argentina, Bolivia, Chile, Colombia, Mexico, Ecuador, Peru and Indonesia the approval process is faster and generally takes around 45 days. In Cambodia, China, Philippines, Thailand and Vietnam the approval process usually takes two months or more.

3.2 Constraints to CDM project execution in FEALAC countries

Two kinds of constraints for the development of CDM projects can be distinguished, those related to host country barriers, and those arising from the complexity of the CDM multilateral framework. Host country constraints are mainly due to insufficient financing for the adequate operation of the national CDM offices resulting in time-consuming CDM letter of approval procedures; absence of adequate financing and regulatory framework to promote development of CDM projects; and weak supporting environment for these new type of investments.

CDM multilateral framework constraints are associated with the relatively slow development of the CDM market due to the time-consuming and complex nature of the international negotiation process to establish clear CDM market rules, procedures and modalities. All these rules have to be firmly in place to send clear signals to buyers, sellers and project developers in the market. Another constraint adding to the overall transaction costs of participating in the CDM market is the time-consuming process for CDM project registration with the Executive Board.

3.2.1 Host country constraints

3.2.1.1 Lack of financing for the adequate operation of the CDM offices

A study by CAEMA[31] (2003) based on a survey of 13[32] Latin American countries found that CDM offices didn't have enough resources to finance feasibility studies, baselines studies and other tasks related to the CDM project cycle. Most CDM country offices only have budgetary resources to cover the operational expenses of the office. Financial contributions from international cooperation had also helped

[31] CAEMA " The state of development of national CDM Offices in Central and south America" An institutional evaluation by the Andean Center for Economics in the Environment for the department of foreign Affairs and International trade – Climate cange and energy Division. Canada, January . 2003

[32] Argentina, Bolivia, Colombia, Costa rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru and Uruguay.

these offices to fund capacity building activities and launch specific projects the study found. In general these contributions are temporary and cannot be expected to adequately fund national CDM investment promotion efforts. Some countries are seeking to raise funds by charging a fee for the issuance of the letter of approval.

3.2.1.2 Long and difficult CDM letter of approval procedures[33]

In some FEALAC countries, mainly in Asia the process to obtain the host country letter of approval, including sustainable development criteria, is long and complex. The lack of clear regulation makes it difficult to determine unambiguously the proposed project's compliance with sustainable development criteria. In some cases public consultations in coordination with the DNA are required adding more time to the process. In Vietnam the DNA issues the letter of approval only twice a year, in Thailand the approval procedure takes approximately 70 working days and requires ministerial cabinet approval. In the Philippines, Cambodia, China and Brazil the approval process takes around two months. In many countries the legal framework for taxation of proceeds from CER sales is still not clear, adding another layer of uncertainty that must be negotiated by CDM project developers.

3.2.1.3 Lack of local capacities in CDM

The study of CAEMA (2003) also found that lack of continuity of staff in CDM offices limited their technical capacity to identify the full range of opportunities for a quality project portfolio. Many international cooperation programs focusing on CDM capacity building have been implemented in FEALAC countries:

- The World Bank program of National CDM/JI Strategy Studies,[34] was designed as a capacity building tool to enhance CDM awareness and develop the national capacities to play an active role as host countries for CDM investment;
- The Capacity Development for CDM project – CD4CDM[35] has supported CDM project and capacity development in 12 developing countries, including 6 FEALAC[36] countries;
- Other international capacity building activities such as the international cooperation of Japan have focused on East Asia; those of the Andean CAF –Latin American Carbon Program, focusing in Latin America; and those from the World Bank Carbon Finance Unit, worldwide.

However, according to a study made in 2005 by IGES[37] in countries of East Asia like Vietnam, it is still difficult for local project developers and private and public stakeholders, including small and medium-scale enterprises, to understand the modalities and procedures for CDM project development due to its complexity. For example, stakeholders in Korea consider that concepts such as additionality and baseline-setting remain key obstacles, and improved guidelines and capacity-building for the Korean industry are vital for successful implementation of the CDM. According to the same IGES study, Thailand, Cambodia and the Philippines consider that promoting public awareness of climate change at the local level remains a challenge. In Vietnam, the insufficient capacity of the private sector to implement CDM activities was considered an important barrier. Some participants noted that the failure to improve the legal framework and create an adequate incentive structure for foreign investment was hindering CDM activities.

In addition an statistical analysis[38] based on a World Bank survey conducted in 2002 regarding capacity building needs in 16 developing countries in the framework of the NSS study, showed that 8 Latin-American countries in the survey identified "lack of capacity building on CDM awareness" as one of the most important barriers for CDM development; and in second place, capacity building in project formulation and knowledge about the international carbon market.

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[33] Own research based in information from the web, specially DNA web pages. See Annex II.

[34] Argentina (1998), Colombia (2000), Bolivia (2001), Peru(2003), Uruguay (2003), Chile (2003); Indonesia I – Energy (2001), Thailand (2002), Vietnam (2003) Indonesia II – LULUCF (2003), China (2004),

[35] www.cd4cdm.org

[36] In East Asia: Cambodia, Philippines, Vietnam and in Latin America: Bolivia Ecuador and Guatemala

[37] Study made by The Institute for Global Environmental Strategies (IGES) based in consultations in China, India, Indonesia, Japan, the Republic of Korea and Viet Nam, and also at the regional level with cooperation from several organizations across the Asia-Pacific. focussing on the climate regime beyond 2012. Tae Yong JUNG, ANCHA Srinivasan, Kentaro TAMURA, Tomonori SUDO, Rie WATANABE, Kunihiko SHIMADA "Asian perspectives on Climate Regime Beyond 2012". Institute for Global Environmental Strategies. Hayama, Japan. 2005

[38] Lubomir Nondek y Anne Arquit Niederberger "Statistical Analysis confirms Kyoto capacity Building needs" July 2003. The survey is in the workshop report "Capacity building for the Kyoto Protocol" Sigriswil, Switzerland, September23 – 25, 2002, presented in April, 2003.

3.2.1.4 Lack of financing and regulatory framework for the development of CDM projects

Participants in the IGES and CAEMA studies and the World Bank[39] survey, noted that securing underlying finance for CDM projects remains a major challenge. Most potential for CDM projects lie in renewable energy and energy efficiency but the economic incentive from CDM in most of the cases is not enough to make them viable. Lack of specialized financial mechanisms, inadequate legal framework, as well as the relative lower cost and availability of conventional energy remain as important barriers preventing these kinds of projects.

According to a 2003 study by UNEP,[40] there is a considerable potential for non conventional renewable energy in Latin America. However the higher costs of these alternative sources vis-á-vis conventional or commercial energy sources implies that only strong promotion based on concessional or non-refundable financing, coupled with adequate regulatory framework and improved transfer of the aforementioned technologies, could break the barrier and trigger the development of these alternative energy resources.

The success in Brazil with CDM biomass energy cogeneration projects to deliver electricity to the grid have been possible thanks to the Brazilian regulatory framework and traditional support for non conventional energy.[41] The study also found significant barriers due to the lack of financial mechanisms and regulatory frameworks to create appropriate incentives for energy-efficiency in recent energy sector policy reforms the Latin American region. According to IGES (2005) in the case of East Asia, most of the countries are concerned about their energy security and are committed to promote energy efficiency and renewable energies; however several obstacles, such as the high cost of technology, must still be overcome to make renewable energy more competitive against fossil fuels in this region.

In China the high rate of economic growth and the rapid increase in energy demand favors the cheapest and readily available sources of energy such as coal, which makes up for 67% of its primary energy and it is predicted to cover over 60% of China's energy needs will have to be met imports by 2020. China has achieved considerable improvements in GDP energy intensity, but it still faces the crucial challenge of improving its energy efficiency further and expand the share of renewable energy.

3.3 Overcoming constraints for CDM development

3.3.1 Measures to overcome constraints to CDM projects

Taking into account the constraints that prevent further development of CDM projects, the IGES (2005) study provides the following suggestions to overcome CDM project barriers.

Category	Barrier	Solution
Institutional Concerns	o Complexity and rigidity of project approval process. o Marginal contributions to sustainable development (e.g., very few energy efficiency or forestry projects). o Lack of contribution in technology transfer to developing countries. o Uncertainty in continuity of the CDM beyond 2012. o Slow approval process in host countries due to weak institutional capacity o Weak institutional capacity in host countries	o Preferential measures to promote CDM projects with local sustainable development benefits, including energy efficiency and forestry projects. o Adoption of sector-based approach to Adoption of sector-based approach to CDM and of policy-based CDM. o Promoting purchasing arrangements for CERs beyond 2012. o Streamlining of project approval process through institutional reform of the CDM including the Executive Board. o Strengthening of institutional and human capacity, where it is inadequate.
Technical Concerns	o Technical difficulties in methodology development. o Complexity of baselines and additionality.	o Standardisation of methodology development. o Relaxation of conditions of baselines and additionality.

[39] The survey is in the workshop report "Capacity building for the Kyoto Protocol" World Bank .Sigriswil, Switzerland, September23 – 25, 2002, presented in April, 2003.

[40] Climate Change in Latin America and the Caribbean: current state and opportunities, UNEP/LAC-IGWG.XIV/Inf.10. Thursday 9, October 2003.

[41] Such as the Ethanol Programme in Brazil, which began in the seventies and has reached about 200,000 barrels a day, replacing one-half of the gasoline that otherwise would have been consumed.

Financial Concerns	o High transaction costs for project development. o Uncertainty in price and volume of CERs. o Difficulties in getting project finance, including underlying finance. o Difficulty in securing willingness of private sector (both in investing and host countries).	o Reduction in transaction costs. o Additional support to financing of CDM Additional support to financing of CDM projects, especially during early developmental stages (e.g., the upfront payment schemes).
Legal Concerns	o Complexity and lack of transparency o of regulations in host countries o Legal status of CERs. o Distribution of CERs from projects using ODA for underlying finance.	o Streamlining of legal institutions

3.2.2 Measures to overcome constraints for energy efficiency and renewable energy CDM projects

Several studies identify the lack of specialized financing and regulatory framework as the main constraint for the development of renewable an energy efficiency CDM projects. The UNEP (2003) study proposes a series of measures to promote the development of renewable energies an energy efficiency projects in Latin America. The following chart summarizes the proposed mechanisms to overcome these constraints.

Energy Efficiency Promotion

Mechanism	**Description**
Planning and Strategies – regional, national, and local	Development of guided investment, pricing, institutional, and regulatory policies.
Development of sectoral policies	Sectoral policies in housing, industry, commerce, etc., aimed at promoting efficient energy use.
ESCOS – Energy Services Companies	Companies that provide information, training, and technical economic, and financing consultancy, etc
Market reforms for determined technologies	Creation of information, publicity, and other conditions to promote the efficient equipment market.
Designing of products and equipment	Transfer of technology to incorporate more efficient equipment.
Standardization and labeling	Aimed at transforming the market through push-pull action. Raise barriers to block the entry into the market of less efficient devices and furnish broader information to promote the use of more efficient devices.
Provision of information	Compilation of information, through audits and technical assistance, to identify actions for efficient energy use.
Innovative financing methods	Provision of information and guided financing design. Achieve a multiplier effect from limited funds
Information and service centers	Creation of centers that provide information to key actors
Awareness campaigns	Process using different mechanisms
Training programs	Development of capacities in technical, economic, regulatory, and financing matters, etc

Renewable Energy Promotion

Mechanism	**Description**
Planning and Strategies – regional, national, and local	Development of guided investment, pricing, institutional, and regulatory policies.
Regulatory reforms in public service electricity	Aimed at promoting connection to the network of technologies associated with renewable energy sources.
Codification and standardization	Codes and standards to reduce risks and uncertainty
Assessment of resources and generation of open access information	Generation of information on resources so as to reduce risks and uncertainties

Market reforms for determined technologies	Creation of information, publicity, and other conditions to promote the efficient equipment market.
Designing of products and equipment	Transfer of technology to incorporate more efficient equipment.
Standardization and labelling	Aimed at providing broader information to guarantee the quality of equipment.
Local development and community organization	Decentralized institutional development to promote and guarantee the growth and use of renewable energy sources.
Innovative financing mechanisms	Provision of information and guided financing design.
Information and service centers	Creation of centers that provide information to key actors
Awareness campaigns	Process using different mechanisms
Training programs	Development of capacities in technical, economic, regulatory, and financing matters, etc

Policies and measures to promote renewable energy and energy efficiency – Examples from FEALAC countries

	Policy and Measures
Energy Efficiency	o Energy saving and conservation measures through regular 5-year updates to Energy Saving Law of 1985. (China) o National energy conservation plans (1985-2010) include principal policies for energy development and conservation. (China) o Energy transformation: Coal to Natural gas, oil and hydropower, and renewables. (China) o The 9th Five-year Plan (2000-2005) sets goals of improving the energy infrastructure, increasing the share of energy provided by natural gas, and reducing coal use. (China) o Reduction of fuel subsidies and fuel price restructuring (Indonesia) o Energy efficiency standards and labels (Korea) o Minimum energy performance standards (Korea) o Replacement of low –efficient coal/oil fired boilers (Vietnam) o Efficiency improvement of coal cooking stoves (Vietnam) o Voluntary green labeling scheme for electricity appliance (Singapore) o Technical assistance and financial grants to adopt energy efficient technologies and equipments(Singapore) o Promotion of more efficient use of energy (Thailand) o In 1994 a new energy efficiency law (1994) obliged high consuming industries to implement efficiency measures. (Costa Rica) o The National Energy Savings Commission (CONAE) has developed energy efficiency standards for new boilers, refrigerators, small air conditioners, buildings, and electric motors. (Mexico)
Renewable energy use promotion	o Renewable Energy (RE) Law of 2003 to promote biomass, solar, hydro, wind and geothermal sources with a target of 10% electricity generation from RE. RE use increased by 300% between 1994 and 2000. (China) o National Action Plan on Nuclear Energy Promotion 2004 to achieve a share of 4% in electricity generation by 2025, from less than 1% in 2004. (China) o Development of geothermal and hydro power (Indonesia) o Off grid renewable power(solar, micro hydro etc) development in rural areas (Indonesia) o Preferential purchase of the electricity produced by RE source(Korea) o Promotion of landfill gas recovery and use (Indonesia and Korea) o Promotion of district heating or gas heating system (Korea) o Promotion of the combined heat and power and waste incineration heating (Korea) o Renewable energy Action plan to develop geothermal, solar, wind and nuclear power. (Vietnam) o Setting up biogas plants and stoves in rural areas. (Vietnam) o Tax duty redemption or reduction, investment, and commitment to the green IPPs (1999 – 2008 (Philippines) o Energy conservation law (1992) mandates renewable energy small power producers program with power purchase, price assurance and subsides(Thailand) o "Wind Law" (1998), establishes economical incentives for the installation of centrals and wind and energy equipments(Argentina). o PRODEEM Program to provide energy tu rural comities using local renewable resources. (Brazil) o PROINFA. Program to finance alternative sources for electric energy (Wind, biomass, and hydro) (Brazil) o Pro-alcool program set incentives for the production of ethanol-fueled vehicles and established prices for ethanol (The program was closed) (Brazil) o PNPB: Program for the promotion of Biodiesel (Brazil) o Energy law (1990) allowed private power to be generated and sold to the national utility only if that power came from renewable sources.(Costa rica) o 15% tax (1992) on the use of fossil fuels, with the explicit purpose of using the income for climate change mitigation purposes. (Costa Rica) o CONAE has promoted renewable energy generation through wind and hydroelectric plants. (Mexico)

Source: Tae Yong JUNG, ANCHA Srinivasan, Kentaro TAMURA, Tomonori SUDO, Rie WATANABE, Kunihiko SHIMADA "Asian perspectives on Climate Regime Beyond 2012". Institute for Global Environmental Strategies. Hayama, Japan. 2005. / Center for Sustainable Development in the Americas " Latin American Perspectives on Climate Change - A Briefing Book". Pew Center on Global Climate Change. July 11, 2000. FEALAC members information.

4. Future CDM negotiations: key political issues for FEALAC countries

4.1 The issue of future commitments - Post Kyoto[42]

Currently, only the industrialized countries and countries in transition listed in Annex B of the Kyoto Protocol have legally binding emission reduction targets. The expansion of the group of countries having such targets, especially the largest developing countries (i.e Brazil, China, India, Mexico etc.) is an important issue that FEALAC countries will face in future COP negotiations.

Many developing country parties, consider that GHG emission targets should be taken up only when countries reach e.g. a level of wealth, or level of emissions comparable to the current ones in Annex B countries. There are several options to define the thresholds triggering GHG emission target negotiations for Parties to the UNFCCC:

a) economic indicators, as e.g. GDP or GNP per capita;
b) emissions per capita;
c) cumulative past emissions ('historical responsibility for climate change'); and
b) institutional indicators.

The task to define national emissions targets based on development parameters is a very complex one and a highly charged political issue. The main methodological approaches that have been proposed in recent years include:

_ grandfathering (historical emissions in an agreed reference year);
_ per capita allocation;
_ contraction and convergence; and
_ cumulative emissions.

4.1.1 Grandfathering

'Grandfathering' consists in allocating emission budgets to countries cost-free according to emissions in a specified base year and is obviously preferred by countries that already have high per capita emissions. It was the basis of the UNFCCC targets and is reflected to a great extent in the Kyoto targets (base year 1990/1995).

Grandfathering for developing countries that are currently on a rapidly rising emission path due to sustained economic growth will lead to extremely challenging targets as their economies continue to converge to higher levels of income per capita. Thus non-Annex B countries oppose global grandfathering. At the same time, grandfathering is advantageous for industrialized countries with high emissions in the reference year/period chosen. Therefore grandfathering by itself does not take into account the equity dimension implicit in the UNFCCC principle of "common but differentiated responsibilities".[43] However, partial grandfathering of historical emissions is a crucial dimension of most compromise proposals.

Although China emits nearly 15% of the world's total GHG emissions in 2000, its per capita GHG emissions are still very low when compared with industrialized countries. The same situation applies to India, Brazil and the majority of developing countries. Considering such conditions, most developing country parties feel that it is premature to make any legally-binding GHG emissions reduction

[42] Summary of: Michaelowa, Axel; Tangen, Kristian and Henrik Hasselknippe " Issues and Options for the Post-2012 Climate Architecture – An Overview" DOI 10.1007/s10784-004-3665-7 . International Environmental Agreements (2005) 5:5–24_ Springer 2005.

[43] "Common but diferentiated responsibilities" is the principle underlying the separation of UNFCCC parties in two groups: Annex I countries, mostly highly industrializad countries with GHG emmission reduction commitments under the Convention based on their larger historical responsibility for accumulated emisiions ; and non-Annex I developing country parties which have been historically low emmitters but are expected to begin cooperation in mitigating global climate change as their economies (and GHG emissions) continue to grow in the following decades.

commitments immediately after 2012. Recently a form of allocation of emissions caps based on future projections of emissions instead of the grandfathering Principle has been introduced for discussion [44].

4.1.2 Per capita allocation

Equal per capita allocation of GHG emissions has been argued for by representatives of developing countries from the start of the climate negotiation process. As immediate per capita allocation would lead to an enormous shortfall in Annex B emissions budgets and a corresponding surplus in non-Annex B budgets, it is not part of any policy proposal currently on the table. While the per capita emission allocation principle may be preferred by countries with high population growth, such as China and India, emission intensity per GDP (US proposal) may be preferable to those with low population growth, like Japan and other Annex I countries. However, many proposals contain elements of per capita allocation at a future date. The question is how the transition process to such a future regime is managed. Some argue that there are natural factors influencing the amount of per capita emissions, e.g. a colder climate or lower availability of renewable resources per country could lead to differences of cross-country CO2 emissions and should therefore be considered to adjust per capita allocation of emissions budgets.

4.1.3 Contraction and convergence

The long-term evolution of the climate regime will probably reflect the principle that national GHG emissions should converge on a common per capita level. Achieving this goal involves two steps: (1) specification of a global emissions budget leading to an agreed long-term concentration level of GHG in the atmosphere ("contraction"); (2) sharing of GHG emission entitlements among countries so that per capita emissions converge by an agreed year ("convergence")[45].

The ethically appealing and easy-to-understand approach 'contraction and convergence' has been developed and marketed by the Global Commons Institute and increasingly attracted supporters. On the basis of a concentration target, a global emissions budget path is developed. A date is negotiated by which emission budgets of countries are to converge on an equal per capita basis. Until then, country emission budgets decrease proportionally from current emission levels. Under this approach if Annex B countries undertake larger emissions reductions, then earlier convergence takes place, and a lower target concentration level of GHG is stabilized in the atmosphere.

4.1.4 Burden sharing based on cumulative emissions

Originally proposed by Brazil in 1997 during the Kyoto Protocol negotiations, it called on Annex I countries as a bloc to reduce their GHG emissions by 30 percent below 1990 levels by 2020, and set forth a methodology for allocating emission reduction burdens among countries based on their relative responsibility for global temperature increase. The proposal also included a new Clean Development Fund (CDF) (which became the CDM in the Kyoto Protocol), into which developed countries would be required to contribute if they did not meet their emission targets (at a rate of $10/ton), and which would be used primarily to fund clean development projects in developing countries (with a small share for adaptation projects). Since Kyoto, the "Brazilian proposal" has come to refer to burden sharing based on historical responsibility for temperature change.[46]

Countries like India support this approach based on the opinion that global warming was largely due to the industrial revolution and the use of fossil fuels by developed countries for the attainment of their current levels of prosperity, and that developing countries, such as India, have not significantly contributed to the problem. As India emits less than 5% of the world's GHG emissions but has 17% of its population, and currently 57% of its population do not have access to electricity (IEA, 2004), it does feel that it is premature to take any legally- binding GHG emissions reduction commitments.[47]

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[44] Tae Yong JUNG, ANCHA Srinivasan, Kentaro TAMURA, Tomonori SUDO, Rie WATANABE, Kunihiko SHIMADA "Asian perspectivas on Climate Regime Beyond 2012". Institute for Global Environmental Strategies. Hayama, Japan. 2005. Page 17.

[45] Bodansky, Daniel, Sophie Chou and Christie Jorge-Tresolini. International Climate Efforts Beyond 2012: a Survey of Approaches Pew Center on Global Climate Change. December 2004. page 25.

[46] Bodansky, Daniel, Sophie Chou and Christie Jorge-Tresolini. International Climate Efforts Beyond 2012: a Survey of Approaches Pew Center on Global Climate Change. December 2004. Page. 22.

[47] Tae Yong JUNG, ANCHA Srinivasan, Kentaro TAMURA, Tomonori SUDO, Rie WATANABE, Kunihiko SHIMADA "Asian perspectivas on Climate Regime Beyond 2012". Institute for Global Environmental Strategies. Hayama, Japan. 2005. page 23.

4.2 The issue of CDM Additionality[48]

Although the Marrakesh accords established detailed rules for the CDM, the additionality criteria that CDM projects must meet for their approval remained under discussion. The discussion centered on the concepts of environmental additionality versus financial/barrier additionality applicable to CDM projects. The environmental additionality criteria, supported by developing countries, holds that it is sufficient for a project to reduce emissions relative to a baseline scenario that does not include the project to gain approval under the CDM. The financial/barrier additionality criteria supported by the EU, requires that in addition to verifiable emission reductions, the project also has demonstrate that it would not have taken place under business –as-usual circumstances in the baseline scenario. This more stringent criteria requires that project developers demonstrate that their proposed CDM project is not economically viable and/or faces insurmountable barriers that prevent its development under the current baseline scenario. Project developers must show that these barriers can only be overcome with the help of the additional economic incentive from the expected proceeds of sales of Certified Emission Reductions (CERs) generated by the project contingent on its approval as a CDM project. Needless to say, demonstrating CDM project additionality applying these complex criteria coupled with the difficulties in defining credible baseline scenarios, created difficulties for developers seeking CDM project approval and slowed down the development of the international market for CDM projects.

Fortunately, during 2004, the CDM Executive Board published a series of official reports, including consolidated methodologies for CDM project development, and a guidance "Tool" for the demonstration and assessment of additionality, which helped to clarify these issues and initiate a process of growth in the registration of CDM projects.

Latin American and Caribbean countries expressed some concerns in COP 10 about the consolidated methodologies not adequately reflecting particular national circumstances, and proposed to adapt them accordingly. However, recent experience has shown that the consolidated methodologies have expedited the rapid acceptance and registration with the CDM Executive Board of several types of projects, in particular hydroelectric an landfill gas projects.

The *consolidated additionality test* (UNFCCC 2004) consists of a sequence of logical steps to demonstrate the addtionality of a project. The project has to demonstrate that: a) it is eligible under the CDM rules; b) that it is not part of the baseline scenario by showing that the proposed project activity is not the most economically or financially attractive course of action, and/or is currently facing barriers; and c) the project activity has to show how gaining CDM approval helps to overcome the barriers the project faces under the current circumstances in the baseline scenario. In practice, this test has become the criteria to determine whether the project activity is additional because it is the only clear guidance published to date by the CDM Executive Board to determine additionalty. Based on the request of Panama, Mexico, India an others during COP/MOP 1, a decision was taken to ask to the Executive Board to call for public input on new ways of demonstrating additionality and improving this "additionality tool".

There exists an obvious tension between the legitimate objectives of: a) reducing transaction and approval costs to expedite the flow of CDM projects, and b) ensuring accurate assessment of the additionality criteria for projects seeking CDM approval. Parties are divided on this issue, however there is a general recognition that if the CDM mechanism is to realize its full potential to mobilize significant volumes of GHG mitigation in developing countries, some form of simplification and expediting of the currently burdensome CDM project approval process will be a necessary.

It is in the interest of FEALAC countries seeking to realize the full economic and environmental potential benefits offered by CDM project opportunities, both nationally and globally, to put forth consolidated proposals to expedite CDM project flow and approval process in the next rounds of negotiations.

[48] Last paragraphs of this section are based on: Michaelowa, Axel, Müller-Pelzer, Felicia, Jung, Martina, Dutschke, Michael, Krey, Matthias and Sonja Butzengeiger "COP 10: getting the CDM started and pondering the future of the climate policy regime" . hamburg climate+ paper. Hamburg Institute of International Economics. HWWA. 1/2005.

4.3 CDM projects based on Land use, Land use change and Forestry (LULUCF) in FEALAC countries

Many FEALAC countries with large forest coverage, such as Andean countries and East Asian countries have been interested in the development of the carbon market for LULUCF projects within the CDM framework. In the Kyoto protocol these activities were restricted to forestation and afforestation activities.[49] In COP 7, the Marrakesh Accords defined many of the details of the flexible mechanisms but it was not until COP 9 in Milan, when delegates agreed on modalities and procedures for afforestation and reforestation project activities (LULUCF activities) under the CDM. Finally, In COP 10, the last remaining details on detailed rules for CDM small scale afforestation and reforestation projects were completed. In this regard, Andean countries among others parties supported a prompt decision on this regard while China didn't.

Although rules and procedures for afforestation and reforestation projects (A/R) has been settled and a tool for the demonstration and assessment of additionality in these CDM project activities has been officially published, there is only one methodology approved[50] to date and not a single project has been registered yet.

This situation with A/R projects is due to the complexity inherent in measuring reliably the reductions or green hose gas removals by sinks and to demonstrate the additionality of these activities. The position of industrialized countries, based on strict additionality assessment of A/R projects (with baselines based in economical or/and barrier analysis), has prevailed over developing countries' view that net greenhouse gas removals by sinks is sufficient for A/R project approval under CDM. In addition, technical issues like the permanency of captured carbon, leakage risks, accreditation period, accounting methods for carbon storage, environmental and social considerations, among others, have undermined the development A/R CDM projects. Given this complexity, under the current rules it is most likely that the market for LULUCF type projects will remain small at least for the first commitment period.

However, responding to calls from a number of developing countries, the COP initiated a new process under the SBSTA to consider possible approaches for reducing GHG emissions from activities that prevent or stop deforestation ("Avoided deforestation").[51] The decision was prompted by a submittal from Papua New Guinea and Costa Rica stressing the importance of the issue and putting two ideas on the table: an "optional protocol" involving a group of developed and developing countries; and expansion of the CDM to enable crediting of activities to reduce deforestation, which is not currently allowed under the Protocol. The submittal was supported by Bolivia, the Central African Republic, Chile, Democratic Republic of the Congo, the Dominican Republic, and Nicaragua. The COP invited parties to submit views on issues such as additionality, leakage, permanence, and monitoring, and directed SBSTA to report back in two years.

FEALAC countries with forest resources might consider taking a strategic role to influence the evolution of the current rules for CDM LULUCF activities in the coming rounds of negotiations. With the ultimate goal of ensuring that the full potential economic and environmental benefits offered by LULUCF activities remain available to them in the future.

[49] Reforestation and Afforestation activities:

[50] ("AR-AM0001 - Reforestation of degraded land" - methodology based on the PDD "Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, China"

[51] Source: PEW Center on Climate Change "Summary of key decisions from COP 11 and COP/MOP 1, held in Montreal, Nov. 28 - Dec. 10, 2005".. www.pewclimate.org/what_s_being_done/in_the_world/cop11/index.cfm

4.4 The issue of Baselines and National circumstances

Participation in the CDM requires that a baseline scenario be established taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. Much discussion has taken place among countries on how national and/or sectoral policies and circumstances should be taken into account to establish a credible baseline scenario, without creating perverse incentives for artificial gain from false emission reductions. On this regard the Executive Board in its sixteenth meeting on 2004, and in its twentysecond meeting[52] in 2005, clarified the treatment of national and/or sectoral policies and regulations in determining a baseline scenario. The Board agreed that these two types of policies shall be addressed as follows:

(1) Only national and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11 December 1997) shall be taken into account when developing a baseline scenario. If such national and/or sectoral policies were implemented since the adoption of the Kyoto Protocol, the baseline scenario should refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place.

(2) National and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programs) that have been implemented since the adoption by the COP of the CDM M&P decision 17/CP.7, 11 November 2001) need not be taken into account in developing a baseline scenario (i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place).

This decision represents to date the main criteria on the treatment of national policies and regulations in the determination of baselines. The determination of GHG emission baselines is another highly charged political issue due to its implications for future commitments under the UNFCCC and the eventual participation of developing countries in taking on emission reduction efforts. Moving in that direction would imply reaching agreement on some form of national emission baselines. There is obviously no broad consensus on this issue at present but it is discussion that FEALAC countries, as parties to the UNFCCC, will be facing in the future.

[52] UNFCCC/CCNUCC. CDM – Executive Board EB 22 meeting Report. Annex 3. Clarifications on the consideration of national and/or Sectoral policies and circumstances in baseline scenarios (Version 02). 2005

5. Recommendations to improve CDM development in FEALAC countries

5.1 Build political consensus among FEALAC countries to further strengthen the multilateral climate regime beyond 2012

FEALAC countries face the challenge of building consensus and consolidating negotiating positions on the sensitive issue of how to shape the post-2012 climate regime. There is an impending need for FEALAC to promote an open discussion in both national and regional level forums to discuss post-Kyoto positions and advance strategies and proposals that reflect the interest of member countries.

5.2 Strengthen FEALAC countries negotiating position to ensure the continued development of the CDM in the post-Kyoto period

It is urgent that governments start giving clear political signals for the continuity of the multilateral climate regime and the CDM beyond the first commitment period. Uncertainty about the post-Kyoto climate regime could seriously jeopardize CDM project activity, as put by a group of experts: "the parties need to find and implement some manner of assuring investors that their emissions reductions post-2012 will have value".[53]

FEALAC countries should work together to reduce uncertainty on the future of the climate regime, otherwise CDM activity could begin to experience a significant slow down in the near future. Under these circumstances the window of opportunity for most CDM project types would close in 2006[54] since CDM project activity requires at least two to four years[55] lead time from the moment a project is identified until its CERs are finally issued.

5.3 Advance proposals for institutional reform of the CDM including the CDM Executive Board, standardization of methodologies, and simplification of the project approval process

FEALAC countries could propose the following improvements to the current CDM institutional framework:

- Acceptance of flexible baseline and monitoring methodologies by the CDM Executive Board, which incorporate new sectors, as well as regional and national specificities. The development of sectoral baselines would also be an important improvement that would reduce transaction costs.

- Increased flexibility in the application of additionality criteria to projects with high sustainable development linkages. Projects with high sustainable development side-benefits should be accepted based on environmental additionality only, and not be subject to delays based on economical and barrier analysis.

- Further progress by the Executive Board in proposing or approving methodologies for sectors which are still outside of the CDM market: transportation and biodiesel projects, energy efficiency and avoided deforestation, among others.

5.4 Advance proposals to improve the financial underpinnings of the CDM market

FEALAC countries can join forces to improve financial conditions in the CDM market through:

- Promotion of purchasing arrangements for CERs beyond 2012.

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[53] Cosbey, A., J. Parry, J. Browne *et al.* (2005). Realizing the Development Dividend: Making the CDM Work for Developing Countries. Phase 1 Report. International Institute for Sustainable Development (IISD).

[54] Cosbey, A., W. Bell, D. Murphy *et al* (2005). Which Way Forward? Issues in Developing an Effective Climate Regime after 2012. International Institute for Sustainable Development (IISD).

[55] In some cases lead-time could take from three to seven years from project identification to issuing of CERs according to the *State and trends of the Carbon Market 2005*.

- Creation of a regional operational entity (DOE) to undertake CDM project validation and verification. Although the transaction cost associated with CDM project development has dropped since 2005, the cost of validation and verification is still high due to the concentration of these validation and verification services in only a few operational entities (DOEs) from Annex I countries.

- Creation of a fund to finance CDM projects with financial constraints, and/or expanding current financing facilities providing seed funds to CDM project developers secured by CERs.

- Further expanding the carbon financing facilities of FEALAC region's development banks and other financial institutions to address the particular needs of CDM project development also remains a challenge that countries must face in the years ahead.

5.5 Promote CDM institutional strengthening initiatives through the FEALAC platform

Countries could explore the opportunity offered by the FEALAC platform to launch a number of regional initiatives to further strengthen their CDM institutional frameworks and capacities to promote and/or develop CDM projects. Opportunities include:

- Establishing mechanisms to finance CDM institutional framework and capacity building programs among FEALAC members. Including proposals for mechanisms to finance the adequate operation of CDM offices in member countries.

- Creating a permanent instance to exchange information, achievements and knowledge; in order to harmonize best practices and identify opportunities for synergy among countries in the region.

- Promotion and awareness activities to major stakeholder groups in the public and private sectors about CDM opportunities in FEALAC countries.

- Simplification of approval procedures as well as regulatory improvements in the CDM legal frameworks when necessary. In many countries decisions on the definitive legal treatment of CDM transactions are still pending. Initiatives on the harmonization of the legal criteria applicable to CDM transactions could also be undertaken through the FEALAC platform.

- Invest in capacity building of policy makers, government officials[56] and technical experts[57] involved in CDM project development and approval processes.[58]

- Improving the bargaining power of host country project developers versus Annex I country buyers, through broad diffusion of information on CDM market opportunities, buyers, prices, transactions, types of projects etc.

5.6 Leverage incentives to further develop CDM project areas with high sustainable development contribution

FEALAC countries account for 77% of emission reductions from all CDM projects presented to the UNFCCC, and 54% of the total number of projects. FEALAC countries should leverage their dominant position of the current CDM market to increase the share of projects with high sustainable development contribution, such as renewable energy and energy efficiency projects among others. FEALAC countries should identify priority areas with high sustainable development benefits and develop strategies to increase their share of projects in these areas, proposing mechanisms to steer CDM incentives to these sectors.

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[56] Such as ministries of environment, energy, transportation, forestry, agriculture, etc.

[57] Such as local consultants, academics, and engineers from the line-ministries and government agencies such as the rural electrification authority, and the renewable energy agency.

[58] Capacity Development for CDM (CD4CDM) is a project developed by UNEP through its Risoe Centre on Energy, Climate and Sustainable Development (URC).

5.7 Extend CDM development to transportation and urban energy efficiency, taking advantage of new rules for Program CDM and bundling of CDM projects

A major opportunity for future development in the CDM is the transportation sector, which is one of main sources of CO2 emissions in developing countries. The transportation sector and urban energy efficiency are currently outside the CDM market because the Executive Board has not yet approved a single methodology for these project opportunities.

Countries as Chile, Ecuador, Mexico, Peru and Colombia[59] have been pressuring for the acceptance of transportation projects based on the improvement of transportation urban systems. While countries such as Argentina, Costa Rica, Brazil, Thailand, India and Peru have been pushing for the acceptance of Bio-diesel for transportation.[60] Bundling of CDM projects provides an opportunity to extend CDM opportunities to urban energy efficiency improvements, rural electrification programs based on renewable energy, and fuel switching fuel projects in rural areas. All these areas are of strategic interest for FEALAC countries due to their high sustainable development linkages, therefore a major opportunity exists to support the development of the required methodologies and evolution of CDM rules to tap the potential of Program CDM and bundling in transportation, urban energy efficiency and rural electrification and fuel switching opportunities in FEALAC countries.

5.8 Support development of LULUCF project methodologies to expand the range of CDM opportunities in the forest and agricultural sectors

Contrary to the strategic interest of most developing countries, the participation of Afforestation and Reforestation (A/R) projects in the CDM market during the first commitment period will remain marginal. Properly designed and implemented, forest and land-use measures to mitigate climate change can result as well in other social and environmental benefits for developing countries (e.g., protecting biodiversity and watersheds, promoting rural employment). FEALAC countries with a strategic interest to expand A/R project opportunities should consider organizing a technical regional committee to propose procedures to expedite the development of A/R projects[61] into the carbon market for the next commitment period.

Extending current CDM rules to enable crediting of activities to reduce deforestation ("avoided deforestation") is also of strategic interest for FEALAC countries. These, as of yet unexploited, LULUCF activities represent a major potential source of projects and a unique opportunity to channel CDM incentives into to chronically under-funded activities in developing countries such as: the creation and implementation of protected areas; controls against illegal logging and deforestation; and promotion of sustainable management for timber and non-timber production. FEALAC countries should table proposals on LULUCF issues by consensus in order to put pressure on the COP/MOP to make progress on this matter.

Increase the political priority for active participation in the CDM market by FEALAC countries at the national and regional level

Although the majority of FEALAC countries have established the required institutional framework to support CDM project development, in most of them climate change policy still remains a low priority issue which is not fully integrated into the mainstream work of line ministries (i.e. energy, planning, infrastructure, urban, agriculture ministries etc.).

FEALAC countries should breach this gap by investing in national level forums that bring together CDM and climate change policy experts/technical staff with top level government policy makers in relevant economic sectors such as energy, agriculture, planning and transportation. Mainstreaming CDM project and climate change policy opportunities into the major lines of government economic policy is still a pending challenge in most FEALAC countries. This dual level work of bringing together climate change policy experts and high level decision makers, to advance the political priority and discussion of climate change and development policy inter-linkages, should also be undertaken at the regional and sub-regional levels.

[59] Colombia submitted a proposal for transportation methodology to the methpanel.
[60] India and Thailand submitted proposals methodologies for biodiesel used in transportation.
[61] ASEAN-ITTO regional workshop on perspectives of Clean Development Mechanism (CDM) forestry projects. 22-24 March 2006 / Phnom Penh, Cambodia.

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ANNEXES

Annex A: Multilateral institutional framework for CDM

A.1 UNFCCC Bodies

A.1.1 Conference of the Parties/ Meeting of the Parties (CoP/ MoP)[62]

The supreme body of the Convention is its Conference of the Parties (COP). It meets every year to review the implementation of the Convention, adopt decisions to further develop the Convention's rules, and negotiate new commitments. Since February 2005, when the protocol entered into force, the COP has been served as the meeting of the Parties (MOP) to the Kyoto Protocol. This body, the COP/MOP, meets during the same period as the COP. Parties to the Convention that are not Parties to the Protocol are able to participate in the COP/MOP as observers, but without the right to take decisions. The functions of the COP/MOP relating to the Protocol are similar to those carried out by the COP for the Convention

Two subsidiary bodies meet at least twice a year to steer preparatory work for the COP:

a. **The Subsidiary Body for Scientific and Technological Advice** (SBSTA) provides advice to the COP on matters of science, technology and methodology, including guidelines for improving standards of national communications and emission inventories.
b. **The Subsidiary Body for Implementation** (SBI) helps to assess and review the Convention's implementation, for instance by analysing national communications submitted by Parties. It also deals with financial and administrative matters.

A.1.2 Parties

Each Party to the Convention is represented at sessions of the Convention bodies by a national delegation consisting of one or more officials who are empowered to represent and negotiate on behalf of their government. Main group of parties:

a. **Five regional groups**. Based on the tradition of the UN, Parties are organized into five regional groups, mainly for the purposes of electing the Bureaux, namely: Africa, Asia, Central and Eastern Europe, Latin America and the Caribbean states, and the Western Europe and Others Group (the "Others" include Australia, Canada, Iceland, New Zealand, Norway, Switzerland and the US, but not Japan, which is in the Asian Group). The five regional groups, however, are not usually used to present the substantive interests of Parties and several other groupings are more important to the climate negotiations.
b. **Group of 77 and China**. Developing countries generally work through the Group of 77 and China to establish common negotiating positions. The G-77 was founded in 1964 in the context of the UN Conference on Trade and Development (UNCTAD) and now functions throughout the UN system, comprising over 130 members. The country holding the Chair of the G-77 in New York (which rotates every year) often speaks for the G-77 and China as a whole. However, because the G-77 and China is a diverse group with differing interests on climate change issues, individual developing countries also intervene in debates, as do groups within the G-77, such as the African UN regional Group, the Alliance of Small Island States and the group of Least Developed Countries.
c. **AOSIS.** The Alliance of Small Island States (AOSIS) is a coalition of some 43 low-lying and small island countries, most of which are members of the G-77, that are particularly vulnerable to sea-level rise. The AOSIS countries are united by the threat that climate change poses to their survival, and frequently adopt a common stance in negotiations. They were the first to propose a draft text during the Kyoto Protocol negotiations, calling for cuts in carbon dioxide emissions of 20% from 1990 levels by 2005.
d. **Least Developed Countries**: The 48 countries defined as Least Developed Countries LDC by the UN regularly work together in the wider UN system. They have now become increasingly active also in the climate change process, often working together to defend their particular interests, for example, with regard to vulnerability and adaptation to climate change.

[62] Caring for Climate. A guide to the Climate Change Convention and the Kyoto Protocol UNFCCC (2005). Page 11.

e. **European Union**. The 15 original members of the European Union meet in private to agree on common positions for the negotiations. The country that holds the EU Presidency - a position that rotates every six months - then speaks for the European Community and its 15 member states. As a regional economic integration organization, the European Community itself can be, and is, a Party to the Convention. However, it does not have a separate vote from its members.
f. **Umbrella Group.** The Umbrella Group is a loose coalition of non-EU developed countries, which formed following the adoption of the Kyoto Protocol. Although there is no formal list, the Group is usually made up of Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine and the US.

A.2 Kyoto Protocol bodies

A.2.1 CDM executive board

The CDM executive board supervises the CDM under the Kyoto Protocol and prepares decisions for the COP/MOP. It undertakes a variety of tasks relating to the day-to-day operation of the CDM, including the accreditation of operational entities, pending their formal designation by the COP/MOP. The CDM's executive board is made up of ten members, including one from each of the five official UN regions, one from the small island developing states, and two members each from Annex I and non-Annex I Parties. Each member of the executive board is accompanied by an alternate, from the same constituency.[63]

The EB was considered to work very slowly in processing CDM project applications and one of the reasons was for budget constraints. To resolve that, COP/MOP 1 decided that the EB will charge, to cover administrative expenses, per each project, US$0.10 for the first 15,000 CERs and US$0.20 for the next CERs. In addition to this decision, Annex I countries responded to the CDM Executive Board's financing gap by pledging US$8,188,050 in funds.

A.2.2 The Methodologies Panel (Meth Panel)[64]

The Methodologies Panel (Meth Panel) was established to develop recommendations to the Executive Board on guidelines for methodologies for baselines and monitoring plans and prepare recommendations on submitted proposals for new baseline and monitoring methodologies.

A.2.3 Designated Operational Entity (DOE)[65]

A Designated Operational Entity under the CDM is either a domestic legal entity or an international organization accredited and designated, on a provisional basis until confirmed by the COP/MOP, by the Executive Board (EB). It has two key functions:

1. To validate and subsequently request the registration of a proposed CDM project activity which will be considered valid after 8 weeks if no request for review is made.
2. To verify the emission reductions of a registered CDM project activity, certify them as appropriate, and request the Executive Board to issue the corresponding Certified Emission Reductions (CERs). The issuance will be considered final 15 days after the request is made unless a review is mandated by the EB.

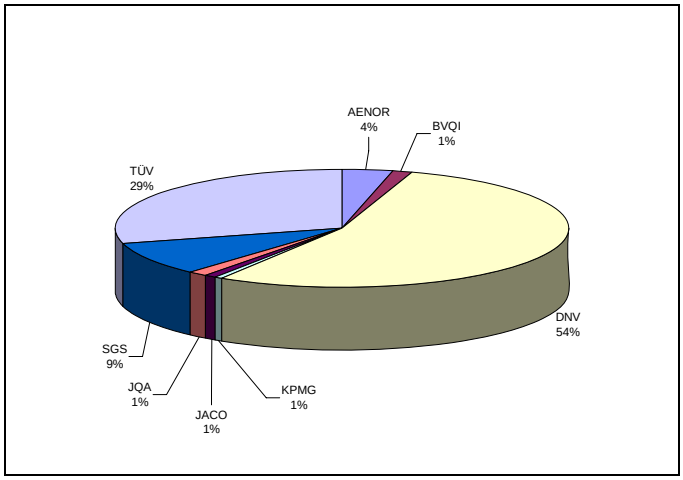
Since the start of the CDM Executive Board a total of 30 Operational Entities (OE's) have applied for accreditation, of which in total now 13 have obtained their accreditation and 2 have withdrawn their application. Only two DOEs belong to developing countries and are from Korea. The list of DOEs is in: http://cdm.unfccc.int/DOE/list.

[63] A Guide to the Climate Change Convention Process. Preliminary 2nd edition Climate Change Secretariat Bonn, UNFCCC 2002
[64] http://cdm.unfccc.int/Panels
[65] http://cdm.unfccc.int/DOE

In CDM workshops performed in developing countries and DNA regional coordination meetings, a permanent discussion was the establishment of local DNAs to reduce transaccion costs. However, It seems that the nature of the CDM market, its international scope, variety of projects as well as it strictness rules for operational entities accreditation, conduce DOEs competence to monopolistic practices due to scale economies and high fixed costs. This prevents the development of DOEs in developing countries. Without any significant competence, Validation and Verification would remain expensive (between 12,000 euros to 22000 euros).

The next figure based on the 141 registered projects by March 15, 2006, illustrate the high degree of DOE market concentration. One DOE, DNV, validated 54% of total number of registered projects; TUV itself composed by three DOEs from the group (RWTUV, TÜV Rheinland, TUV SUD) , validated 29% and SGS 9% of the total number of registered CDM projects. These 3 Annex companies comprise 92% of the DOEs market.

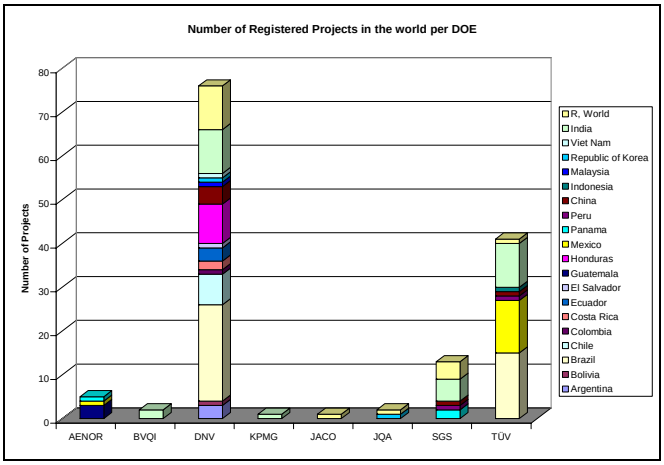
FIGURE A
PARTICIPATION OF DOEs IN REGISTERED PROJECTS



Source: Author elaboration based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

The next figure shows the international nature of the DOE business where only companies with broad international presence are the leading actors.

FIGURE B
NUMBER OF REGISTERED PROJECTS IN THE WORLD PER DOE



Source: based in the Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.

A.3 Institutional CDM framework and Approval Process in FEALAC countries

The table below summarizes the CDM institutional framework and the Host Country Letter of Approval process for a sample of 18 countries in the FEALAC region, based on information collected based in DNA web pages and/or supplied by FEALAC members.

Institutional Framework	Host Country Letter of Approval (HC-LoA) approval process
Sample of Latin America and the Caribbean Countries	
ARGENTINA : *Comments: Very active Office, actively involved in the EB, and organizer of COP10. They promise 45 day turnaround in LOA approvals*	
DNA: Argentine Office of the Clean Development Mechanism (OAMDL) of The Secretariat of Environment and Sustainable Development (Ministry of Health and Environment). **Functions of the OAMDL:** Management of the host country letter of approval. CDM promotions internationally and nationally, fund raising for CDM projects, Advice in the negotiation of Argentinean position in topics related to the CDM. **OAMDL Composition:** a) The Secretariat, which manages the office, b) The executive committee, an interministerial committee for advise and negotiation and c) the Advisor committee, composed by the private sector. **Others**: Argentinean Carbon Fund. Launched by the government in 2005. This fund aims to fund the CDM project cycle of Argentinean projects	HC-LoA process was established in 2004. The project has to be submitted to the OAMDL in a PDD format. The OAMDL will evaluate the project according to the CDM eligibility rules, the fulfillment of local regulation and to a local consultation. Then the OAMDL do a report to its executive committee. The executive committee review the project technically through a designated evaluation committee. The committee send and opinion to the DNA and the DNA if approve the project, issue the LoA. **The whole process last at least 40 days. Number of projects with LoA: 8**
BOLIVIA *Comments: Country problems make difficult to attract investors in the CDM area*	
DNA: The DNA is the Vice ministry for Natural Resources and the Environment. In addition, the National Clean Development Office (NCDO) has been created as the operative instance of the DNA, in coordination with the National Program on Climate Change. **Functions:** The DNA issues the LoA. The functions of the NCDO are the evaluation of CDM projects, technical support to the DNA and promotion of the CDM. **Composition:** The NCDO belongs to the Vice ministry for Natural Resources and the Environment that is the DNA an is in coordination with the inter-intuitional council of climate change. The NCDO is advised by institutions of the industrial end energy sector, LULUCF sector and marketing and communication sector. There is also an evaluation commission composed by intersectorial institution to evaluate CDM project in the host country approval process.	The process start by submitting the PDD to the DNA . The NCDO will evaluate the Project according to local regulations and to a general compliance of the CDM rules with the support of the evaluation committee. Then, the NCDO issue a recommendation report. Finally, if the recommendation is positive, the DNA issues the LoA. **The process last 15 working days. Number of projects with LoA: 2**
BRAZIL *Comments: Country has worked on CDM issues for a long time and that policy is bearing its fruits with an impressive amount of projects*	
DNA: The Interministerial Commission on Global Climate Change . **Functions:** a) provide proposals for sectorial policies in climate change b) provide inputs on the Government's positions in the negotiations under the UNFCCC, c) define eligibility criteria additional to those considered by the Bodies of the Convention in charge of the CDM, d) Issue of the LoA; e) establish agreements with representative entities of the civil society in climate change topics. **Composition:** The Ministry of Science and Technology has the presidency and the functions of Executive Secretariat of the Commission. In addition to the ministries members, the Commission may request the collaboration of other public or private bodies and representative entities of the civil society in the fulfillment of its attributions.	The project developer has to submitt the following 1) The PDD with a description of the project activity contribution to sustainable development, 2) Invitation Letters for comments sent to the stakeholders, 3) Validation Report from the DOE, 4) Declaration of the Project Participants stipulating who is in charge and the means of communication with the Interministerial Commission on Global Climate Change Executive Secretariat, 5) Conformity with the local Environmental and Labor Legislation 6) Situation of the DOE– Declaration (in Portuguese) of the DOE stating that it is accredited by the CDM Executive Board, that it is fully established in national territory and that it is capable of ensuring compliance with the relevant requirements of the Brazilian legislation. The documents should be accompanied by a cover letter and sent to the Executive Secretary of the Interministerial Commission on Global Climate Change. **Number of projects with LoA: 50**

CHILE *Comments: Country stability and financial markets atract investors to the CDM arena. Government suports CDM and approvals are fast*	
DNA: CONAMA - National Environmental Commission. **Functions:** Define the Chilean position in the UNFCCC and Host country CDM projects Approval. Composition: DNA Committee: Presidency: CONAMA Members: National Energy Commission, Ministry of Agriculture, Ministry of Foreign Affairs, Clean Production Committee. **Others:** ProChile. Promotes the CDM opportunities in Chile and internationally.	The procedure is very easy and is limited to review the fulfilled of the project to local regulation. Projects have to be presented in the PDD format. Two conditions to get the LoA: 1) Presented voluntary to the CDM. Projects must be declared by a letter signed by the owner of the project or his legal representative 2) Contribute to sustainable development in the country. The project must comply with all the environmental regulations. If the project needs a mandatory environmental Assessment it will be evaluated according to the Environmental Impact Assessment procedure. In other case, the project must follow the sectorial procedure. **The procedure could last less the one month. Number of projects with LoA: 13 (November 2005)**
COLOMBIA *Comments: Very active office, country problems make difficult atract investors in the CDM area.*	
DNA: Ministry of Environment, Housing and Territorial Development. Within the Vice - Ministry of Environment, the Colombian Climate Change Mitigation Group(CCMG) manage the promotion and approval of CDM projects This group has its office (Climate Change Mitigation Office-CCMO) that is in charge of the activities of the group. **The CCMO functions are:** Identification, Formulation (early stages), Capacity building, Technical and commercial advise, Research, Promotion & disclosure and negotiation in the UNFCCC.The Steering Committee of the CCMG provides Guidelines on Climate Change Policy and others policies and Advise in National Approval ProcessFunctions **Composition:** DNA: Ministry of Environment, Housing and Territorial Development. Promotional office: Colombian Climate Change Mitigation Group(CCMG). The Steering Committee of the CCMG is composed by Colombian Institute for the Development of Science and Technology, National Planning Department, CCMG and thematic members by sectors such as the Ministries of transport, energy and Mines	The LoA is given if the projects fulfill the requirements and criteria to be considered as a Project that contributes to the sustainable development of the country. The projects have to be presented to the CCMO in the PDD format with all the legal local permissions in order. The CCMO will review the project according to local requirements as well as to sustainable development criteria and then make a report to the steering committee. The steering committee, if everything is ok, provides a recommendation for approval. Finally, the vice ministry of Environment approve the project and the ministry issue the LoA. **The process last a maximum of 45 days. Registered project: At leas two**
ECUADOR *Comments: Intersting instituinal arrengment and Very active office, however political instability and the size of the economy makes difficult attract investors in the CDM area.*	
DNA: The DNA is the Climate Change office of the Ministry of Environment. CORDELIM is the CDM promotional office. **Functions:** The DNA not only is in charge of the approval process but also is in charge of international negotiation on CDM. In the practice CORDELIM is in charge of international negotiations in addition to the promotion of CDM. CORDELIM responsibilities are to promote and execute local CDM projects, help international buyers to be in touch with CDM projects and to inform the population of Ecuador about the problems of a global climate change. **Composition:** The DNA is composed by two instances: 1) The environmental minister who is the president of the DNA and 2) The operational instance composed by the DNA coordinator and the CDM Evaluation Committee. CORDELIM is a non-profit organisation with a board of directors from the Ministry of Environment, The Ministry of Energy and Mines, The National Industrial federations, The National federation of Agriculture and the CEDENMA (An Ecuadorian federation of NGO's all engaged in environmental issues).	Three steps: 1) Submission: The project developer must submit the project in a format provided by the DNA. This format has to be filled with information regarding the fulfillment of local regulation, environmental impact assessment and information about the CDM component of the project. In addition, project developer has to pay a fee for the approval process. In this step the DNA call an evaluation committee and make a public consultation about the project. 2) Evaluation: Each member of the evaluation committee review the project according to the national requirements and the DNA visits the project local area. After this evaluation committee issues an evaluation and recommendation report to the president of the DNA. 3) If every thing is ok the president of the DNA issue the LoA. **The process last around 45 days. Number of projects with LoA: 2**

HONDURAS *Comments: Despite of it size Honduras is pioneer in the registration of small scale Hydro projects and has the first unilateral project*	
DNA: Secretariat of Natural Resources and Environment (SERNA) **Functions:** Negotiator to the UNFCCC, Issuance of the LoA, Implementation of the UNFCCC in Honduras. **Composition:** Within SERNA, there is a CDM office in charge of promoting CDM projects as well as to manage the Host country approval process. The CDM office is coordinated by the vice minister of natural resources and Energy and has an Institutional technical Committee composed by the Directorate General of Energy (DGE), The Climate Change Unit and the International Cooperation Office.	All new energy projects have to consider the impact of CERs as a prerequisite for regulatory approval. Project developers require an operating permit from the DGE prior to conducting a feasibility study. The feasibility study has to incorporate the CDM variable in the project financials. If the feasibility study is approved, the project developer requests an operating contract from the DGE; for hydro projects the Office of Water Resources grants a permit to exploit the river. If a project fulfills these requisites the DNA issues the LoA very quickly. Currently SERNA is organizing the secretariat of the DNA.
MEXICO *Mexico will reach its full potential when renewable energy projects are promoted. Thse developemts are difficult now in the country*	
DNA: The interministerial commission for Climate Change (CICC). **Functions of the CICC (DNA):** climate change policy formulation, CDM promotion, to establish the Mexican position in the UNFCCC, to ruled the CDM into Mexico and to grant the LoA . **Composition:** representatives of 7 ministries. Agriculture, livestock and fisheries, Transport and communication, Social Development, Environment and Natural Resources, economy, Energy and Foreign Affairs. The presidency of the CICC belongs to the Ministry of Environment and Natural Resources (SEMARNAT). The CICC has a permanent work group named Mexican committee for Emission reduction Projects (COMEGIE). In addition there is an Advisory Council composed by representatives of different sector with knowledge and experience in Climate Change issues.	First the project developer has to prepare a letter saying that the project Developer is participating in the Project voluntarily and describing why the project contribution to the sustainable development of the country and a PDD. Second, the information has to be submitted to the coordinator of the COMEGEI and the documents will be evaluated by its members according to the sustainable development contribution of the project to the country and the criteria is defined in Annex A of the Mexican Approval procedure and are related to environmental, economic and social aspects with emphasis in the local impact. If it is required, a copy of the environmental impacts assessment or the required legal permissions has to be submitted. After the evaluation of the COMEGIE will issue a recommendation report and send it to the presidency of the CICC(DNA). If the recommendation is positive the DNA issue the LoA. **The process should last less than one month. Number of projects with LoA: 29**
PANAMA *Comments: Very active office with a very impressive portfolio of hydros.*	
DNA: National Authority of Environment (ANAM). **Functions:** Promote the CDM in Panama, market the CDM project portfolio internationally; represent Panama in the international negotiations in the UNFCCC. Also issue the letter of approval an manage the international cooperation regarding CDM. **Composition:** the Government of Panama has seriously engaged to play a significant role to make the CDM Market functional in Panama. The Presidency, the Ministry of International Affairs, the Ministry of Economy and Finance and the Ministry of Commerce and Industry supports the DNA in it functions.	The project developer submits to the DNA a PDD, the Environmental impact assessment and documents that show the contribution of the project to the sustainable development of the country. (This include to hold legal authorizations and to perform local consultation about the project). Once the project fulfills that requirement, the DNA issues the LoA. **Number of projects with LoA: 7**
PERU *Comments:. Very active office, very responsive. Partnership with FONAM bear fruits and projects get approved. Policy of aggressively promoting projects in the country. 45 day turnaround is a reality.*	
DNA: the National Environmental Council – CONAM: **Functions:** Host country approval process, Peruvian position in the UNFFCCC, UNFCCC negotiator. **Composition:** In Peru the topics related on climatic change, particularly in Clean Development Mechanism, has been managed by two institutions, CONAM as national environmental authority and the National Environmental Fund – FONAM, as the promoter of environmental investments in Peru. CONAM is the national organism that rules national environmental policies, the focal point of the UNFCCC and the DNA . FONAM is the official entity for the promotion of CDM projects and supports the identification of financial funds to develop these projects	CDM registration request: A PDD format plus documentation showing the fulfillment of local regulation is submited to CONAM. 2. CONAM sends a copy of the project to the Ministry with jurisdiction on the project and to FONAM. The competent sector shall emit opinion on the following aspects: (i) Environmental Impact Assessment (EIA) of the project activity. (ii) Project compliance with country policy and regulations. (iii) Technology availability. In addition: CONAM will visit the project's area of influence. CONAM will submit a preliminary opinion on the project's contribution to the sustainable development of the country and will check with the CDM requirements. 3. Meeting of the Ad-Hoc Committee: The Ad-Hoc Committee will be constituted by: (i) Representative of the Ministry with jurisdiction on the project, other governmental offices involved in the sector, and experts.. 4. Ad-Hoc committee opinion: 5. After the Ad-Hoc committee has reached a favorable opinion, CONAM will issue the LoA. **The process should last 45 days. Number of projects with LoA: 9**

VENEZUELA *Comments: DNA not created yet, but on its way. A number of projects are waiting for the government to put the DNA in place*	
DNA: Not yet established. Venezuela ratified de Kyoto protocol in February 2005. Venezuela has not yet established the DNA. However, there are many projects waiting for the LoA. For international negotiation the Ministry of Foreign Affairs is in charge. For technical issues the Ministry of environment and natural resources is in charge. Probably the DNA will be established in the Ministry of Environment and Natural Resources. The government has an interest to establish the CDM institutional framework since several project are in line.	Approval process has not been established yet

Institutional Framework	**Host Country Letter of Approval (HC-LoA) approval process**
Sample of East Asia	
CAMBODIA *Comments: As a small economy, it has to make an effrot to simplify host country aproval porcedure in order to atract CDM buyers ans investors*	
DNA: the Ministry of Environment (MoE) **Functions:** MoE is the national implementing agency for promoting the CDM in Cambodia. It is responsible for assessing proposed CDM projects against national sustainable development criteria and is authorized to provide written approval for proposed CDM projects in accordance with these criteria. Cambodia uses a sustainable development matrix as a tool for assessing the contribution of CDM projects in four aspects of sustainable development: economic, social, environmental and technology transfer. **Composition:** The Cambodian Climate Change Office (CCCO) acts as the DNA Secretariat and can assist all project developers in CDM-related matters including: The CCCO is the national contact point for CDM activities in Cambodia. The DNA Board is composed by representatives of 6 ministries and asses and approve project proposal and issue the LoA. Also, the board, facilitate the coordination within the government of technical interminesterial working groups. These are composed by three groups, energy , forestry, and others.	1. Submission - Project proponents submit a PDD, relevant official investment approvals, Environmental Impact Assessment (EIA) report, if required, and Sustainable Development Compliance Checklist to the DNA Secretariat. 2. Initial Screening - The DNA Secretariat receives and previews the PDD for completeness. 3. Public Notification - the DNA Secretariat will advertise the application on the website or in the local press. This process will encourage stakeholder feedback. 4.In-depth Assessment –The inter-ministerial technical working group undertakes the assessment of the project 5. Assessment Report Preparation – On receipt of comments by stakeholders and submission of the technical assessment report by the working group, the DNA Secretariat prepares and completes the assessment report 6. Assessment Report Review – The DNA Board reviews the assessment report and If the project meets the sustainable development objetive of Cambodia, the DNA Board issues the LoA. **The process last around two months. Number of projects with LoA: 1**
CHINA *Comments: Very active Office, actively involved in the EB. They aggressively promote CDM in the country. It is only a matter of time that the vast potential of the country is reached. It will be ranked number one in a few months.*	
DNA: National Development and Reform Commission (NDRC). **Functions:** To accept CDM project application; To approve CDM project activities ,To issue written approval letter ; To supervise the implementation of CDM project activities; To deal with other relevant issues. **Composition:** The National Climate Change Coordination Committee establish the National CDM Board and is in charge of reviewing national CDM policies, rules and standards; approving members of the Board; and To review other issues deemed necessary. The National CDM Board consists of seven relevant governmental agencies, will be responsible for reviewing and approving CDM projects. The NDRC, as China's DNA, will issue the approval letter on behalf of the Government, based on the decision made by the National CDM Board.	Steps for obtaining the LoA: 1 Preparation of necessary documents: PDD; certificate of enterprise status, general information of the project, and a description of the project financing. 2: Submission the required documents to NDRC (DNA) 3. Independent experts invited by NDRC review the Documents and provide their comments to NDRC. 4. The National CDM Board will evaluate the documents and make a recommendation report. 5. NDRC issue the letter of approval based in the recommendation report. **The process last less than 60 days. Number of projects with LoA: 18.** **Other important considerations:** A) If no foreign buyer is determined by the time a project is submitted for approval, it must be indicated in the PDD that the emission reductions will be transferred into China's national account in the CDM registry and can only be transferred out with the authorization of China's DNA for CDM. B) CERs shall be owned jointly by the Government of China and the project owner, according to the following ratios: the Government takes 65% of CERs from HFC and PFC projects; it takes 30% of CER from N2O projects; it takes 2% CERs from CDM projects in priority areas defined as energy efficiency, new and renewable energy, and methane recovery and utilization. C) Only Chinese funded or Chinese-holding enterprises within the territory of China with foreign partners are allowed to develop CDM projects.

INDONESIA *Comments: The country aims to attract investment to renewable energies since has recently become a net oil importer.*	
DNA: National Commission for Clean Development Mechanism (NC-CDM). **Functions**: Granting recommendation to CDM project proposals that fulfills Indonesia's sustainable development criteria, Tracking and annual reporting to the UNFCCC Secretariat. **Composition:** NC-CDM consists of Members of the Commission (8 ministries and the National Development Planning Board) , aided by a Secretariat and Technical Team When necessary, NC-CDM may ask assistance to Expert Group and/or arrange a Stakeholder Forum Special Meeting.	Steps for obtaining the LoA:1. Preparation of documents that consist of: (i) the National Approval Application Form, which includes explanation about the project proposal's conformability to criteria of Sustainable Development; (ii) PDD; (iii) EIA report (where required); (iv) notes of public consultation; and; (v) other supporting documents to justify the project. 2. Submission to the Secretariat to be processed. Executive Secretary posts the Project Proposals at the National Commission website to invite comments from public and stakeholders. 3. The National Commission through its technical team will evaluate Project Proposals based on Sustainable Development Criteria and Indicators. 4. After considering all inputs(Evaluation Report and Stakeholders Comments) the National Commission makes a decision. If the project is approved, then the commission issues the LoA. **The process last around 30 days. Number of projects with LoA: 5.**
KOREA *Comments: Korea, as a developing country and as (will-be) a industrialized country in the second commitment period (2013-2017), has to be careful in the use of The CDM and even think to bank CERs for the future.*	
DNA: The CDM Review Committee, Office of the Prime Minister which is under the Inter-Ministerial Committee on UNFCCC. **Functions:** In charge of the Host country approval process. **Composition:** Inter-Ministerial Committee on UNFCCC. Chair: Prime Minister. Members: related Ministry and government agency. DNA: CDM Review Committee, composed by working group of director-generals on UNFCCC. Chair: economic policy coordinator of the office for government policy coordination. Members: office of government policy coordination, and at least 6 ministries.	1). Submission: submit the following documents to the Office of Government Policy Coordination: Application form; CDM PDD; Approval letter from Annex I or Validation report; Document which certifies Annex I investment(if applicable); Approval letter from the Executive Board on baseline and monitoring methodologies (if applicable); Environmental Impact Assessment report (if applicable). A CDM project shall comply with relevant policies and regulatory regimes 2) CDM Review Committee. Circulate the application documents within the committee and appoint a ministry or ministries for reviewing q proposed CDM project through the consultation of related ministries. Then the Responsible ministry or ministries submit(s) the review document to the committee and ask(s) to held a meeting of the committee for final decision. 3) CDM Review Committee. Issues an approval letter based on the result of the final meeting of the committee. **The process last around ¿?. Number of projects with LoA: 5**
PHILIPINES *Comments: Approvals difficult to obtain. Emphasis in consultation and intervention of NGOs in the Host Country approval process prevents promotion of CDM projects. Slow in getting regulation in place once created.*	
DNA: The Department of Environment and Natural Resources (DENR). **Functions**: 1. National CDM policy. 2. Develop the criteria for the review of potential CDM projects 3. Undertake the assessment and approval of CDM projects, 4. Monitor the implementation of CDM projects 5. Perform other functions related to and in pursuance of the development of the CDM. **Composition:** Inter-Agency Committee on Climate Change (IACCC) was created to coordinate various climate change-related activities, recommend climate change policies, and prepare a Philippine position on the UNFCCC negotiations. Through the Inter-Agency Committee on Climate Change (IACCC) that it chairs, the DENR (DNA) initiated the design of the DNA approval process for Clean Development Mechanism projects in the country. Technical evaluation committees (TEC) will assist to the DNA to evaluate project proposals under the national sustainable criteria. It is composed by the Department of Energy (DOE) Energy National Solid Waste Management Commission(NSWC) and Forest Management Bureau (FMB) among others.	Submission of the application documentation: The project application document (PAD) that contains the documentation of stakeholders consultation, sustainable development benefit description (SDBD), and proof of legal capacity; or a PDD supplemented by an SDBD and proof of legal capacity. 2. TEC project evaluation. • The TEC will assess the documents using the national evaluation protocol (NEP).and submits its evaluation report to the CDM steering committee through the CDM secretariat. 3. CDM steering committee endorsement • The CDM steering committee shall assess the evaluation report of the TEC and submit its endorsement to the DENR secretary through the DNA secretariat. 4. DENR secretary's approval/rejection The DENR secretary shall review the endorsement report of the CDM steering committee and decide whether to approve or reject the application through the issuance of a letter of approval/rejection to the project. **The process last around two months. Number of projects with LoA: 1**

THAILAND *Comments: Thailand has a difficult approval procedure, it takes approximate 70 working days and the LoA needs ministerial cabinet approval*	
DNA: Ministry of Natural Resources & Environment (MONRE). **Functions:** Issues the LoA, Evaluates the CDM project proposal, defines Thailand policy on climate change, prepare the inventories, registry and monitoring systems. **Composition:** Within the MONRE, the Office of Natural Resources & Environmental Policy & Planning (ONEP) is the focal point and the DNA Secretariat. ONEP is in charge of coordinate the structuring on CDM operation in the country. The ONEP established the Climate Change Coordinating Unit that is in charge of all topics related to climate change on behalf of the National Committee on Climate Change, an interminesterial committee chaired by MONRE.	Submission of the PDD and a list of documents, to support the fulfillment of national sustainable development criteria, to the secretariat of the DNA(ONEP). And expert committee composed by energy and forestry experts evaluates the project. The a report is send to the CDM steering committee, then, with recommendations, it is send to the National Committee on UNFCCC and then to the Environmental Board of ministers. Then it goes to the cabinet which approves or rejects the project. Finally the MONRE issue the LoA. **The process last more than 70 days. Number of projects with LoA: 1**
VIETNAM *Comments: long approval process and not enough awareness and training in CDM local stakeholder*	
DNA: The International Cooperation Department of the Ministry of Natural Resources and Environment. **Functions:** Development of regulations, guidelines and criteria on CDM implementation over the country; Evaluation of CDM projects; Submission of the PDD to issue a LoA by Minister of MONRE; Dissemination of available CDM information for public access; Management and coordination of the CDM business And investment. **Composition:** (MONRE) was assigned by the Government of Vietnam as a National Focal Agency for taking part in and implementing the UNFCCC and KP. The International Cooperation Department of MONRE was designated as a Clean Development Mechanism National Authority (DNA). CDM National Executive and Consultative Board (CNECB) with representatives from related Ministries and Offices, provides consultation to MONRE on policies related to development, implementation & management of CDM activities in the country; Recommendation on guidance and evaluation for CDM projects in Viet Nam under the KP and UNFCCC.	Approval process:1. Formulation: PDD, with completed necessary information to fulfills sustainable national development criteria. 2. Evaluation: After receiving the DNA the PDD, , CDM National Consultative and Executive Board (CNCEB) will hold meetings (in April and September annually) to review, assess and evaluate eligibility of the PDD. 3. Approval: On the basis of evaluation by the CNCEB, DNA will synthesize it and submit its comments to MONRE for approval procedures as regulated. MONRE issue the LoA. **The assessment and the issues of the LoA is only twice a year. Number of projects with LoA: at least 1**

A.4 Multilateral and private carbon funds

The following table lists the multilateral and private funds which have been active in the CDM markets

Name of Fund / Program	Size of Fund / Program	Initiative by	Focused Project Categories	Geographic Focus	Typical size per project	Website
Funds managed by WorldBank/IFC and other Multilateral Financial Institutions						
WB - Prototype Carbon Fund	$180m	World Bank	Diversified technologies, currently RE and waste to energy dominate the protofolio	Global	Approx 5m – both among projects underway and under development	www.prototypecarbonfund.org
WB - Community Development Carbon Fund	$128.6m first tranche. Second tranche opens late2005	World Bank	Small scale RE / EE and waste to energy conversion	Global	average approx 2.48m	www.carbonfinance.org/cdcf/home.cfm
WB - Biocarbon Fund	$100m but will start operating at viable minimum of $30m	World Bank	Small reforestation, agriculture and land management projects	LDCs and economies in transition	Approx 2m	www.biocarbonfund.org
WB Netherlands CDM Facility	$180m	Netherlands VROM	Range of projects (except carbon sequestra-tion)	Global	Unavailable	www.carbonfinance.org/Nether-landsClean.htm
WB - Italian Carbon Fund	$80m	Italy	RE / EE, Waste, methane capture, gas flar-ing etc	China, Mediterranean region, Middle East, Central America (Bal-kans for JI)	Unavailable	
IFC Netherlands Carbon facility (INCaF)	44m euros	IFC & Netherlands	RE / EE, methane capture form landfill, waste management, fuel switch, CBM utilization	All developing countries except Central & Eastern Europe	Varies depending on volume and other factors	www.ifc.org/carbonfinance
Netherlands European Car-bon Facility (NECaF)	10 million tonnes of Emission Reductions along with IBRD	IFC, IBRD, & Netherlands	RE / EE, methane capture form landfill, waste management, fuel switch, CBM utilization, some afforestation	Central & Eastern Europe	Varies depending on volume and other factors	www.ifc.org/carbonfinance
Danish Carbon Fund (DCF)	US$35 million in the first portfolio of 5-7 projects	Danish government; Fund managed by the World Bank	Primarily wind power, combined heat and power, hydropower, biomass-use-for-energy purposes and landfill projects	Economies in transistion and developing countries	http://carbonfinance.org	

Spanish Carbon Fund	US$210 million	Spanish government and the World Bank; Fund is open to the participation of Spanish public and private entities.	Renewable, energy, biomass, and agricultural waste products, urban waste management, industrial processes	Latin America, North Africa, East Asia, South Asia, Eastern Europe and the Russian federation	http://spanishcarbonfund.org	
MCCF (Multilateral Carbon Credit Fund)	Between 50m and 150m euros	European Bank for Re-construction and Devel-opment (EBRD)	Industrial Energy Efficiency , Renewable Energy, Waste (Water) Treatment, District Heating	Central Europe, South East Europe & Caucasus and Russia & Central Asia	Anticipated Emission Reduction Purchase Agreements values be-tween € 500,000 and € 10 mln	www.ebrd.com/carbonfinance
CAF- Netherlands CDM Facility	40m euros (10Mtons CO2eq)	Netherlands/ The Andean Development Corporation (CAF)	RE / EE, methane capture from landfills, and fuel switching to less intensive sources	Latin America and the Caribbean	Unavailable	
Government funds managed by governments or local institutions						
Austrian JI/CDM Programme	euros (11M 2004, 24M 2005, 36M 2006, 36M annually 2007-2012)	Austria	CHP, RE, landfill gas / energy from waste, demand management and EE projects.	No geographic focus MoUs please see http://www.ji-cdm-austria.at/en/programm/rechtliches.php	Unavailable	www.ji-cdm-austria.at
KfW Carbon Fund	50m euros	KfW banking group in cooperation with the Fed-eral German Government	No focus. Acceptance of every eligible CDM or JI category without sinks (LULUCF)	Developing countries for CDM projects; Industrialized and transi-tion countries for JI projects	1-5m euros for the purchase of emission credites	www.kfw.de/carbonfund
EcoSecurities Standard Bank Carbon Facility	10m euros	Denmark -Standard Bank London Ltd & EcoSecuri-ties to manage. Danish Environmental Protection Agency in colloboration	EE, fuel switch, methane capture, industrial emission reduction. Sinks and nuclear energy explicitly ruled out.	Central-Eastern Europe	Unavailable	www.essbcarbonfacility.com
Flemish Government JI / CDM Tender	70m euros	Flemish Government	RE / EE priority	Central-Eastern Europe (proposals from Poland, Russia, Hungary), Asia (India) and South America (Chile)	300,000-500,000 CO2eq (average)	www.energiesparen.be
Belgian JI / CDM Tender	10m euros	Belgian Federal Govern-ment	Cover all types of projects except nuclear and sinks projects	Open	No limit	www.klimaat.be/jicdmtender/
Finnish CDM / JI Pilot Pro-gramme	20m euros (10m bilateral / 10m in PCF and TGF)	Finland-Ministry for for-eign affairs/Finnish Envi-ronment Institute (SYKE)	Small scale RE	Latin America, Africa, India	Around 0.5M EUR per project	www.global.finland.fi/english/projects/cdm

Rabobank-Dutch government CDM Facility	10 million tons of CO2e	Rabobank Carbon Pro-curement Department	All type of CDM projects	All CDM countries, but preferably those countries where we have a local presence (Argentina, Brazil, Chile, China, India, Indonesia, Mexico and Thailand).	depends, but project should gen-erate preferably approx. 1 million ton of CO2e between now and up to and incl. 2012	
Private funds						
Japan Carbon Finance,Ltd	$141.5million	Japan Bank for Interna-tional Cooperation/Devel-opment Bank of Japan	All types	Asia, Central and South America, Eastern Europe	up to $17million according to portfolio guideline	
European Carbon Fund	105m euros	Caisse des Dépots & Fortis Bank	All types	Americas, EMEA, Asia Pacific	50,000 to 1,000,000 tCO2e/year	www.europeancarbonfund.com
GG-CAP Greenhouse Gas Credit Aggregation Pool	98.6 million euros	Natsource Asset Manage-ment Corp. (NAM Corp)	Agriculture; Energy Efficiency; Fugitive Emissions; Industrial Processes; Renewable Energy; Sequestration; Trans-portation	Africa; Central Asia; Eastern Europe;Latin America; Southeast Asia/Oceania	varies with project type and as-sessment	www.natsource.com
ICECAP	40-50 million tons of Co2e	Icecap Ltd (owned by Cumbria Energy Ltd, Less Carbon Ltd and Investec Bank Ltd)	All types of JI and CDM (except LULUCF and nuclear)	Global	Minimum 100,000 tCO2e per annum	www.icecapltd.com
Asia Carbon Fund	Euro 200 million, 8-year closed-end fund (3 closing, first close: Euro30-50M)	The Asia Carbon Group	Primarily RE projects, but EE and Chemical projects are also considered	Asia, with a focus on India and China (50% allocation). Other countries include Malaysia, Thailand, Vietnam, Indonesia, Bangladesh, Bhutan, Sri Lanka & Mauritius	Euro 15-20M	http://www.asiacarbon.com/asiaCarbonFund.htm
Trading Emissions PLC	US$200 millions	Private sector investors	All categories (for CDM - CERs and VERs)	All regions (JI, CDM & EU-ETS)	No upper or lower limits	
IUCN Climate Fund	US$10million	IUCN	Afforestation / Reforestation	Global with a focus on South/Southeast Asia, Africa and Latin America	US$1,500,000	www.iucn.org/

Source: Carbon market Update for CDM Host Countries. CD4CDM project. UNEP Riso Centre and IETA. Issues No 1 and No 2. May and Sept. 2005.

ANNEX B
Projects presented for registration to the CDM Executive Board (UNFCCC) as of March 15, 2006 (all status)

	Status								
Title	**Registration date**	**Others**	**Type**	**Methodology ***	**ER per year in TCO2e**	**Validator**	**Host parties**	**Credit buyer**	**PDD Consultant**
Landfill gas recovery at the Norte III Landfill, Buenos Aires		At validation	Landfill gas	AM11	296.807	DNV	Argentina	n.a.	Asja Ambiente Italia
Puente Gallego Landfill gas recovery project, Rosario,		At validation	Landfill gas	AM11	63.890	DNV	Argentina	n.a.	Asja Ambiente Italia SpA
"Agua del Cajón" Thermal Power Plant-Open to Combined Cycle Conversion		At validation	EE, industry	ACM7	478.140	AENOR	Argentina	n.a.	Capex S.A.
González Catán and Ensenada Landfill Gas Project.		At validation	Landfill gas	ACM1	769.809	SGS	Argentina	Canada	Conestoga Rovers & Associates Ltd
Olavarría Landfill Gas Recovery Project	06 Jan 06	Registered	Landfill gas	ACM0001	18.688	DNV	Argentina	Netherlands, Spain (CDCF)	National University
Partial substitution of fossil fuels with biomass in cement manufacture-Argentina		At validation	EE, industry	ACM3	7.609	DNV	Argentina	n.a.	Pricewaterhouse Coopers
Landfill gas extraction on the landfill Villa Dominico, Buenos Aires, Argentina	17-Sep-05	Registered	Landfill gas	AM0011	588.889	DNV (first SGS)	Argentina	Netherlands	BGP+Van der Wiel, Netherlands
Antonio Moran Wind Power Plant Project in Patagonia Region, Argentina	29 Dec 05	Registered	Wind	AMS-I.D.	26.928	DNV	Argentina	Japan	Pacific Consultants International
Lusakert Biogas Plant (LBP), methane capture and combustion from poultry manure treatment.		At validation	Agriculture	AM16	67.330	DNV	Armenia	Denmark (EPA)	GasCon and Ramboll
Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan	28/11/2005	Registered	Landfill gas	AMS-I.D., ACM0001	135.000	JQA	Armenia	Japan	Shimizu Corporation
Installation of 30,000 Solar Home Systems (30-75Wp) in Rural Households		At validation	Solar	AMS-I.A.	12.150	DNV	Bangladesh	n.a.	SSN Bangladesh Team

Organic Waste Composting at Sylhet, Dhaka		At validation	Fugitive	AM25	88.429	SGS	Bangladesh	n.a.	World Wid Recycling BV
Landfill Gas Extraction and Utilization at the Matuail landfill site, Dhaka, Bangladesh	17-Sep-05	Registered	Landfill gas	ACM0001, ACM0002	80.000	SGS	Bangladesh		Royal Haskoning
e7 Bhutan Micro Hydro Power CDM Project	23-May-05	Registered	Hydro	AMS-I.A.	524	JACO	Bhutan	Japan	E7 (Kansai Electric Power)
El Condor and Punutuma (12.48 GW) Hydroelectric Project		At validation	Hydro	AMS-I.D.	5.741	DNV	Bolivia	UK	EcoSecurities
Rio Taquesi (89,5 MW) Hydroelectric Power Project		At validation	Hydro	ACM2	133.610	DNV	Bolivia	n.a.	Green Investment LTDA
Santa Rosa hydropower plant project (16,8 MW)		At validation	Hydro	AM5	38.160	DNV	Bolivia	n.a.	Servicios Energéticos S.A., Globeleq Inc. (Texas) & COBEE
Santa Cruz landfill gas combustion project	03-Jun-05	Registered	Landfill gas	AM0003	82.680	DNV	Bolivia		Grontmil Climate & Energy
AWMS GHG Mitigation Project BR05-B-15, Paraná, Santa Catarina, etc		At validation	Agriculture	AM16	52.342	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-01, Minas Gerais		At validation	Agriculture	AM16	57.949	TÜV-SÜD	Brazil	Ireland	AgCert
AWMS GHG Mitigation Project BR05-B-11, Mato Grosso, Minas Gerais and São Paulo		At validation	Agriculture	AM16	67.825	TÜV-SÜD	Brazil	n.a	AgCert
AWMS GHG Mitigation Project BR05-B-17. Espirito Santo, Mato Grosso etc		At validation	Agriculture	AM16	72.640	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-16, Bahia, Goiãs, Mato Grosso etc		At validation	Agriculture	AM16	117.935	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-12, Mato Grosso, Mato Grosso do Sul, Minas Gerais and São Paulo		At validation	Agriculture	AM16	141.406	TÜV-SÜD	Brazil	n.a	AgCert
AWMS GHG Mitigation Project BR05-B-06, Bahía		At validation	Agriculture	AM16	13.835	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-08, Paraná, Santa Catrina, and Rio Grande do Sul		At validation	Agriculture	AM16	40.056	TÜV-SÜD	Brazil	n.a.	AgCert

AWMS GHG Mitigation Project BR05-B-09, Goias and Minas Gerais		At validation	Agriculture	AM16	50.283	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-05, Minas Gerais and São Paulo		At validation	Agriculture	AM16	79.739	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-10, Minas Gerais, Goias, Mato Grosso, and Mato Grosso do Sul		At validation	Agriculture	AM16	94.938	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-04, Parana, Santa Catarina, and Rio Grande do Sul		At validation	Agriculture	AM16	95.795	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-13, Goias, Minas Gerais		At validation	Agriculture	AM16	130.333	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-02, Minas Gerais / São Paulo		At validation	Agriculture	AM16	145.537	TÜV-SÜD	Brazil	Ireland	AgCert
AWMS GHG Mitigation Project BR05-B-07, Mato Grosso, Minas Gerais, and Goiás		At validation	Agriculture	AM16	155.097	TÜV-SÜD	Brazil	n.a.	AgCert
AWMS GHG Mitigation Project BR05-B-03, Mato Grasso do Sol		At validation	Agriculture	AM16	182.079	TÜV-SÜD	Brazil	Ireland	AgCert
AWMS GHG Mitigation Project BR05-B-14, Espirito Santo, Minas Gerais, and São Paulo		At validation	Agriculture	AM16	554.930	TÜV-SÜD	Brazil	n.a.	AgCert
USINAVERDE: Incineration of urban solid wastes (Golden Standard PDD)		At validation	Biomass energy	AMS-III.E.	3.978	BVQI	Brazil	n.a.	Centro Clima, IVIG-COPPE/UFRJ a SoutSoutNorth partner
Santa Lúcia II Small Hydro Plant		At validation	Hydro	AMS-I.D.	30.645	SGS	Brazil	n.a.	Clean Air S.A.
Braço Norte III (14,16 MW) Small Hydro Plant		At validation	Hydro	AMS-I.D.	39.083	SGS	Brazil	n.a.	Clean Air S.A.
Repowering Small Hydro Plants (SHP) in the State of São Paulo		At validation	Hydro	ACM2	41.954	SGS	Brazil	n.a.	Clean Air S.A.
Braço Norte IV (14 MW) Small Hydro Plant		At validation	Hydro	AMS-I.D.	44.294	SGS	Brazil	n.a.	Clean Air S.A.
Manaus Landfill Gas Project		At validation	Landfill gas	ACM1 + ACM2	903.265	SGS	Brazil	Canada & UK	Conestoga-Rovers & Associates Ltd.

Canabrava Landfill Gas Project		At validation	Landfill gas	ACM1	214.310	SGS	Brazil	n.a.	Conestoga-Rovers & Associates Ltd.
Central Energética do Rio Pardo cogeneration (bagasse) project	09-Mar-06	Registered	Biomass energy	ACM0006	16.290	DNV	Brazil	Netherlands (BHB)	Ecoinvest
Usina Itamarati cogeneration project		Reg. request	Biomass energy	AM15	8.307	DNV	Brazil	n.a.	Ecoinvest
Bunge Guará biomass project		At validation	Biomass energy	AMS-I.C.	10.254	SGS	Brazil	n.a.	Ecoinvest
BK Energia (9 MW) Itacoatiara project		Reg. request	Biomass energy	AMS-I.D.-III.E.	166.847	TÜV-SÜD	Brazil	n.a.	Ecoinvest
Use of blast furnace slag in production of blended cement at Votorantim Cimentos		At validation	Cement	ACM5	391.734	SGS	Brazil	n.a.	Ecoinvest
Fuel Oil to Natural Gas Switching at Votorantim Cimentos Cubatão		At validation	Fossil fuel switch	AM8	12.000	SGS	Brazil	n.a.	Ecoinvest
Fuel oil to natural gas switching at Klabin Piracicaba boilers		At validation	Fossil fuel switch	AM8	36.107	DNV	Brazil	n.a.	Ecoinvest
Fuel oil to natural gas switch at Solvay Indupa do Brazil		At validation	Fossil fuel switch	AM8	38.528	SGS	Brazil	n.a.	Ecoinvest
BT Geradora de Energia Elétrica (9,2 MW)		At validation	Hydro	AMS-1.D.	13.371	TÜV-SÜD	Brazil	n.a.	Ecoinvest
Nova Sinceridade (9,5 MW) Small Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	17.485	DNV	Brazil	UK, Japan	Ecoinvest
Palestina (9,5 MW) Small Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	27.326	DNV	Brazil	n.a.	Ecoinvest
Palestina (9,5 MW) Small Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	30.692	DNV	Brazil	UK, Japan	Ecoinvest
Salto Natal Small (15 MW) Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	35.000	DNV	Brazil	Netherlands (IFC)	Ecoinvest
Nova Sinceridade Small Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	35.576	DNV	Brazil	UK, Japan	Ecoinvest
Salto Natal (15 MW) Small Hydroelectric Power Plant		At validation	Hydro	AMS-I.D	36.106	DNV	Brazil	Netherlands	Ecoinvest
Nova Sinceridade, Palestina, Cachoeira Encoberta and Triunfo small hydro CatLeo Project Activity (Total: 69 MW)		At validation	Hydro	ACM2	100.450	DNV	Brazil	UK (Shell), Japan (Shell)	Ecoinvest

ARAPUtanga Centrais ELétricas S. A. - ARAPUCEL - Small Hydroelectric Power Plants Project (20 MW + 28 MW + 26 MW = 74 MW)		At validation	Hydro	ACM2	181.476	TÜV-SÜD	Brazil	Netherlands (CAF)	Ecoinvest
Passo do Meio, Salto Natal, Pedrinho I, Granada, Ponte and Salto Corgão small hydro Brascan Project Activity (Total: 128,4 MW)		At validation	Hydro	ACM2	262.000	DNV	Brazil	Netherlands (IFC)	Ecoinvest
Production of Blended Cement with Blast Furnace Slag at Cimento Mizu		At validation	Cement	ACM5	29.019	SGS	Brazil	n.a.	Ecoinvest Carbon
Bracol's Tanneries Fuel Switch project		At validation	Biomass energy	AMS-I.C.	6.317	DNV	Brazil	n.a.	Ecoinvest Carbon Assessoria Ltd.
Bertin's Slaughterhouses Fuel Switch project		At validation	Biomass energy	AMS-I.C.	20.305	DNV	Brazil	n.a.	Ecoinvest Carbon Brasil
Votorantim's (160 MW) Hydropower Plant		At validation	Hydro	ACM2	63.784	DNV	Brazil	n.a.	Ecoinvest Carbon Brasil
Atiaia Energia S/A - Buriti and Canoa Quebrada Small Hydropower Plant (58 MW)		At validation	Hydro	ACM2	121.192	SGS	Brazil	Netherlands (IFC)	Ecoinvest Carbon Brasil
Ceran's Monte Claro Run-of-river (139 MW) Hydropower Plant		At validation	Hydro	ACM2	141.988	DNV	Brazil	n.a.	Ecoinvest Carbon Brasil
Moema Bagasse Cogeneration Project, Brazil	09-Mar-06	Registered	Biomass energy	ACM0006	13.139	TÜV-SÜD	Brazil	Sweden	Econergy Brazil
Equipav Bagasse Cogeneration Project	09-Mar-06	Registered	Biomass energy	ACM0006	31.821	TÜV-SÜD	Brazil	n.a.	Econergy Brazil
Cucaú Bagasse Cogeneration Project		At validation	Biomass energy	AMS-I.D.	2.424	SGS	Brazil	n.a.	Econergy Brazil
Nardini Bagasse Cogeneration Project		At validation	Biomass energy	AM15	4.778	TÜV-SÜD	Brazil	n.a.	Econergy Brazil
Usina Alto Alegre Bagasse Cogeneration		Reg. request	Biomass energy	AM15	9.674	TÜV-SÜD	Brazil	n.a.	Econergy Brazil
Northeast Caeté Mills Bagasse Cogeneration Project		At validation	Biomass energy	AM15	10.375	TÜV-SÜD	Brazil	n.a.	Econergy Brazil
Barralcool Bagasse Cogeneration Project (BBCP)		At validation	Biomass energy	AM15	17.626	DNV	Brazil	n.a.	Econergy Brazil

Goiasa Bagasse Cogeneration Project		At validation	Biomass energy	AM15	59.066	DNV	Brazil	n.a.	Econergy Brazil
Petroflex Fuel Switch (Oil to natural gas)		At validation	Fossil fuel switch	AM8	29.540	SGS	Brazil	n.a.	Econergy Brazil
São João Landfill Gas to Energy Project		At validation	Landfill gas	ACM1	1.371.000	DNV	Brazil	n.a.	Econergy Brazil
Horizonte (4,8 MW) Wind Power Generation Project (HWPGP)		At validation	Wind	AMS-I.D.	6.325	SGS	Brazil	n.a.	Econergy Brazil
Água Doce (9 MW) Wind Power Generation Project (ADWPGP)		At validation	Wind	AMS-I.D.	13.704	SGS	Brazil	n.a.	Econergy Brazil
GHG Capture and Combustion From Swine Manure System		At validation	Agriculture	AM6	33.935	SGS	Brazil	UK	EcoSecurities
João Lyra Bagasse cogeneration project		At validation	Biomass energy	AMS-I.B.-I.D.	15.444	DNV	Brazil	n.a.	EcoSecurities
Rickli (5MW) Biomass electricity generation project (sawmill waste)		At validation	Biomass energy	AMS-I.D.-III.E.	127.000	DNV	Brazil	UK	EcoSecurities
Irani biomass electricity (9.43 MW) generation project		At validation	Biomass energy	AMS-I.D.	146.478	DNV	Brazil	n.a.	EcoSecurities
Imbituva (13,8 MW) Biomass Project (by 200 kt sawmill waste from 42 companies)		At validation	Biomass energy	AMS-I.D.-III.E.	312.383	DNV	Brazil	n.a.	EcoSecurities
Inácio Martins (15 MW) Biomass Project (by 200 kt sawmill waste from 25 companies)		At validation	Biomass energy	AMS-I.D.-III.E.	318.326	DNV	Brazil	n.a.	EcoSecurities
COSIPAR renewable electricity generation project, state of Pará		At validation	EE, industry	AMS-I.D.	20.908	BVQI	Brazil	n.a.	EcoSecurities
Aços Villares Natural gas fuel switch project		At validation	Fossil fuel switch	AM8	42.926	DNV	Brazil	n.a	Ecosecurities
Incomex (13,7 MW) Hydroelectric Project		At validation	Hydro	AMS-I.D	21.308	DNV	Brazil	n.a.	EcoSecurities
Incomex (13,7 MW) Hydroelectric Project		At validation	Hydro	AMS-I.D	36.479	DNV	Brazil	n.a.	EcoSecurities
Quimvale and gas natural fuel switch project		At validation	Fossil fuel switch	AMS-III.B.	7.233	DNV	Brazil	Spain	Ecosecurities do Brasil S.A

Eliane natural gas fuel switch project		At validation	Fossil fuel switch	AM8	26.324	DNV	Brazil	UK	Ecosecurities do Brasil S.A
10 MW landfill gas to energy project at Lara landfill, Maua		At validation	Landfill gas	AM3	646.800	DNV	Brazil	n.a.	Factor Consulting + Management AG
Embralixo/Araúna - Bragança Landfill Gas Project		At validation	Landfill gas	ACM1	70.489	DNV	Brazil	n.a.	Green Domus Desenvolvimento
Anaconda Landfill Gas Project		At validation	Landfill gas	ACM1	116.000	DNV	Brazil	n.a.	Herjack Engenharia e Serviços Ltda.
Aquarius Hydroelectric Project		At validation	Hydro	AMS-I.D.	14.942	DNV	Brazil	Japan (J-Power)	MGM Internattional
Onyx Landfill Gas Recovery Project – Trémembé, Brazil	24/11/2005	Registered	Landfill gas	AM0011	70.063	DNV	Brazil	Netherlands, France	ONYX
Petrobras Project for Switching Fossil Fuel at Macau_RN		At validation	Fossil fuel switch	AMS-III.B.	1.060	DNV	Brazil	n.a.	PETROBRAS
Electric Power Co-Generation by LDG Recovery – CST		At validation	EE, industry	ACM4	40.950	DNV	Brazil	n.a.	Pricewaterhouse Coopers
Partial replacement of fossil fuel by biomass, for Pyro-Processing in cement plant		At validation	EE, industry	ACM3	106.306	SGS	Brazil	n.a.	Shree Cement Ltd.
Caieiras landfill gas emission reduction	09-Mar-06	Registered	Landfill gas	ACM0001	770.932	DNV	Brazil	Japan	SUEZ Ambiental
Lages Methane Avoidance Project (from decay of timber waste)		At validation	Fugitive	AMS-III.E.	241.576	DNV	Brazil	n.a.	TC/BR Technologia e Consultoria
Granja Becker GHG Mitigation Project	09 Dec 05	Registered	Agriculture	AM0016	5.086	TÜV-SÜD	Brazil	Canada	AgCert
Bioenergia Cogeradora S.A. ("Bioenergia"), corresponding to the Santo Antonio Mill (USA – from the Portuguese "Usina Santo Antônio") and the São Francisco mill (USFR – from the Portuguese "Usina São Francisco")	03-Mar-06	Registered	Biomass energy	ACM0006	20.840	TÜV-SÜD	Brazil		Ecoinvest
Termoelétrica Santa Adélia Cogeneration Project (TSACP)	06-Mar-06	Registered	Biomass energy	ACM0006	22.204	DNV	Brazil		Ecoinvest
Zillo Lorenzetti Bagasse Cogeneration Project (ZLBC)	06-Mar-06	Registered	Biomass energy	ACM0006	53.774	DNV	Brazil	Netherlands (BHB)	Ecoinvest
Pesqueiro Energia Small Hydroelectric Project (PESHP)	26-Feb-06	Registered	Hydro	AMS-I.D.	42.009	DNV	Brazil		Ecoinvest

Koblitz - Piratini Energia S. A - Biomass Power Plant – Small Scale CDM Project	11-Feb-06	Registered	Biomass energy	AMS-I.D. ,AMS-III.E.	172.763	TÜV-SÜD	Brazil		Ecoinvest
Alta Mogiana Bagasse Cogeneration Project (AMBCP)(37MW)	20-Feb-06	Registered	Biomass energy	ACM0006	12.024	TÜV-SÜD	Brazil	Netherlands	Econergy Brazi
Bandeirantes Landfill Gas to Energy Project (BLFGE)	20-Feb-06	Registered	Landfill gas	ACM0001	1.070.649	DNV	Brazil		Econergy Brazil
Nova América Bagasse Cogeneration Project (NABCP)	20-Feb-06	Registered	Biomass energy	ACM0006	12.027	TÜV-SÜD	Brazil		Econergy Brazil
Santa Elisa Bagasse Cogeneration Project (SEBCP)	20-Feb-06	Registered	Biomass energy	ACM0006	45.801	TÜV-SÜD	Brazil	Sweden	Econergy Brazil
Santa Cândida Bagasse Cogeneration Project (SCBCP)	24-Feb-06	Registered	Biomass energy	ACM0006	10.604	DNV	Brazil		Econergy Brazil
Coruripe Bagasse Cogeneration Project (CBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	5.784	DNV	Brazil		Econergy Brazil
Serra Bagasse Cogeneration Project (SBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	6.644	DNV	Brazil		Econergy Brazil
Jalles Machado Bagasse Cogeneration Project (JMBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	8.955	DNV	Brazil	Netherlands	Econergy Brazil
Campo Florido Bagasse Cogeneration Project (CFBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	10.175	DNV	Brazil		Econergy Brazil
Lucélia Bagasse Cogeneration Project (LBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	14.362	DNV	Brazil		Econergy Brazil
Coinbra-Cresciumal Bagasse Cogeneration Project (CCBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	17.481	DNV	Brazil		Econergy Brazil
Vale do Rosário Bagasse Cogeneration (VRBC)	03-Mar-06	Registered	Biomass energy	ACM0006	25.277	TÜV-SÜD	Brazil	Sweden	Econergy Brazil
Colombo Bagasse Cogeneration Project (CBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	28.018	TÜV-SÜD	Brazil	Netherlands	Econergy Brazil
Southeast Caeté Mills Bagasse Cogeneration Project (SECMBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	30.326	TÜV-SÜD	Brazil		Econergy Brazil
Cerradinho Bagasse Cogeneration Project (CBCP)	03-Mar-06	Registered	Biomass energy	ACM0006	34.742	TÜV-SÜD	Brazil		Econergy Brazil
Iturama Bagasse Cogeneration Project (IBCP)	04-Mar-06	Registered	Biomass energy	ACM0006	12.841	DNV	Brazil		Econergy Brazil

Cruz Alta Bagasse Cogeneration Project (CABCP)	06-Mar-06	Registered	Biomass energy	ACM0006	10.061	TÜV-SÜD	Brazil		Econergy Brazil
Brazil NovaGerar Landfill Gas to Energy Project	18-Nov-04	Registered	Landfill gas	AM0003	670.133	DNV	Brazil	Netherlands	Ecosecurities
Brazil MARCA Landfill Gas to Energy Project	23 Jan 06	Registered	Landfill gas	AM0003	231.405	DNV	Brazil	UK, Japan	EcoSecurities
UTE Barreiro S.A. Renewable Electricity Generation Project	22 Jan 06	Registered	EE, Industry	AMS-I.D.	48.565	DNV	Brazil	UK	EcoSecurities
Salvador da Bahia Landfill Gas Management Project	15 Aug 05	Registered	Landfill gas	AM0002	664.674	DNV	Brazil	Japan, UK	ICF Consulting
ESTRE's Paulínia Landfill Gas Project (EPLGP)	03-Mar-06	Registered	Landfill gas	AM0003	212.558	DNV	Brazil		Local
GHG capture and combustion from swine manure management systems at Faxinal dos Guedes and Toledo	30 Jan 06	Registered	Agriculture	AM0006	24.277	DNV	Brazil		Pricewaterhouse Coopers
CAMIL Itaqui Biomass Electricity Generation Project	11-Feb-06	Registered	Biomass energy	AMS-I.D.,AMS-III.E.	57.341	TÜV-SÜD	Brazil	Netherlands	PTZ Bioenergy+BTG Biomass Techn.
N2O Emission Reduction in Paulínia, SP, Brazil	25 Dec 05	Registered	N20	AM0021	5.961.165	DNV	Brazil	France	Rhodia + Axel Michaelowa
Alto Alegre Bagasse Cogeneration Project (AABCP)	04-Mar-06	Registered	Biomass energy	ACM0006	9.674	TÜV-SÜD	Brazil		
Angkor (1,5 MW) Bio Cogen Rice Husk Power Project		At validation	Biomass energy	AMS-I.A.-III.E.	39.981	DNV	Cambodia	Japan	Mitsubishi Securities
Advanced swine manure treatment in Las Palmas and Santa Rosa		At validation	Agriculture	AM6	28.873	DNV	Chile	n.a	Agrosuper, POCH Ambiental
Advanced swine manure treatment in Ramirana		At validation	Agriculture	AM6	58.698	DNV	Chile	n.a	Agrosuper, POCH Ambiental
Advanced swine manure treatment in Maitenlahue and La Manga		At validation	Agriculture	AM6	175.503	DNV	Chile	n.a	Agrosuper, POCH Ambiental
Trupan Biomass Power Plant in Chile		Reg. request	Biomass energy	ACM6	112.914	DNV	Chile	n.a.	Celulosa Arauco y Constitución S.A.
Nueva Aldea Biomass Power Plant Phase 1		Reg. request	Biomass energy	ACM6	116.584	DNV	Chile	n.a.	Celulosa Arauco y Constitución S.A.

Nueva Aldea Biomass Power Plant Phase 2		At validation	Biomass energy	ACM6	137.000	DNV	Chile	n.a.	Celulosa Arauco y Constitución S.A.
Lepanto Landfill Gas Management Project		Reg. request	Landfill gas	ACM1	559.143	DNV	Chile	n.a.	CO2e
La Higuera (155 MW) Hydroelectric Project		Reg. request	Hydro	ACM2	477.586	DNV	Chile	n.a.	EcoSecurities
Russfin Biomass CHP Plant Project.		At validation	Biomass energy	AMS-I.A.-I.C.-III.E.	37.405	SGS	Chile	n.a.	Eratech Ltda. Chile
Metrogas methane recovery from pipeline rehabilitation		At validation	**Energy distribution**	AMS-III.D	15.080	DNV	Chile	Japan (J-Power)	MGM Internattional
Chile: Chacabuquito 26 MW Run-of-River Hydropower Project (NM76)		At validation	Hydro	AM26	100.750	DNV	Chile	Canada	Prototype Carbon Fund c/o World Bank and Hidroelectrica Guardia Vieja S.A.
Methane capture and combustion from swine manure treatment for Peralillo	02-Sep-05	Registered	Agriculture	AM0006	78.867	DNV	Chile	Canada, Japan	Agrosuper, POCH Ambiental
Methane capture and combustion from swine manure treatment for Corneche and Los Guindos	02-Sep-05	Registered	Agriculture	AM0006	84.083	DNV	Chile	Canada, Japan	Agrosuper, POCH Ambiental
Methane capture and combustion from swine manure treatment for Pocillas and La Estrella	02-Sep-05	Registered	Agriculture	AM0006	247.428	DNV	Chile	Japan, Canada	Agrosuper, POCH Ambiental
Cosmito landfill gas project (Improvement of Gas Extraction System in Old Cosmito Dump)	03 Dec 05	Registered	Landfill gas	ACM0001	84.724	DNV	Chile		EcoSecurities
Copiulemu landfill gas project (Center for the Storage and Transfer, Recovery and Control of Waste, Treatment and Disposal of Industrial and Household Waste)	03 Dec 05	Registered	Landfill gas	ACM0001	90.125	DNV	Chile		EcoSecurities
El Molle – Landfill gas (LFG) capture project	19-Feb-06	Registered	Landfill gas	ACM0001	160.130	DNV	Chile		Eratech Ltda. Chile
Graneros Plant Fuel Switching Project	18-Jul-05	Registered	Fossil fuel switch	AM0008	19.438	DNV	Chile	Japan (J-Power)	MGM Internattional
Jilin Taobei Fuyu 49.5MW Wind Power Project		At validation	Wind	ACM2	72.998	DNV	China	n.a.Endesa, S.A.	Beijing Easy Carbon Consultancy Co. Ltd.

Liaoning Zhangwu 24.65MW Wind-farm Project		At validation	Wind	ACM2	52.005	DNV	China	n.a.	Beijing Keji Consulting Ltd.
Liaoning Kangping 24.65MW Wind-farm Project		At validation	Wind	ACM2	56.867	DNV	China	n.a.	Beijing Keji Consulting Ltd.
Gansu Jingtieshan (26,55 MW) Hydro Power Project		At validation	Hydro	ACM2	118.198	DNV	China	n.a.	Beijing Rain Curtain Consulting Ltd
Fujian Zhangpu Liuao 30.6 MW Wind Power Project		At validation	Wind	ACM2	51.238	DNV	China	n.a.	CWEME
Xinjiang Dabancheng Sanchang Wind Farm Project		At validation	Wind	ACM2	84.553	DNV	China	n.a.	Energy System International
Maguan Daliangzi (32 MW) Hydro Power Project		At validation	Hydro	AM5	99.000	DNV	China	n.a.	ESD, CAMCO
Changling (10,1 MW) Wind Power Project		At validation	Wind	AMS-I.D.	19.044	DNV	China	n.a.Climate Change Capital Carbon Fund s.a.r.l.	ESD, CAMCO
Jilin Taonan (49,3 MW) Wind Power Project		At validation	Wind	AM5	96.993	DNV	China	Austria	ESD, CAMCO
Shenzhen Xiaping Landfill Gas Collection and Utilization Project		At validation	Landfill gas	ACM1	574.419	SGS	China	n.a.	Global Climate Change Institute,Tsinghua University
Guangdong Nan'ao Huaneng 45.05 MW Wind Power Project		At validation	Wind	AM5	67.939	TÜV-Rhein	China	n.a.Endesa, S.A.	Green Capital Consulting Company
Jilin Taobei Huaneng 49,3 MW wind power project		At validation	Wind	ACM2	93.652	TÜV-Rhein	China	n.a.	Green Capital Consulting Company
Jilin Tongyu Huaneng 100.05 MW Wind Power Project		At validation	Wind	ACM2	255.159	TÜV-Rhein	China	n.a.Endesa, S.A.	Green Capital Consulting Company
Zhangbei Manjing Windfarm Project (45 MW)		Reg. request	Wind	AM5	102.599	DNV	China	n.a.First Carbon Fund Ltd. (UK)	IT Power Ltd.
Shandong Dongyue HFC23 Decomposition Project	13-Mar-06	Registered	HFCs	AM0001	10.110.117	DNV	China	Japan, UK Mitsubishi Corporation, Nippon Steel Corporation, and Natsource Europe Limited	Mitsubishi Corporation+Tsinghua Univ.

Ningxia Helanshan Windpark Project, Ningxia Autonomous Region, China		At validation	Wind	ACM2	219.738	DNV	China	UK Trading Emission Limited	Ningxia CDM Service Center
Ningxia Tianjing Shenzhou 30.6MW Wind-farm Project		At validation	Wind	ACM2	65.815	DNV	China	UK Trading Emission Limited	Ningxia CDM Service Centre
GHG Emission Reduction by Thermal Oxidation of HFC23 in Jiangsu Meilan Chemical CO. Ltd.		At validation	HFCs	AM1	8.411.445	JQA	China	WB-CF	Sepafeco
HFC23 Decomposition at Changshu 3F Zhonghao New Chemical Materials Co. Ltd.		At validation	HFCs	AM1	10.437.000	JQA	China	WB-CF	Sepafeco
Wuxi Taohuashan Landfill Gas to Electricity Project		At validation	Landfill gas	ACM1	72.800	DNV	China	n.a.	Shanghai Yangtze River Delta Investment Consultancy Co.
Yangquan Nanmei Chemical Plant Small-scale Fuel Switching Project		At validation	Fossil fuel switch	AMS-III.B.	15.000	DNV	China	n.a.	Shanxi Hua'aoda Green Industri Development Co Ltd.
The 30 MW Tuoli Wind-Farm Project in Urumqi, Xinjiang of China		At validation	Wind	ACM2	95.761	TÜV-SÜD	China	Japan Tokyo Electric Power Company	Tsinghua University
Anding Landfill Gas Recovery and Utilisation Project		At validation	Landfill gas	ACM1	80.000	DNV	China	Netherlands (ESI) Energy Systems International B.V. (ESI)	Waste Management NZ ltd.
China (98 MW) Xiaogushan Hydropower Project		At validation	Hydro	ACM2	312.368	JCI	China	PCF World Bank PCF	WB-Carbon Finance Business
Taishan Cement Works Waste Heat Recovery and Utilisation (NM79)		At validation	EE, industry	AM24	107.116	TÜV-SÜD	China	n.a.Natsource Europe Limited	Westlake Associates
Yuzaikou Small Hydropower Station	18 Dec 05	Registered	Hydro	AMS-I.D.	40.480	DNV	China	UK EcoSecurities Ltd (UK)	2E Carbon Access
Huitengxile Windfarm Project	26-Jun-05	Registered	Wind	ACM0002	51.429	TÜV-SÜD	China	Netherlands (CERUPT) SenterNovem (Netherlands)	Alex Westlake

Nanjing Tianjingwa Landfill Gas to Electricity Project	18 Dec 05	Registered	Landfill gas	ACM0001, AMS-I.D.	246.107	SGS	China	United Kingdom of Great Britain and Northern Ireland EcoSecurities Ltd (UK)	EcoSecurities, CREIA & Chubu
Meizhou Landfills Gas Recovery and Utilization as Energy	03-Mar-06	Registered	Landfill gas	ACM0001	286.525	DNV	China	Austria Austrian JI/CDM Programme, Kommunalkredit Public Consulting Gmbh	Phascon, ITPC, Comcor
HFC23 Decomposition Project of Zhejiang Juhua Co., Ltd, P. R. China	03-Mar-06	Registered	HFCs	AM0001	5.789.682	DNV	China	Japan JMD Greenhouse-Gas Reduction Co.Ltd	Tsinghua University
Santa Ana (13,43 MW) Hydroelectric Plant		At validation	Hydro	AMS-I.D	22.429	TÜV-SÜD	Colombia	n.a.	CAEMA
Incauca S. A. Sugarcane Bagasse Cogeneration and Displacement of Thermal Energy Generation by Coal		At validation	Biomass energy	AM15	39.674	DNV	Colombia	Netherlands	Ecoinvest
Umbrella Fuel-Switching Project		At validation	Fossil fuel switch	AM8	38.100	DNV	Colombia	Spain	MGM Internattional
La Vuelta and La Herradura (31,5 MW) Hydroelectric Project		At validation	Hydro	ACM2	144.541	DNV	Colombia	n.a.	MGM Internattional
Jepirachi (19,5 MW) Wind Power Project (NM24)		Reg. request	Wind	ACM2	18.116	SGS	Colombia	PCF (Finland)	WB
Agua Fresca Multipurpose and environmental services project (7.49 MW)	07 Jan 06	Registered	Hydro	AMS-I.D.	27.510	DNV	Colombia	Austria	Ministry of Mines and Energy
Tejona (19,8 MW) Wind Power Project		At validation	Wind	ACM2	10.494	TÜV-SÜD	Costa Rica	Netherlands	Climate Focus BV
Rio Azul landfill gas and utilization project in Costa Rica	13-Oct-05	Registered	Landfill gas	AM0011	156.084	DNV	Costa Rica	Netherlands (CERUPT)	CERUPT
Cote small-scale hydropower plant	03-Mar-06	Registered	Hydro	AMS-I.D.	6.431	DNV	Costa Rica	Finland (PCF)	WB
El Guanillo (64,6 MW) Wind Farm		At validation	Wind	ACM2	11.588	AENOR	Dominican Republic	Spain	Gamesa Energía
Zámbiza Landfill Gas Project		At validation	Landfill gas	ACM1	94.160	TÜV-SÜD	Ecuador	n.a.	ARA Carbon Finance GmbH

Pronaca: Afortunados Swine Waste Management		At validation	Agriculture	AM6	4.349	DNV	Ecuador	n.a.	Clear-Green Environmental ltd. & Efficacitas Consultora Cia. Ltd.
Pronaca: Tropicales-Plata Swine Waste Management		At validation	Agriculture	AM6	5.769	DNV	Ecuador	n.a.	Clear-Green Environmental ltd. & Efficacitas Consultora Cia. Ltd.
Pronaca: Valentinos/San Javier Swine Waste Management		At validation	Agriculture	AM6	9.196	DNV	Ecuador	n.a.	Clear-Green Environmental ltd. & Efficacitas Consultora Cia. Ltd.
Perlabi (2,74 MW) Hydroelectric Project		At validation	Hydro	AMS-I.D.	7.508	DNV	Ecuador	n.a.	CORDFELIM, DEUMAN
San Carlos Bagasse Cogeneration Project (SCBCP), Ecuador		At validation	Biomass energy	AM15	45.729	TÜV-SÜD	Ecuador	n.a.	Econergy Brazil
San Carlos Bagasse Cogeneration Project (SCBCP)	06-Mar-06	Registered	Biomass energy	ACM0006	43.731	DNV	Ecuador		Econergy Brazil
Sibimbe Hydroelectric Project	04-Feb-06	Registered	Hydro	ACM0002	57.870	DNV	Ecuador	Netherlands (NCDF)	WB-CF
Abanico Hydroelectric Project (14.88 MW)	04-Feb-06	Registered	Hydro	ACM0002	156.660	DNV	Ecuador	Netherlands	WB-CF
Landfill Gas to Energy Facility at the Nejapa Landfill Site	12-Mar-06	Registered	Landfill gas	ACM0001	183.725	DNV	El Salvador	Canada	Biothermica Technologies Inc.
Central Izalco cogeneration Project		At validation	Biomass energy	AM15	37.470	DNV	El Salvador	n.a.	Ecoinvest
LaGeo, S. A. de C. V., Berlin (44 MW) Geothermal Project, Phase Two		At validation	Geothermal	ACM2	175.000	DNV	El Salvador	n.a.	Ecoinvest
El Angel Cogeneration Project		At validation	Biomass energy	AMS-I.C.	38.401	DNV	El Salvador	n.a.	Ecoinvest Carbon S.A.
Vaturu and Wainikasou Hydro Projects	01-Oct-05	Registered	Hydro	AMS-I.D.	24.928	TÜV-SÜD	Fiji	UK	Ecosecurities
Ingenio Magdalena S.A. cogeneration project		At validation	Biomass energy	AM15	151.083	DNV	Guatamala	n.a.	Ecoinvest

Rio Hondo II hydroelectric project (32 MW)		At validation	Hydro	AM5	107.000	SGS	Guatamala	n.a.	Ecosecurities
Hidroélectrica Candelaria (4.3 MW hydro)		At validation	**Hydro**	AMS-I.D.	24.033	DNV	Guatamala	Japan (J-Power)	MGM Internattional
Matanzas Hydroelectric Plant	21 Jan 06	Registered	Hydro	AMS-I.D.	38.493	AENOR	Guatemala		Enel Latin America
San Isidro Hydroelectric Plant	23 Jan 06	Registered	Hydro	AMS-I.D.	13.389	AENOR	Guatemala		Enel Latin America
Las Vacas Hydroelectric project	17 Dec 05	Registered	Hydro	ACM0002	90.363	AENOR	Guatemala	Spain	Garrigues Medio Ambien & Solea Consulting
Cervecería Hondureña Methane Capture Project		At validation	Biogas	AMS-I.C.-III.D	13.034	DNV	Honduras	n.a.	Ecoinvest
Tres Valles Cogeneration Project.		At validation	Biomass energy	AM15	12.268	DNV	Honduras	n.a.	Ecoinvest
Chumbagua (20 MW bagasse) Cogeneration Project		At validation	Biomass energy	AM15	20.499	DNV	Honduras	Japan	Ecoinvest
La Grecia Cogeneration Project.		At validation	Biomass energy	AM15	27.560	DNV	Honduras	n.a.	Ecoinvest
Compañía Azucarera Hondureña S.A. cogeneration project		At validation	Biomass energy	AM15	33.517	DNV	Honduras	n.a.	Ecoinvest
Tres Valles Cogeneration Project		At validation	Biomass energy	ACM6	21.862	DNV	Honduras	n.a.	Ecoinvest Carbon S.A.
Cortecito and San Carlos Hydroelectric Project	03-Jun-05	Registered	Hydro	AMS-I.D.	37.466	DNV	Honduras		2E Carbon Access
La Esperanza Hydroelectric Project	19 Aug 05	Registered	Hydro	AMS-I.D.	37.032	DNV	Honduras	Italy (CDCF)	2E Carbon Access
LA GLORIA Hydroelectric Project	09 Jan 06	Registered	Hydro	AMS-I.D.	20.464	DNV	Honduras	United Kingdom of Great Britain and Northern Ireland	2E Carbon Acess
Cuyamapa Hydroelectric Project	23 Apr 05	Registered	Hydro	AMS-I.D.	35.660	DNV	Honduras		2E Carbon Acess, CABEI
Zacapa Mini Hydro Station Project	02-Mar-06	Registered	Hydro	AMS-I.D.	915	DNV	Honduras	Finland	AHPPER
Yojoa Small Hydropower Project	02-Mar-06	Registered	Hydro	AMS-I.D.	1.069	DNV	Honduras	Finland	AHPPER
RIO BLANCO Small Hydroelectric Project	11 Jan 05	Registered	Hydro	AMS-I.D.	17.800	DNV	Honduras	Finland	AHPPER
CECECAPA Small Hydroelectric Project	02-Mar-06	Registered	Hydro	AMS-I.D.	1.877	DNV	Honduras	Finland	COMGELSA

Cuyamel Hydroelectric Project	26-Nov-05	Registered	Hydro	AMS-I.D.	25.353	DNV	Honduras	United Kingdom of Great Britain and Northern Ireland	Ecosecurities
6.0 MW Biomass based independent power Project of Agri Gold Projects Limited		At validation	Biomass energy	AMS-ID	23.337	BVQI	India	n.a.	Agri Gold Projects Limited
LHSF Bagasse Project		At validation	Biomass energy	AMS-I.D.	18.770	TÜV-SÜD	India	UK	Agrinergy
JCT Hoshiarpur Small Scale Biomass Project		At validation	Biomass energy	AMS-I.D.	32.000	TÜV-SÜD	India	n.a.	Agrinergy
Ajbapur Sugar Complex Cogeneration Project		At validation	Biomass energy	AMS-I.D.	34.000	TÜV-SÜD	India	n.a.	Agrinergy
Pandurang SSK RE Project		At validation	Biomass energy	AMS-I.D.	42.446	BVQI	India	UK	Agrinergy
ACEL Blended cement project at Sankrail grinding unit		At validation	Cement	ACM5	30.342	DNV	India	UK	Agrinergy
ACC Blended cement projects at New Wadi Plant, Tikaria Cemnet Plant, Chanda Cement Works (+ 3 more)		At validation	Cement	ACM5	214.285	SGS	India	UK	Agrinergy
GACL Blended cement projects at:Maratha Cement plant, Gujarat Unit, Himachal Unit, Ropar Unit (+ 2 more)		At validation	Cement	ACM5	553.100	DNV	India	UK	Agrinergy
Nakoda WHR CDM Project, India		At validation	EE, industry	ACM4	36.218	TÜV-SÜD	India	UK	Agrinergy
Shri Bajrang WHR CDM Project		At validation	EE, industry	ACM4	112.606	TÜV-SÜD	India	UK	Agrinergy
56.25 MW wind energy project in Tirunelveli and Coimbatore districts in Tamilnadu, India		At validation	Wind	ACM2	46.960	BVQI	India	n.a.	ALWE
Mahatma Gandhi (22MW) Hydro Electric Tail Race Hydro Power Project of APPL		At validation	Hydro	ACM2	94.347	TÜV-Rhein	India	n.a.	Ambuthirtha Power Private Limited (APPL)
Mustard Crop Residue Power Project at Amrit Environmental Technologies Private Ltd, Kotpuli Tehsil, Jaipur, Rajasthan		At validation	Biomass energy	AMS-I.D.	33.352	TÜV-SÜD	India	n.a.	Amrit Environmental Technologies Pvt + Ernst & Young (P) Ltd.

Energy efficiency measures at paper production plant at APPM in Andhra Pradesh		At validation	EE, industry	AMS-II.D	4.423	DNV	India	n.a.	Andhra Pradesh Paper Mills Limited
Switching of fossil fuel from Naptha & Diesel to Biomass (agricultural residue) for 9 MW Power Generation Unit of M/s. My Home Power limited		At validation	Fossil fuel switch	AMS-III.B.	42.837	RWTÜV	India	n.a.	APITCO
Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects		At validation	Hydro	AMS-I.D	22.920	TÜV-SÜD	India	n.a.	Aqua Power Ltd
Increasing the Additive Blend in cement production by Jaiprakash Associates Ltd.		At validation	Cement	ACM5	32.718	DNV	India	n.a.	Ashutosh Pandey
18 MW Kemphole Mini Hydel Scheme by Int. Power Corp. Ltd		At validation	Hydro	ACM2	36.579	DNV	India	#REF!	Ashutosh Pandey
4.2 MW Wind power project in Maharashtra, by Bharat Forge Ltd		At validation	Wind	AMS-I.D.	7.228	DNV	India	n.a.	Ashutosh Pandey
BF Utilities (14,65 MW) Wind Energy Project, Maharashtra		At validation	Wind	AMS-I.D.	26.770	DNV	India	n.a.	Ashutosh Pandey
Chitra Bio Energy 7.5 MW Renewable Energy Grid Connected Biomass Power Project		At validation	Biomass energy	AMS-I.D.	22.255	DNV	India	n.a.	Asia Carbon International B.V.
Forced methane extraction from organic wastewater treatment plant for generation of electricity		At validation	Biogas	AM13	59.608	DNV	India	n.a.	Associates of Sri Chamundeswari Sugars Ltd.
6.6 MW Seshadadri Iyer Mini Hydel Power project		At validation	Hydro	AMS-I.D.	12.237	BVQI	India	n.a.	Atria Hydel Power Corporation
Optimal Utilization of Clinker in PPC manufacturing at Birla Corporation Limited (BCL), Raebareli Unit		At validation	Cement	ACM5	26.438	DNV	India	n.a.	BCL
Optimal Utilization of Clinker in PPC manufacturing at Birla Corporation Ltd, Chittorgarh Unit		At validation	Cement	ACM5	42.604	DNV	India	n.a.	BCL
Energy efficiency measures at cement production plant		At validation	EE, industry	AMS-II.D	5.627	SGS	India	n.a.	BCL Chittorgarh

Optimum utilization of clinker by PCC production at Binani Cement Ltd, Rajasthan		At validation	Cement	ACM5	19.221	SGS	India	n.a.	Binani Cement
Energy efficiency projects - Steam system upgradation at the manufacturing unit of Birla Tyres		At validation	EE, industry	AMS-II.D	4.669	DNV	India	n.a	Birla Tyres
Mysore Cements Limited Portland Slag Cement project		At validation	Cement	ACM5	66.095	DNV	India	n.a.	Care Sustainability
Waste heat recovery captive power generation at Chhatisgarh Electricity Company Ltd		At validation	EE, industry	ACM4	134.472	SGS	India	n.a.	CECL
Energy efficiency through reduction in auxiliary consumption at a Thermal Power Generating Station		At validation	EE, industry	AMS-II.B.	5.854	DNV	India	CDCF	CESC Ltd.
Marketing of low cost irrigation devices in rural areas of Bihar and Uttar Pradesh		At validation	EE, industry	AMS-I.B.	9.561	TÜV-SÜD	India	n.a.	CESC Ltd.
Energy Efficiency through Alteration of fuel oil atomizing media in coal-fired thermal power plant		At validation	EE, industry	AM18	26.157	DNV	India	n.a.	CESC Ltd.
Energy Efficiency through Alteration of fuel oil atomizing media in coal-fired thermal power plant		At validation	EE, industry	AM18	261.570	DNV	India	n.a.	CESC Ltd.
Chambal Power Ltd (CPL) proposed 7.5 MW biomass based power project at Rangpur, Kota District, Rajasthan		At validation	Biomass energy	AMS-I.D.	48.208	SGS	India	n.a.	Chambal Power Ltd.
Boiler fuel switchover from Residual Fuel oil to Briquettes		At validation	Fossil fuel switch	AMS-III.B.	18.789	DNV	India	n.a.	Colour Chem Limited
Aurá Landfill Gas Project		At validation	Landfill gas	ACM1	315.599	SGS	India	UK	Conestoga Rovers & Associates Ltd
“Optimal Utilization of clinker” project at Dalmia Cement (Bharat) Limited (DCBL)		At validation	Cement	ACM5	59.988	SGS	India	n.a.	DCBL

12 MW hydropower plant in Bhandardara in Maharashtra, India.		At validation	Hydro	AMS-I.D.	35.477	BVQI	India	n.a.	Dodson –Lindblom Hydro Power Ltd
Energy efficiency measures in a Portland Cement plant		At validation	EE, industry	AMS-II.D	3.486	SGS	India	n.a.	Durapur Cement Works
Electricity generation from mustard crop residues: Tonk		At validation	Biomass energy	AMS-I.D.	28.435	TÜV-SÜD	India	Netherlands	Ecofys
Wind electricity generation in Tamil Nadu (15 MW)		At validation	**Wind**	AMS-I.D.	37.330	TÜV-SÜD	India	Netherlands (CERUPT)	Ecofys
Del Norte Cogeneration Project		At validation	Biomass energy	AMS-I.D.	19.572	DNV	India	n.a.	Ecoinvest Carbon S.A.
Increasing the Additive Blend in the Portland Slag Cement manufacturing by Indorama Cement Ltd.		At validation	Cement	ACM5	6.126	SGS	India	n.a.	Emergent Ventures India Pvt Ltd
Destruction of HFC-23 at refrigerant (HCFC-22) manufacturing facility		At validation	HFCs	AM1	544.656	DNV	India	n.a.	Emergent Ventures India Pvt Ltd
NSL 27.65 MW Wind Power Project in Karnataka, India		At validation	Wind	ACM2	52.129	DNV	India	n.a	Ernst & Young Private Ltd.
Solar steam for cooking and other applications		At validation	Solar	AMS-I.C.	1.117	TÜV-SÜD	India	n.a.	Factor Consulting + Management AG
15 Mw Biomass Co-Generation in Andhra Pradesh		At validation	Biomass energy	AMS-I.D.	48.489	LRQA	India	n.a.	Ganpati sugar Industries Limited
15 MW biomass co-generation in Andhra Pradesh		At validation	Biomass energy	AMS-I.D.	48.490	SGS	India	n.a.	Ganpati sugar Industries Limited
6 MW renewable energy project for a grid system		At validation	Biomass energy	AMS-ID	32.310	DNV	India	n.a.	Gayatri Agro Industrial Power Limited
Taraila Small Hydroelectric Project of Ginni Global Ltd. (5 MW)		At validation	Hydro	AMS-I.D.	20.330	TÜV-SÜD	India	n.a.	Ginni Global Ltd.
Waste heat based 7 MW captive power project		Reg. request	EE, industry	ACM4	22.157	SGS	India	n.a.	Godawari Power and Ispat Ltd.
Emission reduction through partial substitution of fossil fuel with alternative fuels, Grasim South Cement, Tamilnadu		At validation	Biomass energy	ACM3	41.129	DNV	India	n.a.	Grasim South Cement

8 MW biomass based power project at Hassan		At validation	Biomass energy	AMS-I.D.	33.714	TÜV-Rhein	India	n.a.	Hassan Biomass Power Company
Manal, Chandni and Timbi Small (3*3 MW) Hydroelectric Projects of HCPL		At validation	Hydro	AMS-I.D	31.229	TÜV-SÜD	India	n.a.	Himalayan Crest Power Ltd.(HCPL)
GHG reduction by implementing energy efficient plough share mixer technology in soap manufacturing at Hindustan Lever Limited		At validation	EE, industry	AMS-II.C	6.937	DNV	India	n.a.	Hindustan Lever Ltd
Shift to low greenhouse gas emitting vehicles for materials transport to and from Doom Dooma plant of HLL.		At validation	**Transport**	AMS-III.C.	6.535	DNV	India	n.a.	Hindustan Lever Ltd
6,6 MW MSW to electricity generation project in Hyderabad		At validation	Landfill gas	AMS-I.D.-III.E.	68.061	DNV	India	n.a.	HWWA
6 MW renewable energy project for a grid system		At validation	Biomass energy	AMS-I.D.	30.667	DNV	India	n.a.	Ind-Barath Energies Limited
Demand-side energy efficiency programme in the 'Humidification Towers' of Jaya Shree Textiles		At validation	EE, industry	AMS-II.C	29.511	SGS	India	n.a.	Indian Rayon & Industries Limited
Thermal efficiency improvement initiatives in coal fired boiler system		At validation	EE, industry	AMS-II.B.	5.600	SGS	India	n.a.	Indian Rayon and Industries Ltd.
12.3 MW wind energy project in Tamilnadu, India		At validation	Wind	AMS-I.D.	14.416	BVQI	India	n.a.	Indowind Energy Limited
Kuthungal run of the river 21 MW hydro power plant		At validation	Hydro	ACM2	18.585	BVQI	India	n.a.	Indsil Electrosmelts Ltd.
Energy efficiency measures at thermal power generating station of CESC at Budge Budge		At validation	EE, industry	AMS-II.B.	5.001	DNV	India	n.a.	International Develpment Enterprises
Demand side energy conservation & reduction measures at IPCL – Gandhar Complex		At validation	EE, industry	AMS-II.D	10.718	DNV	India	n.a.	IPCL
JBSL Waste heat recovery based captive power project		At validation	EE, industry	ACM4	52.240	SGS	India	n.a.	Jai Balaji Sponge Ltd.

10.0 MW Biomass based independent power project		At validation	Biomass energy	AMS-I.D.	46.900	BVQI	India	n.a.	Jalkheri Power Private Limited
Bagasse based power project at Jamkhandi Sugars Ltd, Bagalkot, Karnataka		At validation	Biomass energy	AMS-I.D.	13.983	BVQI	India	n.a.	Jamkhandi Sugar Limited
Power generation from waste heat of non-recovery type coke ovens at JSPL		At validation	EE, industry	ACM4	399.632	BVQI	India	n.a.	Jindal Steel & Power Limited
Waste Heat Recovery Power Project at JK Cement Works (Unit of JK Cement Ltd)		At validation	EE, industry	ACM4	70.796	TÜV-SÜD	India	n.a.	JK Cement Limited
10.6 MW renewable energy project for a grid system by K.M.Power (P) Limited		At validation	Hydro	AMS-I.D.	27.165	DNV	India	n.a.	K.M. Power (P) Limited
Biomass Power Project at Kalpataru Energy Venture Private Limited, Bayana Tahsil, Bharatpur District, Rajasthan		At validation	Biomass energy	AMS-I.D.	43.317	TÜV-SÜD	India	n.a.	Kalpatura Energy Ventures Pvt Ltd. + Ernst & Young (P) Ltd.
Babanpur, Killa and Sahoke Mini Hydroelectric Projects		At validation	Hydro	AMS-I.D	20.823	TÜV-SÜD	India	n.a.	Kotla hydro power Ltd
Boiler Fuel Conversion at Perstorp Chemicals India Private Limited, Vapi		At validation	Fossil fuel switch	AMS-III.B.	19.258	DNV	India	n.a.	LetsConserve
8.5 MW Biomass based Power Plant		At validation	Biomass energy	AMS-I.A.	80.000	SGS	India	n.a.	Local
KMS Power 6MW Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	12.951	DNV	India	n.a.	Local Project participant
Perpetual 7.5 MW Non-Conventional Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	16.052	DNV	India		Local Project participant
Satyamaharshi 6MW Biomass Power Project		At validation	Biomass energy	AMS-I.D.	16.488	DNV	India	n.a.	Local Project participant
Reduction in steam consumption in stripper reboilers through process modifications		At validation	EE, industry	AM0018	28.121	DNV	India	n.a.	M/s Reliance Industries Limited,

Biomass based independent power project at Malwa Power Private Limited, Mukatsar, Punjab		At validation	Biomass energy	AMS-I.D.	40.077	TÜV-SÜD	India	n.a.	Malwa Power P. Ltd
4.5 MW Biomass (Agricultural Residue) Based Power Generation Unit of M/s Matrix Power Pvt. Ltd. (MPPL)		At validation	Biomass energy	AMS-I.D.	21.773	TÜV-SÜD	India	n.a.	Matrix Power Pvt Ltd.
Maharastra, Kurkumbh 1,5 MW Bagasse based project		At validation	Biomass energy	AMS-I.C.-I.D.	31.491	RWTÜV	India	n.a.	Mitcon Consultancy Services Ltd
Waste heat recovery waste captive power project at Monnet		At validation	EE, industry	ACM4	118.383	SGS	India	n.a.	Monnet Ispat Ltd.
125 MW wind power project in Karnataka		At validation	Wind	ACM2	252.436	DNV	India	n.a.	MSPL
4.05 MW Grid connected Small Hydroelectric Project in Andhra Pradesh		At validation	Hydro	AMS-I.D.	8.489	DNV	India	n.a.	NATL Power Ltd
13.40 MW Chitradurga Wind Power Project		At validation	Wind	AMS-I.D.	31.570	DNV	India	n.a.	NEG Micon India
12 MW Bundled Wind Power Project in Tenkasi		At validation	Wind	AMS-I.D.	33.408	DNV	India	n.a.	NEG Micon India
21 MW Vankusawade Wind Project in India		At validation	Wind	ACM2	39.886	DNV	India	n.a.	NEG Micon India
25.70 MW Bundled Wind Power Project in Udumalpet		At validation	Wind	ACM2	77.256	DNV	India	n.a.	NEG Micon India
37.60 MW Bundled Wind Power Project in Nagercoil		At validation	Wind	ACM2	109.933	DNV	India	n.a.	NEG Micon India
Optimal utilization of clinker: Substitution of Clinker by Fly ash in Portland Pozzolana Cement blend at OCL, India		At validation	Cement	ACM5	12.390	DNV	India	n.a.	OCL India Ltd.
Optimal utilization of clinker: Substitution of Clinker by Slag in Portland Slag Cement blend at OCL, India		At validation	Cement	ACM5	56.775	DNV	India	n.a.	OCL India Ltd.
8 MW waste heat recovery captive power poject at OCL		At validation	EE, industry	ACM4	25.713	SGS	India	n.a.	OCL India Ltd.

20 MW Natural Gas based combined cycle package cogeneration power plant at Mayiladuthurai Taluk, Nagapattinam District, Tamil Nadu		At validation	Fossil fuel switch	AM14	69.458	DNV	India	n.a.	OPG Energy Private Limited
OSIL (10 MW) waste heat recovery captive power project		At validation	EE, industry	ACM4	32.481	TÜV-Rhein	India	n.a.	OSIL
Process Waste Gas utilization for power generation at Phillips Carbon Black Limited, Gujarat		At validation	Biomass energy	AM4	49.872	DNV	India	n.a.	PCBL
El Canadá (43 MW) Hydroelectric Project		At validation	Hydro	ACM2	118.527	DNV	India	Finland (PCF)	PCF
SDPL Methane Capture and Power generation project		At validation	Biogas	AMS-I.D.-III.D.	46.803	DNV	India	n.a.	Pricewaterhouse Coopers
Avoidance of Wastewater and On-site Energy Use Emissions and Renewable Energy Generation in IFB Agro Distillery unit		At validation	Biogas	AMS-I.C.-III.D-III.E.	60.091	DNV	India	n.a.	Pricewaterhouse Coopers
SIDPL Methane extraction and Power generation project		At validation	Biogas	AMS-I.D.-III.D.	72.560	DNV	India	n.a.	Pricewaterhouse Coopers
Efficient use of industrial biomass residue for thermal energy generation		At validation	Biomass energy	ACM6	6.797	DNV	India	n.a.	Pricewaterhouse Coopers
SDPL Methane Capture and Power generation project		At validation	Biomass energy	AMS-I.D.-III.E.	52.225	BVQI	India	n.a.	Pricewaterhouse Coopers
Blended Cement Project with Fly Ash – Lafarge India Private Limited		At validation	Cement	ACM5	40.840	DNV	India	n.a.	Pricewaterhouse Coopers
Blended cement with increased blend at Orient cement's Devapur and Jalgaon plants		At validation	Cement	ACM5	99.453	DNV	India	n.a.	Pricewaterhouse Coopers
Substitution of clinker with fly ash		At validation	Cement	ACM5	409.511	DNV	India	n.a.	Pricewaterhouse Coopers
Efficient utilization of waste heat and natural gas at the Dahej complex of GACL		At validation	EE, industry	AMS-II.D	4.631	DNV	India	n.a.	Pricewaterhouse Coopers

Efficiency improvement of Turbine Generator to reduce fossil fuel consumption in the Coal fired boiler system		At validation	EE, industry	AMS-II.B.	6.584	DNV	India	n.a	Pricewaterhouse Coopers
Supply side energy efficiency measures at Tata Chemicals Ltd, Mithapur		At validation	EE, industry	AMS-II.B.	9.493	BVQI	India	n.a.	Pricewaterhouse Coopers
Demand side energy efficiency programmes for specific technologies at ITC Bhadrachalam pulp and paper making facility		At validation	EE, industry	AMS-II.C	11.313	DNV	India	n.a.	Pricewaterhouse Coopers
Demand side energy efficiency improvement measures at Tata Chemicals Ltd, Mithapur		At validation	EE, industry	AMS-II.C	12.960	BVQI	India	n.a.	Pricewaterhouse Coopers
Energy efficiency and fuel switching measures in the caustic soda and sodium cyanide plant at Vadodara complex of GACL		At validation	EE, industry	AMS-II.C	13.055	DNV	India	n.a.	Pricewaterhouse Coopers
Demand side energy conservation and reduction measures at ITC Tribeni Unit		At validation	EE, industry	AMS-II.C	13.756	DNV	India	n.a	Pricewaterhouse Coopers
Demand side energy conservation and reduction measures at ITC Tribeni Unit		At validation	EE, industry	AMS-II.D	13.756	DNV	India	n.a.	Pricewaterhouse Coopers
Energy efficiency-Use of Turbine exhaust waste heat in waste heat recovery generator to produce steam at Samtel Color Ltd in Ghaziabad, Uttar Pradesh		At validation	EE, industry	AMS-II.D	14.295	DNV	India	n.a.	Pricewaterhouse Coopers
Demand side energy efficiency programmes for specific technologies at ITC Bhadrachalam pulp and paper making facility		At validation	EE, industry	AMS-II.D	21.352	DNV	India	n.a.	Pricewaterhouse Coopers
Optimization of steam consumption by applying retrofit measures in blow heat recovery system		At validation	EE, industry	AM18	39.284	DNV	India	n.a.	Pricewaterhouse Coopers

Optimization of steam consumption at the evaporator		At validation	EE, industry	AM18	49.914	DNV	India	n.a.	Pricewaterhouse Coopers
Kalvani Steels Limited project		At validation	EE, industry	ACM4	63.856	BVQI	India	n.a	Pricewaterhouse Coopers
Waste heat based 12MW Captive Power Project in non-recovery coke making in India		At validation	EE, industry	ACM4	72.586	DNV	India	n.a.	Pricewaterhouse Coopers
12MW Captive Power Project based on Waste Heat		At validation	EE, industry	ACM4	95.507	DNV	India	n.a	Pricewaterhouse Coopers
Use of waste gas use for electricity generation at Jindal Thermal Power Company Limited		At validation	EE, industry	ACM4	131.650	SGS	India	n.a.	Pricewaterhouse Coopers
Energy efficiency-Use of engine exhaust waste heat in waste heat recovery system to produce hot water at Samcor Glass Limited at Kota, Rajasthan		At validation	EE, industry	AMS-II.D	512.694	DNV	India	n.a.	Pricewaterhouse Coopers
Generation of Electricity through combustion of waste gases from Blast furnace and Corex units at JPL unit 1 at Torangallu in Karnataka		At validation	EE, industry	ACM4	723.415	SGS	India	n.a.	Pricewaterhouse Coopers
Improvement in energy consumption in a Hotel		At validation	**EE, service**	AMS-II.B.-II.E.	3.025	DNV	India	n.a.	Pricewaterhouse Coopers
Switching of fossil fuel from HSD to Natural gas replacing Diesel engines (1.6MWe*2) with Gas engines (1.5 MWe*2) at Samcor Glass Ltd at Kota, Rajasthan		At validation	Fossil fuel switch	AMS-III.B.	1.501	RWTÜV	India	n.a.	Pricewaterhouse Coopers
Switching of fossil fuel from HSD to Natural gas in a 5 MW gas turbine at Samtel Color Ltd at Ghaziabad, Uttar Pradesh		At validation	Fossil fuel switch	AMS-III.B.	5.995	RWTÜV	India	n.a.	Pricewaterhouse Coopers
Switching of fuel from Natural Gas to Hydrogen in CCU-II at Dahej complex of GACL		At validation	Fossil fuel switch	AMS-III.B.	8.954	DNV	India	n.a.	Pricewaterhouse Coopers

Switching of fuel from Naphtha to Natural gas at United Phosphorus Limited (UPL)		At validation	Fossil fuel switch	AM8	54.965	DNV	India	n.a.	Pricewaterhouse Coopers
United Phosphorus Limited Project		At validation	Fossil fuel switch	AM8	54.970	BVQI	India	n.a.	Pricewaterhouse Coopers
Switching of fuel from naphtha to natural gas in the captive power plant(CPP) at Dahej complex of Gujarat Alkalies and Chemicals		At validation	Fossil fuel switch	AM8	105.374	DNV	India	n.a.	Pricewaterhouse Coopers
Industrial fuel switching from Naphtha to Natural Gas without extension of capacity and lifetime of the facility at GIPCL, in Vadodara, Gujarat		At validation	Fossil fuel switch	AM8	107.365	DNV	India	n.a.	Pricewaterhouse Coopers
Switching of fuel from naphtha to natural gas at Essar Power Limited's 515 MW power plant in Hazira, Gujarat		At validation	Fossil fuel switch	AM8	360.000	SGS	India	n.a.	Pricewaterhouse Coopers
Generation of electricity from 1.2 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd at Satara, Maharashtra		At validation	Wind	AMS-I.D.	2.483	RWTÜV	India	n.a.	Pricewaterhouse Coopers
Generation of electricity from 2.5 MW capacity wind mills by Gujarat JHM Hotels Ltd. Ltd at Soda Mada, Rajasthan		At validation	Wind	AMS-I.D.	3.348	RWTÜV	India	n.a.	Pricewaterhouse Coopers
(3.6 MW) Wind Electricity Generation at Erakandurai, Dist		At validation	Wind	AMS-ID	7.310	BVQI	India	n.a.	Pricewaterhouse Coopers
Generation of electricity from 6.25 MW wind mills by Sun-n-Sand Hotels at Soda Mada, Rajasthan		At validation	Wind	AMS-I.D.	8.448	RWTÜV	India	n.a.	Pricewaterhouse Coopers
Generation of electricity from 4 MW capacity wind mills by Sun-n-Sand Hotel group at Supa, Maharashtra		At validation	Wind	AMS-I.D.	10.429	RWTÜV	India	n.a.	Pricewaterhouse Coopers
Grid-connected electricity generation from renewable sources at Kadavukallu, Andhra Pradesh, India		At validation	Wind	AMS-I.D.	17.011	SGS	India	n.a.	Pricewaterhouse Coopers

Grid-connected electricity generation from renewable sources at Supa, Taluka Parner using (20 MW) wind power		Reg. request	Wind	ACM2	35.784	BVQI	India	n.a.	Pricewaterhouse Coopers
Bundled wind power project (16,8 MW) in Chitradurga, Karnataka		At validation	Wind	ACM2	56.580	DNV	India	Netherlands (CAF)	Pricewaterhouse Coopers
Grid-connected electricity generation from renewable sources at Satara by M/s Bajaj Auto Ltd.using (45,2 MW) wind power		Reg. request	Wind	ACM2	85.880	BVQI	India	n.a.	Pricewaterhouse Coopers
Bundled Wind power project (58,2 MW) in Jaisalmer, Rajasthan		At validation	Wind	ACM2	145.099	DNV	India	Netherlands (CAF)	Pricewaterhouse Coopers
Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	30.940	DNV	India	n.a.	Project participant
Dolowal, Salar and Bhanubhura Mini Hydroelectric Project		At validation	Hydro	AMS-I.D	19.016	TÜV-SÜD	India	n.a.	Punjab hydro power Ltd
Biomass Plants using Agricultural Waste in Dindigul, Pattukkotai, Tamil Nadu India		At validation	Biomass energy	AMS-I.D.	31.139	DNV	India	n.a.	Quality Tonnes
Methane Capture and use as fuel at Rajaram Maize Products, Chattisgarh		At validation	Biogas	AMS-I.C.-III.D	6.030	DNV	India	n.a.	Rajaram Maize Products
Bagasse Based cogeneration power project of Rana Sugars Ltd, Amritsar District, Punjab		At validation	Biomass energy	AMS-I.D.	28.522	BVQI	India	n.a.	Rana Sugars Limited
Energy efficiency through steam optimisation projects at RIL, Hazira		Reg. request	EE, industry	AM18	15.382	BVQI	India	n.a.	RIL
10 MW Biomass (Rice Husk) Based Power Generation Unit of M/s Rukmani Power and Steel Ltd		At validation	Biomass energy	AMS-I.D.	66.694	SGS	India	n.a.	Rukmani Power & Steel Ltd.
Energy Efficiency Measures at Cement Production Plant in Central India		At validation	EE, industry	AMS-II.D	11.098	SGS	India	n.a.	Satna Cement Works
Low Grade Ore (LGO) beneficiation by Rajasthan State Mines & Minerals Limited		At validation	EE, industry	AMS-II.D	6.393	DNV	India	n.a.	Senergy Global Private Limited

Hebbakavadi canal based mini (2.95 MW) hydro project in Karnataka		At validation	Hydro	AMS-I.D.	9.531	DNV	India	n.a.	Senergy Global Private Limited
7.5 MW wind farm of REI Agro Ltd. at Soda-Mada in the state of Rajasthan, India		At validation	Wind	AMS-I.D.	10.749	BVQI	India	n.a.	Senergy Global Private Limited
10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan.		At validation	Wind	AMS-I.D.	14.588	BVQI	India	n.a.	Senergy Global Private Limited
14.85 MW Grid connected Wind farm project by Goyal MG Gases Pvt Ltd		At validation	Wind	AMS-ID	19.208	BVQI	India	n.a.	Senergy Global Private Limited
15.4 MW wind farm at Satara District, Maharashtra		At validation	Wind	ACM2	22.365	BVQI	India	n.a.	Senergy Global Private Limited
16.25 MW grid connected electricity generation project at Coimbatore in Tamil Nadu		At validation	Wind	ACM0002	30.460	BVQI	India	n.a.	Senergy Global Private Limited
15 MW Grid Connected Wind Energy Project, Sankaneri Village		At validation	Wind	AMS-ID	33.406	BVQI	India	Japan	Senergy Global Private Limited
19.27 MW Grid connected wind electricity generation project by KPR Mills		At validation	Wind	ACM2	45.586	BVQI	India	n.a.	Senergy Global Private Limited
R K Powergen 20 MW Grid Connected Renewable Biomass Power Project		At validation	Biomass energy	AM5	130.065	DNV	India	n.a.	Senergy Global Private Ltd.
Aleo Manali 3 MW Small Hydroelectric Project		At validation	Hydro	AMS-I.D	16.000	BVQI	India	n.a.	Senergy Global Private Ltd.
5 MW Wind Project at Baramsar and Soda Mada, Jaisalmer, Rajasthan		At validation	Wind	AMS-I.D.	5.805	BVQI	India	n.a.	Senergy Global Private Ltd.
11.35 MW Grid Connected Wind Electricity Project at Pohra (Rajasthan)		At validation	Wind	AMS-I.D.	14.692	BVQI	India	n.a.	Senergy Global Private Ltd.
14.8 MW small-scale grid connected wind power project in Jaisalmer state Rajasthan+A198		At validation	Wind	AMS-I.D.	15.980	BVQI	India	n.a.	Senergy Global Private Ltd.
6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamil Nadu Newsprint and Papers Ltd.		At validation	Wind	AMS-I.D.	108.726	DNV	India	n.a.	Senergy Global Private Ltd.

SESA-Waste Heat Recovery Based Power Generation		At validation	EE, industry	ACM4	127.630	BVQI	India	n.a.	SESA
Shalivahana Non-Conventional Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	20.852	DNV	India	n.a.	Shalivahana Projects Limited
6.0 MW Shimsha Mini Hydel Power project		At validation	Hydro	AMS-I.D.	18.310	BVQI	India	n.a.	Shimsha Mini Hydel Power Project
STL (11,25 MW) Wind Power Project,		At validation	Wind	AMS-I.D.	25.508	DNV	India	n.a.	Shiva Texyarn Ltd.
Biomass based captive cogeneration project		At validation	Biomass energy	AMS-I.C.	16.477	DNV	India	n.a.	Shri RenugaTextiles Ltd.
Shriram 6 MW Municipal Solid Waste Management cum Energy Generation Project, Vijayawada		At validation	Landfill gas	AMS-I.D.-III.E.	51.740	DNV	India	n.a.	Shriram Energy Systems Ltd.
SRGEL Non-Conventional Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	17.860	DNV	India	n.a.	Sree Rayalseema Green Energy Ltd.
Sri Balaji 6 MW Non-Conventional Renewable Sources Biomass Power Project		At validation	Biomass energy	AMS-I.D.	25.821	DNV	India	n.a.	Sri Balaji Biomas Power Ltd.
6 MW renewable energy project for a grid system		At validation	Biomass energy	AMS-I.D.	27.775	DNV	India	n.a.	Sri Indra Power Energies Limited
4 MW renewable energy project by Sri Kalyani Agro Products & Industries Ltd		At validation	Biomass energy	AMS-I.D.	21.252	DNV	India	n.a.	Sri Kalyani Agro Products & Industries Limited
Power generation from proposed 11.2 MW waste heat recovery boiler at the ISA smelt furnace, of the copper smelter, Sterlite Industries India Limited (SIIL), Tuticorin		At validation	EE, industry	ACM4	27.408	TÜV-Rhein	India	n.a.	Sterlites Industries India
Off gases utilisation from C – 03 washing tower in Primary Reformer as fuel		At validation	Biogas	AMS-III.D.	5.365	DNV	India	n.a.	Tata Chemical Ltd.
Installation of Additional Urea Trays in Urea Reactors (11/21-R01)		At validation	EE, industry	AMS-II.D	2.826	DNV	India	n.a.	TATA Chemical Ltd.
NG Preheating through E 204 coil		At validation	EE, industry	AMS-II.D	3.019	DNV	India	n.a.	TATA Chemical Ltd.

Replacement of BFW pump turbine (TP 601B) by Electric Motor		At validation	EE, industry	AMS-II.D	3.423	DNV	India	n.a.	TATA Chemical Ltd.
TSIL – (7,5 MW) Waste Heat Recovery Based Power Project		At validation	EE, industry	ACM4	30.161	DNV	India	n.a	Tata Sponge Iron Limited
India - Vertical Shaft Brick Kiln Cluster Project		At validation	EE, industry	AMS-II.D.	6.728	DNV	India	CDCF	Technology and Action for Rural Advancements
6.5 MW biomass based (rice husk) power generation by M/s Indian Acrylics Ltd.		At validation	Biomass energy	AMS-I.D.	17.194	TÜV-Rhein	India	n.a.	TERI
Cogeneration system based on biomass at M/s Indian Acrylics Ltd., District Sangarur, Punjab		At validation	Biomass energy	AMS-I.C.	50.704	TÜV-Rhein	India	n.a.	TERI
Recovery of methane from poultry litter		At validation	Agriculture	AMS-I.D.-III.D.	15.406	DNV	India	n.a.	The Energy and Resources Institute
Deoband Bagasse based Co-generation Power Project		At validation	Biomass energy	ACM6	91.155	TÜV-SÜD	India	n.a.	Triveni Engineering and Industries Ltd.
11.2 Wind Power project in Tamilnadu, by Amarjothi Group		At validation	Wind	AMS-I.D.	26.872	TÜV-SÜD	India	n.a.	URS Productively
Bundled (473 MW) Wind power project in Tamilnadu, India co-ordinated by Tamil Nadu Spinning Mills Association		At validation	Wind	ACM2	847.856	TÜV-SÜD	India	n.a.	URS Productively
Fuel substitution project at Usha Martin,Jamshedpur		At validation	EE, industry	AMS-III.B.	11.889	TÜV-Rhein	India	n.a.	Usha Martin Ltd (UML)
Usha Martin Limited - Waste Heat Recovery Based Captive Power Project activity		At validation	EE, industry	ACM4	54.491	TÜV-Rhein	India	n.a.	Usha Martin Ltd (UML)
Optimum utilization of clinker by production of Pozzolana Cement at Ultra Tech Cement Ltd. (UTCL), Andhra Pradesh		At validation	Cement	ACM5	31.369	DNV	India	n.a.	UTCL
6 MW Renewable energy generation project by Varam Power Projects in India		At validation	Biomass energy	AMS-ID	32.319	DNV	India	n.a.	Varam Power Projects (P) Limited
Optimal Utilization of Clinker in PPC manufacturing at Vasavadatta Cement		At validation	Cement	ACM5	22.681	DNV	India	n.a.	Vasavadatta Cement

VGL Waste heat 4 MW Captive power project at Raipur		At validation	EE, industry	ACM4	20.492	SGS	India	n.a.	VGL
Substitution of fossil fuel with alternative fuels like agricultural by-products and Municipal Solid Waste in the manufacturing of portland cement at Vikram Cement (VC), Neemuch		At validation	Biomass energy	ACM3	30.072	TÜV-Rhein	India	n.a.	Vicram Cement
Vajra and Chaskaman (2*3 MW) small hydro projects		At validation	Hydro	AMS-I.D	14.182	DNV	India	n.a.	Vindyachal Hydro Power Ltd.
Rice husk based renewable energy generation through gasification for rice mills		At validation	Biomass energy	AMS-I.B.	18.556	DNV	India	n.a.	WBREDA & RMOGA
WCPM Energy Efficiency Improvement Project		At validation	EE, industry	ACM-6	35.693	DNV	India	n.a.	WCPM
4.0 MW biomass based power gen. project at Vensa Biotek Ltd		At validation	Biomass energy	AMS-I.C.-I.D.	17.508	TÜV-SÜD	India	n.a.	Winrock International India
9 biomass gasifier based power plants totalling 2.25 MW		At validation	Biomass energy	AMS-I.A.+AMS-I.D.	12.339	DNV	India	n.a.	Women for Sustainable Development
5 Biomass gasifier based power plants totalling around 2 MW		At validation	Biomass energy	AMS-I.A.-I.D.	10.800	DNV	India	Finland	Women for Sustainable Develpment
Parpikala (3*3 MW) Mini Hydel Scheme		At validation	Hydro	AMS-I.D	39.600	DNV	India	Finland	Women for Sustainable Develpment
4.5 MW Industrial Waste based Grid-connected Power Project		At validation	Biomass energy	AMS-I.D.	20.466	DNV	India	n.a.	Zenith Corporate Services
4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.		At validation	Biomass energy	AMS-I.D.	21.128	DNV	India	n.a.	Zenith Corporate Services
20MW Samal Grid-connected Hydroelectric Project in Orissa		At validation	Hydro	ACM2	101.181	DNV	India	n.a.	Zenith Corporate Services
Middle and Lower Kolab (25 MW and 12 MW) Hydroelectric projects		At validation	Hydro	ACM2	105.362	TÜV-SÜD	India	n.a.	Zenith Corporate Services

APCL proposed 7.5 MW Mustard Crop Residue based Power Project	24-Oct-05	Registered	Biomass energy	AMS-I.D.	40.313	SGS	India	Austria	ACPL (Alwar Power Company)
RSCL cogeneration expansion project	15 Jan 06	Registered	Biomass energy	ACM0006	80.157	DNV	India	UK	Agrinergy
SRS Bagasse Cogeneration Project	23-Sep-05	Registered	Biomass energy	AMS-I.D.	22.000	KPMG	India	United Kingdom of Great Britain and Northern Ireland	Agrinergy
JCT Phagwara Small Scale Biomass Project	03 Dec 05	Registered	Biomass energy	AMS-I.D.	28.032	TÜV-SÜD	India	United Kingdom of Great Britain and Northern Ireland	Agrinergy
Grid connected bagasse based cogeneration project of Ugar Sugar Works Limited (USWL).	06-Mar-06	Registered	Biomass energy	ACM0006	63.934	BVQI	India		Care Sustainability
Clarion 12MW (Gross) Renewable Sources Biomass Power Project	06 Aug 05	Registered	Biomass energy	AMS-I.D.	26.300	TÜV-Rhein	India		Clarion Power Company Ltd.
DSL Biomass based Power Project at Pagara	23-Oct-05	Registered	Biomass energy	AMS-I.D.	17.424	TÜV-SÜD	India		Deepak Spinners Ltd.
Biomass in Rajasthan – Electricity generation from mustard crop residues	23-May-05	Registered	Biomass energy	AMS-I.D.	31.374	TÜV-SÜD	India	Netherlands	Ecofys
Nagda Hills Wind Energy Project (India)	19-Feb-06	Registered	Wind	AMS-I.D.	11.120	RWTÜV	India		Emergent Ventures Pvt. Ltd.
Energy efficiency through installation of modified CO2 removal system in Ammonia Plant	14 Jan 06	Registered	EE, industry	AM0018	24.449	TÜV-Rhein	India		Indo Gulf Fertilisers Limited (IGFL)
3.5 MW Rice Husk based Cogeneration Project at Nahar Spinning Mills Ltd.	11 Dec 05	Registered	Biomass energy	AMS-I.C.	22.267	DNV	India		Nahar Spinning Mills, Ludhiana, Punjab
3.5 MW Rice Husk based Cogeneration Project at Oswal Woolen Mills Ltd.	16 Dec 05	Registered	Biomass energy	AMS-I.C.	22.267	DNV	India		Oswal Woolen Mills, Ludhiana, Punjab
Project for GHG emission reduction by thermal oxidation of HFC 23 in Gujarat, India.	08/03/2005	Registered	HFCs	AM0001	3.000.000	SGS	India	Japan, Netherlands, United Kingdom of Great Britain and Northern Ireland	Pricewaterhouse Coopers

GHG emission reduction by thermal oxidation of HFC 23 at refrigerant (HCFC-22) manufacturing facility of SRF Ltd	24 Dec 05	Registered	HFCs	AM0001	3.833.566	DNV	India	Germany, United Kingdom of Great Britain and Northern Ireland	Pricewaterhouse Coopers
24 MW Biomass Based Renewable Electricity Generation & Consumption in Ropar, Punjab, India	17 Dec 05	Registered	Biomass energy	ACM0006	25.937	RWTÜV	India		Pricewaterhouse Coopers
18 MW Biomass Power Project in Tamilnadu, India	24 Dec 05	Registered	Biomass energy	ACM0006	66.821	DNV	India	Sweden	Raghu Rama Ren. Energy ltd.
Rithwik 6 MW Renewable Sources Biomass Power Project	02-Mar-06	Registered	Biomass energy	AMS-I.D.	13.370	TÜV-Rhein	India		Rithwik Energy Systems Limited.
3.75 MW Small Scale Grid Connected “Demonstration Wind Farm Project” at Chalkewadi, District Satara, State Mahararashtra, India.	25-Feb-06	Registered	Wind	AMS-I.D.	6.890	BVQI	India		Senergy Global Private Ltd.
Rice Husk based Cogeneration project at Shree Bhawani Paper Mills Limited (SBPML), Rae Bareli, Uttar Pradesh, India	03-Feb-06	Registered	Biomass energy	AMS-I.D.	14.744	TÜV-SÜD	India		Shree Bawani Paper Mills Ltd.
Optimal Utilization of Clinker project at Shree Cement Limited (SCL), Beawar, Rajasthan	20-Feb-06	Registered	Cement	ACM0005	68.014	SGS	India		Shree Cement Ltd.
20 MW Kabini Hydro Electric Power Project, SKPCL, India	25 Dec 05	Registered	Hydro	ACM0002	44.968	SGS	India		SKPCL
Methane Extraction and Fuel Conservation Project at Tamil Nadu Newsprint and Paper Limited (TNPL), Kagathipuram, Karur District, Tamil Nadu	14 Jan 06	Registered	Biogas	AM0013	35.860	DNV	India		Tamil Nadu Newsprint and Papers Limited (TNPL)
Rice Husk Based Power Project	09-Feb-06	Registered	Biomass energy	AMS-I.D.	21.076	SGS	India		Vandana Vidhyut Ltd.
Bagepalli CDM Biogas Programme	10 Dec 05	Registered	Biogas	AMS-I.C.	19.553	DNV	India		Women for Sustainable Development

5 MW Dehar Grid-connected SHP in Himachal Pradesh, India	18-Jul-05	Registered	Hydro	AMS-I.D.	16.374	DNV	India		Zenith Corporate Services
4.5 MW Maujhi Grid-connected SHP in Himachal Pradesh, India	06-Nov-05	Registered	Hydro	AMS-I.D.	13.168	DNV	India		Zenith Corporate Services
6MW Somanamaradi grid connected SHP in Karnataka, India	11-Feb-06	Registered	Hydro	AMS-I.D.	16.977	DNV	India		Zenith Corporate Services
10.25MW Chunchi Doddi Grid-connected SHP in Karnataka, India	16 Dec 05	Registered	Hydro	AMS-I.D.	25.490	TÜV-SÜD	India		Zenith Corporate Services
Methane Capture and Combustion from Swine Manure Treatment Project		At validation	Agriculture	AM6	169.369	DNV	Indonesia	n.a.	Climate Experts Ltd.
Bio-Diesel Fuel Production Project in Indonesia		At validation	**Biomass energy**	AMS-III.B.	5.459	JCI	Indonesia	Japan	Pacific Consultants International
Indocement Alternative Fuels Project		At validation	EE, industry	ACM3	87.803	DNV	Indonesia	PCF	PCF
Indocement Blended Cement Project		At validation	Cement	ACM5	526.047	DNV	Indonesia	PCF	PCF + DP Solusi
CDM SOLAR COOKER PROJECT Aceh 1	06-Feb-06	Registered	Solar	AMS-I.C.	3.500	TÜV-SÜD	Indonesia	Germany	Klimaschutz e.V.
Hiriya Landfill Project	06-Feb-06	Registered	Landfill gas	ACM0001	93.452	DNV	Israel	United Kingdom of Great Britain and Northern Ireland	EcoSecurities + EcoTraders (Israel)
Akouédo Landfill Rehabilitation and Electricity Generation Project		At validation	Landfill gas	ACM1 + ACM2	943.546	DNV	Ivory Coast	UK	EcoSecurities Ltd
Wigton wind farm project (20,7 MW) (NM12)		Reg. request	Wind	ACM2	52.540	DNV	Jamaica	Netherlands (CAF)	EcoSecurities
1 MW Donghae PV(photovoltaic) Power Plant		At validation	Solar	AMS-I.D.	680	BVQI	Korea	n.a.	Ecoeye co, ltd.
Switching of fuel from Low Sulphur Waxy Residue fuel oil to natural gas		At validation	Fossil fuel switch	AM8	65.288	DNV	Korea	n.a.	Ecofrontier
Kunak 14 MW palm oil solid waste power plant		Withdrawn	Biomass energy	AMS-I.D.	51.200	DNV	Malaysia	n.a.	Danish Energy Managament
Sahabat Empty Fruit Bunch 7,5 MW Biomass Project		At validation	Biomass energy	AMS-I.C.	54.915	SGS	Malaysia	n.a.	EcoSecurities

Krubong Melaka Landfill Gas Collection & Energy Recovery Project		At validation	Landfill gas	AM3 + ACM1	60.000	JCI	Malaysia	Japan	Kajima Corporation
Replacement of fossil fuel by palm kernel shell biomass in the production of Portland Cement (NM40)		Reg. request	Biomass energy	ACM3	62.011	TÜV-Rhein	Malaysia	n.a.	Lafarge Malayan Cement
Mbumibiopower biomass power project (biogas) (NM39)		At validation	Biomass energy	AMS-I.D.	59.000	DNV	Malaysia	Japan	Mitsubishi Securities
Factory energy-efficiency improvement project in Malaysia (MAPREC, PRDM, PSCDDM, PAVCJM,PCM)		At validation	EE, industry	AMS-II.D	1.866	JQA	Malaysia	Japan	Pacific Consultants Co., Ltd.
Factory energy-efficiency improvement project in Malaysia (MTPDM)		At validation	EE, industry	AMS-II.D	6.928	JQA	Malaysia	Japan	Pacific Consultants Co., Ltd.
Factory energy-efficiency improvement project in Malaysia (PHAAM, PCOM (PJ), PCOM (SA), PEDMA, MEDEM)		At validation	EE, industry	AMS-II.D	7.336	JQA	Malaysia	Japan	Pacific Consultants Co., Ltd.
Biomass Energy Plant-Lumut.	24-Feb-06	Registered	Biomass energy	AMS-I.C.	32.545	DNV	Malaysia	Denmark	Danish Energy Management A/S
AWMS GHG Mitigation Project, MX05-B-17, Jalisco, México		At validation	Agriculture	AM16	49.866	TÜV-SÜD	Mexico	n.a.	AgCert
AWMS GHG Mitigation Project, MX05-B-16, Sinaloa and Sonora, México		At validation	Agriculture	AM16	136.647	TÜV-SÜD	Mexico	n.a.	AgCert
AWMS GHG Mitigation Project, MX05-B-15, Sonora		At validation	Agriculture	AM16	63.656	TÜV-SÜD	Mexico	n.a.	AgCert
AWMS GHG Mitigation Project, MX05-B-13, Sonora		Reg. request	Agriculture	AM16	86.103	TÜV-SÜD	Mexico	n.a.	AgCert
AWMS GHG Mitigation Project, MX05-B-14, Jalisco		Reg. request	Agriculture	AM16	97.406	TÜV-SÜD	Mexico	n.a.	AgCert
Fuel switch and capacity expansion in grid connected electricity generation		At validation	Biomass energy	ACM6	109.856	DNV	Mexico	n.a.	Ecoinvest
A joint venture project of cogeneration of el. an hot water using biogas fom wastewater, Conservas la Costeña		At validation	Biogas	AMS-I.C.	4.608	DNV	Mexico	n.a.	Econergy
Lazaro Energy Efficiency Project		At validation	EE, industry	AMS-II.D	6.537	DNV	Mexico	UK, Switzerland	EcoSecurities B. V.

ElDorado Energy Efficiency Project		At validation	EE, industry	AMS-II.D	11.828	DNV	Mexico	UK, Switzerland	EcoSecurities B. V.
Quimobásicos HFC Recovery and Decomposition Project		Reg. request	HFCs	AM2	3.747.645	DNV	Mexico	n.a.	MGM International
Quimobásicos HFC Recovery and Decomposition Project		Reg. request	HFCs	AM1	3.747.625	DNV	Mexico	Netherlands	MGM Internattional
Trojes 8 MW hydro project		At validation	Hydro	AMS-I.D.	22.562	DNV	Mexico	PCF	PCF
Benito Juarez 15 MW hydro project		At validation	Hydro	AMS-I.D.	40.679	DNV	Mexico	PCF	PCF
Chilatán 15 MW hydro project		At validation	Hydro	AMS-I.D.	51.794	DNV	Mexico	PCF	PCF
El Gallo 30 MW hydro project (NM23)		At validation	Hydro	AM5	70.785	DNV	Mexico	PCF	PCF
AWMS GHG Mitigation Project, MX05-B-07, Sonora, México	06-Feb-06	Registered	Agriculture	AM0016	120.925	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-09, Nuevo León, México	10-Feb-06	Registered	Agriculture	AM0016	20.984	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-05, Jalisco, México	10-Feb-06	Registered	Agriculture	AM0016	83.010	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-06, Jalisco, México	10-Feb-06	Registered	Agriculture	AM0016	147.953	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-10, Aguascalientes, Guanajuato and Queretaro, México	03-Mar-06	Registered	Agriculture	AM0016	27.812	TÜV-SÜD	Mexico	936	AgCert
AWMS GHG Mitigation Project, MX05-B-08, Sonora, México	03-Mar-06	Registered	Agriculture	AM0016	51.408	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-12, Sonora, México	03-Mar-06	Registered	Agriculture	AM0016	63.562	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-04, Jalisco, México	03-Mar-06	Registered	Agriculture	AM0016	73.927	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-02, Sonora, México	05 Dec 05	Registered	Agriculture	AM0016	121.689	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project MX05-B-03, Sonora, Mexico	08 Jan 06	Registered	Agriculture	AM0016	127.914	TÜV-SÜD	Mexico		AgCert
AWMS GHG Mitigation Project, MX05-B-01, México	10 Dec 05	Registered	Agriculture	AM0016	147.380	TÜV-SÜD	Mexico		AgCert

AWMS Methane Recovery Project MX05-S-11, Baja California, México	09 Jan 06	Registered	Agriculture	AMS-III.D.	21.601	TÜV-SÜD	Mexico		AgCert
BII NEE STIPA	25 Dec 05	Registered	Wind	ACM0002	309.979	AENOR	Mexico	Spain	Gamesa Energía
Landfill Gas capture and flaring at Chisinau Landfill, Moldova (NM38)		At validation	Landfill gas	AM11	61.200	DNV	Moldova	Denmark (EPA)	COWI
A retrofit programme for decentralised heating stations in Mongolia		At validation	Energy distribution	AMS-II.B	194.000	RWTÜV	Mongolia	n.a.	PROKON Nord
Photovoltaic kits to light up rural households (7,7 MW)		At validation	Solar	AMS-I.A.	39.539	TÜV-SÜD	Morocco	n.a.	Gerere & SCET Maroc
Tétouan Wind Farm Project for Lafarge Cement Plant	23-Sep-05	Registered	Wind	AMS-I.D.	28.651	DNV	Morocco	France	ADS Maroc
Essaouira wind power project	29-Oct-05	Registered	Wind	ACM0002	156.026	DNV	Morocco		EcoSecurities
Jorf Lasfar heat recovery enhancement for power project		At validation	EE, industry	ACM4	94.202	DNV	Morroco	n.a.	EcoSecurities B. V.
Biogas Support Program - Nepal (BSP-Nepal) Activity-2	27 Dec 05	Registered	Biogas	AMS-I.C.	46.893	DNV	Nepal	CDCF	EcoSecurities + Winrock Int. Nepal
Biogas Support Program - Nepal (BSP-Nepal) Activity-1	27 Dec 05	Registered	Biogas	AMS-I.C.	46.990	DNV	Nepal	Netherlands	EcoSecurities + Winrock Int. Nepal
Vinasse Anaerobic Treatment Project		At validation	Biogas	AM13	62.197	TÜV-SÜD	Nicaragua	n.a.	Econergy
Monte Rosa Bagasse Cogeneration Project (MRBCP)		At validation	Biomass energy	AM15	54.042	TÜV-SÜD	Nicaragua	n.a.	Econergy
San Jacinto Tizate (66 MWe) geothermal project		Reg. request	Geothermal	ACM2	310.600	DNV	Nicaragua	n.a.	EcoSecurities
The Ovade Ogharefe Gas Capture and Processing Project		At validation	Fugitive	AM9	2.531.700	DNV	Nigeria	n.a.	ECON Carbon
Recovery of associated gas that would otherwise be flared		At validation	Fugitive	AM10	1.511.961	DNV	Nigeria	Italy	NAOC + Eni S.p.A. Div. E&P
Concepción (10 MW) Hydroelectric Project		At validation	Hydro	AMS-I.D.	38.062	SGS	Panama	n.a.	Istmus Hydropower Corp.
LOS ALGARROBOS HYDROELECTRIC PROJECT (PANAMA)	01-Oct-05	Registered	Hydro	AMS-I.D.	37.213	AENOR	Panama	Spain	Union Fenosa

PROJECT FOR THE REFURBISHMENT AND UPGRADING OF MACHO DE MONTE HYDROPOWER PLANT (PANAMA).	24 Dec 05	Registered	Hydro	AMS-I.D.	10.963	SGS	Panama	Spain	Union Fenosa
PROJECT FOR THE REFURBISHMENT AND UPGRADING OF DOLEGA HYDROPOWER PLANT (PANAMA).	24 Dec 05	Registered	Hydro	AMS-I.D.	12.167	SGS	Panama	Spain	Union Fenosa
Lihir geothermal (33+22 MW) power project (NM53)		At validation	**Geothermal**	ACM2	286.538	DNV	Papua New Guinea	n.a.	EcoSecurities
Paramonga CDM bagasse boiler projects (from fuel oil)		Withdrawn	Biomass energy	AMS-I.C.	87.339	DNV	Peru	UK	CAEMA
Huaycoloro landfill gas capture and combustion		At validation	Landfill gas	ACM1+AMS-I.D.	284.000	SGS	Peru	Netherlands (NCDF)	NCDF-WB
Quitaracsa I (114,4 MW)		At validation	Hydro	ACM2	249.463	TÜV-SÜD	Peru	n.a.	Quitaracsa S.A-Empresa de Generación Eléctrica
Tarucani I (49 MW)		At validation	Hydro	ACM2	153.957	TÜV-SÜD	Peru	n.a.	Tarucani Generating Company S.A
Santa Rosa	23-Oct-05	Registered	Hydro	AMS-I.D.	13.845	SGS	Peru	Italy (CDCF)	CDCF
Poechos I Project	14-Nov-05	Registered	Hydro	ACM0002	31.463	TÜV-SÜD	Peru	Netherlands (NCDF)	WB
Paramount Integrated methane recovery and electricity generation		At validation	**Biogas**	AMS-I.A.-III.D.	7.635	DNV	Philippines	n.a.	2E Carbon Access
Jhon & Jhon Methane Recovery		At validation	Agriculture	AMS-III.D.	1.420	DNV	Philippines	UK	2E Carbon Access/PhilBIO
D&C Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	1.494	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
Red Dragon Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	1.494	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
Superior Methane Recovery		At validation	Agriculture	AMS-III.D.	2.209	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Red Dragon (II) Methane Recovery+A36		At validation	Agriculture	AMS-III.D.	2.954	DNV	Philippines	UK	2E Carbon Access/PhilBIO

Santo Domingo Methane Recovery		At validation	Agriculture	AMS-III.D.	2.997	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Gold Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	3.255	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
Goldi Lion Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	3.255	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
Unirich Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	3.255	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
Gaya Lim Methane Recovery		At validation	Agriculture	AMS-III.D.	3.304	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Rocky Farm Methane Recovery		At validation	Agriculture	AMS-III.D.	3.397	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Bondoc Reality Methane Recovery		At validation	Agriculture	AMS-III.D.	3.471	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Lanatan Methane Recovery		At validation	Agriculture	AMS-III.D.	3.787	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Joliza Methane Recovery		At validation	Agriculture	AMS-III.D.	3.857	DNV	Philippines	UK	2E Carbon Access/PhilBIO
Everlastin & Sentra Farm Corporation Methane Recovery and Electricity Generation		At validation	Agriculture	AMS-III.D.	4.086	DNV	Philippines	n.a.	2E Carbon Access/PhilBIO
PNOC Exploration Company Payatas Landfill Gas to Energy Project in the Philippines		At validation	Landfill gas	AMS-I.D.+ACM1	35.800	TÜV-Rhein	Philippines	Japan	Mitsubishi Securities
20 MW Nasulo Geothermal Project		At validation	Geothermal	ACM2	81.009	DNV	Philippines	n.a.	WB
NorthWind (33 MW) Bangui Bay Project		At validation	Wind	ACM2	51.855	DNV	Philippines	PCF	WB
Burgos 40 MW Wind Power Project		At validation	Wind	ACM2	62.872	DNV	Philippines	n.a.	WB
HFC Decomposition Project in Ulsan	24/03/2005	Registered	HFCs	AM0001	1.400.000	JQA	Republic of Korea	United Kingdom of Great Britain and Northern Ireland , Japan	Local
N2O Emission Reduction in Onsan, Republic of Korea	27-Nov-05	Registered	N2O	AM0021	9.150.000	DNV	Republic of Korea	Japan, France	Rhodia + Axel Michaelowa

Moldova Biomass Heating in Rural Communities (Project Design Document No. 1)	20 Jan 06	Registered		AMS-I.C. , AMS-II.E., AMS-III.B.	17.888	DNV	Republic of Moldova	Netherlands (CDCF)	WB
Moldova Biomass Heating in Rural Communities (Project Design Document No. 2)	20 Jan 06	Registered		AMS-I.C. , AMS-II.E., AMS-III.B.	17.888	DNV	Republic of Moldova	Netherlands (CDCF)	WB
Moldova Energy Conservation and Greenhouse Gases Emissions Reduction	29 Jan 06	Registered	EE, service	AMS-II.E., AMS-III.B.	11.567	DNV	Republic of Moldova	Netherlands (CDCF)	WB
The Gangwon Wind Park Project (14*2+35*2=98 MW)		Reg. request	Wind	ACM2	130.647	KEMCO	S. Korea	Japan	Ecoeye
Korea Water Resources Corporation (KOWACO) small-scale hydroelectric power plants project (4,74 MW)		At validation	Hydro	AMS-I.D	19.526	DNV	S. Korea	n.a.	Ecoeye co, ltd.
Sihwa (254 MW) Tidal Power Plant CDM project		At validation	**Tidal**	ACM2	310.593	DNV	S. Korea	n.a.	Ecoeye co., ltd.
Youngduk (39,6 MW) Wind Park Project		At validation	Wind	ACM2	60.071	KFG	S. Korea	n.a.	Ecoeye Co.,Ltd.
PetroSA biogas to energy		At validation	Biogas	AMS-I.D	29.310	PwC	South Africa	n.a.	CDM Africa Climate Solutions (Pty) Ltd,
Rosslyn Brewery Fuel-Switching Project		At validation	Fossil fuel switch	AM8	96.000	DNV	South Africa	n.a.	MGM Internattional
Mondi Richards Bay Biomass Project		At validation	Biomass energy	AMS-I.C.-III.E.	121.700	SGS	South Africa	n.a.	SouthSouthNorth
Bethlehem (4 MW) hydroelectric project South Africa		At validation	Hydro	AMS-I.D	25.737	SGS	South Africa	CDCF	Sustainable Transactions ss.
Durban Landfill-gas-to-electricity project – Mariannhill and La Mercy Landfills		At validation	Landfill gas	AM10	69.000	TÜV-SÜD	South Africa	PCF	WB-Carbon Finance Business
Kuyasa low-cost urban housing energy upgrade project, Khayelitsha (Cape Town; South Africa)	27 Aug 05	Registered	EE, households	AMS-I.C., AMS-II.C., AMS-II.E.	6.580	DNV	South Africa		AGAMA Energy
Lawley Fuel Switch Project	06-Mar-06	Registered	Fossil fuel switch	AM0008	19.159	DNV	South Africa	Netherlands	NuPlanet BV
Sanquhar and Delta Small (1.6 MW) Hydro Power Projects		At validation	Hydro	AMS-I.D.	6.999	DNV	Sri Lanka	n.a.	Hydro Power Services (Pvt) Ltd

Small Hydropower Projects at Alupola and Badulu Oya.	30-Oct-05	Registered	Hydro	AMS-I.D.	25.109	SGS	Sri Lanka	Netherlands (IFC)	IRG
Magal Ganga Small Hydropower Project	30-Oct-05	Registered	Hydro	AMS-I.D.	34.179	SGS	Sri Lanka	Netherlands (IFC)	IRG
Hapugastenne and Hulu Ganga Small Hydropower Projects.	30-Oct-05	Registered	Hydro	AMS-I.D.	44.842	SGS	Sri Lanka	Netherlands	IRG
Kitroongruang Biogas Energy Project		At validation	Biogas	AM22	49.488	DNV	Thailand	UK	EcoSecurities
Jiratpattana Biogas Energy Project		At validation	Biogas	AM22	72.015	DNV	Thailand	UK	EcoSecurities
Chao Khun Agro Biogas Energy Project		At validation	Biogas	AM22	109.341	DNV	Thailand	UK	EcoSecurities
Korat waste to energy project, Thailand (NM41)		At validation	Biogas	AM22	323.050	KPMG	Thailand	Netherlands (IFC)	EcoSecurities
Chumporn applied biogas technology for advanced waste water management		At validation	Biogas	AM13	45.749	TÜV-SÜD	Thailand	Germany (GTZ)	ENVIMA Co Ltd & Perspectives GmbH
Ratchaburi farms biogas project		At validation	Biogas	AMS-I.C.-I.D.-III.D.	100.380	DNV	Thailand	Denmark	ERM UK Ltd.
Dan Chang Bio-Energy Cogeneration Project (DCBC)		At validation	Biomass energy	ACM6	92.177	DNV	Thailand	Denmark	ERM-Siam Co, Ltd
Phu Khieo Bio-Energy Cogeneration Project (PKBC)		At validation	Biomass energy	ACM6	99.030	DNV	Thailand	Denmark	ERM-Siam Co, Ltd
Surat Thani (9,9 MW) Biomass Power Generation Project		At validation	Biomass energy	AMS-I.D.-III.E.	196.314	DNV	Thailand	Japan	Mitsubishi Securities
Jaroensompong Corporation Rachathewa Landfill Gas to Energy Project		At validation	Landfill gas	ACM1	99.139	DNV	Thailand	Japan	Mitsubishi Securities
Wastewater Treatment with Biogas System (AFFR)		At validation	Biogas	AM13	20.449	DNV	Thailand	Denmark	TMB Bank Public Company Limited
Wastewater Treatment with Biogas System (UASB)		At validation	Biogas	AM13	21.733	DNV	Thailand	Denmark	TMB Bank Public Company Limited
West Nile Electrification Project		At validation	Hydro	AMS-I.D-II.B.	29.385	SGS	Uganda	n.a.	PCF
Partial substitution of fossil fuels with biomass in cement manufacture-Uruguay		At validation	EE, industry	ACM3	5.764	DNV	Uruguay	n.a.	Pricewaterhouse Coopers
Rang Dong Oil Field Associated Gas Recovery and Utilization Project	04-Feb-06	Registered	Fugitive	AM0009	677.000	DNV	Viet Nam	Japan, UK	Japan Vietnam Petroleum

Anaerobic Wastewater Treatment and Energy Recovery Project at Rubber Producing Company in Vietnam		At validation	Biogas	AMS-I.A.-III.D.	9.770	JCI	Vietnam	Japan	Nippon Mining and Research Co. Ltd.
Ngoi Duong (10.8 MW) Hydro Power Project		At validation	Hydro	AMS-I.D.	30.137	TÜV-Rhein	Vietnam	n.a.	Research Center for Energy & Env.
Song Con (57 MW) Hydro Power Project		At validation	Hydro	AMS-I.D.	112.711	TÜV-Rhein	Vietnam	n.a.	Research Center for Energy & Env.

Source: Pipeline produced by Jørgen Fenhann, UNEP Risø Centre January, 2006. And updated by Lorenzo Eguren based in information of the UNFCCC. March 15, 2006.