The CDM Executive Board
UNFCCC Secretariat
CDMinfo@unfccc.int

February 14, 2008

Re Request for review of the request for registration for the CDM project activity "CEMEX Costa Rica: Use of biomass residues in Colorado cement plant" (1405)

Dear CDM Executive Board Members,

SGS has been informed that the request for registration for the CDM project "CEMEX Costa Rica: Use of biomass residues in Colorado cement plant" (1405) is under consideration for review because three requests for review have been received from members of the Board.

The requests for review are based on the same reasons outlined below. SGS and project proponent's response to the issues raised by the requests for review is as below:

Requests for Review:

1. Further clarification is required on how the investment analysis has been validated as the PDD and Validation Report mention the project IRR as -5.73%, while in the spreadsheet submitted, it has been calculated as 18.5%.

SGS reviewed the investment analysis file and found that this inconsistency is due to an inadvertent mistake in formula/data input contained in a cell, specifically the cell I26 of the "Investment" excel worksheet of the file (marked with the correct value in a red box in the table below). The formula that was supposed to be there adding cells C24 to I24 and resulting in a value of 986,901.05 USD (total investment) is not included. As a consequence the total investment value shown in cell F3 of the worksheet "Basic Assumptions and Results" is zero, so the IRR turns to be 18.5% instead of the real value, -5.73%. When this mistake is corrected in the excel file, the IRR vale of -5.73% can be confirmed[1].

[1] The spreadsheet calculation is provided to the EB – Reference 01

PROJECT COST OF BIOMASS TRANSPORT - COSTA RICA

investment details	Equipment Cost	Metal work	Civil work	Roofs	Admin. & Engineering	Equipment assemble	Others
Warehouse construction - 1000m2 (25x30m)		110,659.00	135,000.00	50,061.00	50,000.00	-	
Process Engineering					3,500.00	-	
Acquisition, Transport, Introduction expenses & electromechanic assemble of the following equipments:						-	
3 underground hoppers for biomass feeding (inside the warehouse). The dimension of each hopper is 6 x 5 meters.		6,000.00	4,000.00		2,000.00	-	
3 conveyors (1 for each underground hopper) with capacity of 10 Ton/hr.	22,800.00					-	
1 conveyor with capacity of 15 Ton/hr	10,500.00					-	
1 elevator with capacity of 15Ton/hr	14,650.00					-	
1 hopper to feed the supply Silo with capacity of 15TM		6,000.00	2,000.00		2,400.00	-	
1 Neumatic system to transport the biomass to the supply silo with capacity of Ton/hr	87,520.00					-	
Pipeline to supply the biomass to the Silo (8¨)	22,923.00					-	
1 supply Silo with capacity for 370m2	42,500.00					-	
1 filter for the supply Silo (included in the neumatic system)						-	
Gravity dispenser of biomass	46,150.00					-	
Screen Machinge (CRIBA)	19,550.00					-	
1 Multiple feeder at the Silo exit	8,430.00					-	
Freight & clearance 35%	96,258.05					-	
Mechanical assemble of the equpments						84,000.00	
Costs of pipes, iron works, etc. for the assemble of the equipments.						25,000.00	
Electrical assemble of the equipments						45,000.00	
Other expenses 10%							90,000.00
Sub-Total	***371,281.05***	***122,659.00***	***141,000.00***	***50,061.00***	***57,900.00***	***154,000.00***	***90,000.00***

TOTAL:	**986,901.05**

2. The DOE shall clarify how it has checked and validated the investment analysis.

When the Validation Site Visit was carried out, the SGS Validation Team interviewed the CEMEX Project Manager, reviewed the documents on investment budget, and also confirmed that this was in accordance with the layout designs plans and quotations received for the different stages of construction and equipments.

3. Further clarification is required on how the benchmark has been validated.

The IRR benchmark of 10.1% was fixed by CEMEX Costa Rica Capital Markets & Planning Department. This rate is calculated as the discount rate factor (DRF) which is the minimum expected rate of return that CEMEX Costa Rica requires in order to approve funds into a particular investment.

The following formula was used to calculate CEMEX Costa Rica DFR[2]. (This calculation is annually updated)

$$DRF = Kd*(1-T) * D/(D+E) + Ke * E/(D+E)$$

Where:

Kd	= Pretax market expected cost of debt
T	= Statutory tax rate for the entity being valued
D	= Market value of interest-bearing debt
D + E	= Total capital structure. Market value of debt + equity
Ke	= Cost of equity. Return inquired by investors
E	= The market value of invested capital (equity)

4. Further clarification is required on the start date of the project activity and how the prior consideration of the CDM has been validated.

January 2008 was defined in the PDD as the project starting date since the validation discussion with the DOE began in May 2007 and it was estimated that 7 months were enough to finish all required procedures towards the Project Registration at the UNFCCC. As per the guidalines for completion of the PDD, the start date is defined as the date when the constrauction starts/real action began. In this

[2] A detailed document of the DRF calculation is provided to the EB – Reference 02.

case, the start date of the project activity will depend on the registration date because the project has not been implemented yet and the required equipment and infrastructure has not been installed because the CAPEX will only be approved in case the CDM registration is obtained.

The evolution of the different stages involved in the process was not as expected but occurred as follows:

- Period for Comments at UNFCCC website: 17 May 07 - 15 Jun 07
- On site validation: 31 May 07 – 1 Jun 07
- Technical review by SGS: August 07 – 20 Oct 07
- Request for Registration made by SGS: 26 Oct 07.
- Proof of payment processed by the UNFCCC: 01 Nov 07.
- Official confirmation of the Request for Registration by the UNFCCC: 6 December 2007

However, since the project implementation depends directly on obtaining its approval as a CDM, it was clearly stated in the PDD that : *" The project activity starting date for the crediting period may change depending on the registration date at UNFCCC, the crediting period for the project will not commence prior to the date of registration."*

With respect to the prior consideration of the CDM, it is important to consider that the possibility of developing a project of biomass as fuel in the cement kiln under a CDM scheme was detected by CEMEX Costa Rica during the "CEMEX Technology Council" (CTC), which is an annual meeting of all CEMEX Operation Directors. In the 2003 CTC a conference named "CLIMATE CHANGE. Implications for CEMEX" [3] was presented to all countries representatives. The objective was to inform the audience about the implications of Kyoto Protocol, the CDM Projects, and the Emission Trading System in the company.

As a result of the CTC 2003 meeting CEMEX Costa Rica Operations Department decided to start the evaluation of biomass residues utilization as fuel for cement production taking into account that CDM benefits were necessary for the project success and approval. However because of the novelty of the Climate Change and Global Warming effects, the lack of experience about the CDM procedures and methodologies and that the burn of biomass residues in cement kilns is not a common practice in the country, CEMEX Costa Rica Operations Department started a non sustainable trial period in 2004 for the research and development of the required basic knowledge for the project submission under the Clean Development Mechanism assuming the risks and costs originated.

[3] Detailed documentation about this meeting is provided – Reference 03

The prior consideration of the CDM was also validated by SGS representative through a communication between the Central Planning department and CEMEX Costa Rica Country Manager stating that the investment required for the project "CEMEX Costa Rica: Use of biomass residues in Colorado cement Plant" will be approved only if the CDM registration is obtained. Currently the project has not been implemented since, as already commented, the CER's income is necessary to overcome the project activity barriers.

5. Further clarification is required on how the baseline has been established and validated.

The project activity "CEMEX Costa Rica: Use of biomass residues in Colorado cement Plant" was evaluated as a potential CDM project for the first time in 2004. From that year up to May 2007 CEMEX Costa Rica worked in determining the biomass availability in the country, in making contracts to secure the biomass sources, in estimating the total investment required and in developing trials for biomass utilization in the cement kiln in order to evaluate the variables and factors affected in the cement production process due to the consumption of rice husk residues.

The project activity baseline was defined as the fuel consumption during August 2003 – July 2004. The main reason of this definition is that the operational data for the following years was not representative of the baseline since CEMEX Costa Rica, having as the incentive the CDM scheme, performed several trials for biomass utilization in the cement kiln within a non sustainable period.

During the site visit SGS validated the baseline through all the information generated during the trial period, and it was concluded that the fuels consumption from August 2004 up to 2007 is not representative of the normal kiln operation due to the biomass utilization trial period, additionally it was also confirmed that the required investment has not been made and that the CER's benefits are required to alleviate the economical and technical barriers faced by the project activity.

The following timeline describes all the different tests that were carried out in Costa Rica cement plant to determine the more optimist and sustainable configuration for the biomass feeding system. It is very important to stress that this 3 years trial period has been a test and error process.

2004

- CEMEX carried out the first trials with rice husk residues mixed with petcoke in the petcoke mill.
  - **Result:** Accelerated wear of the molturant rollers
  - **Actions:** Trial was suspended.

2005

- A low capacity blower was installed to pneumatically feed the rice husk residues to the kiln head.
  - **Result:** Flame alteration and refractory damage.
  - **Actions:** Trial was suspended.
- The rice husk residues pneumatic feed is changed to the tertiary air duct.
  - **Result:** The rice husk residues fired in the tertiary air duct.
  - **Actions:** Trial was suspended.

2006

- The rice husk residues pneumatic feed is changed to the lower part of the calciner.
  - **Result:** Block in the calciner. The cement plant was shot down for 4 hours. Production losses and refractory damage.
  - **Actions:** Trial was suspended.

- The rice husk pneumatic feed is relocated to the caliner, at the burners level.
  - **Result:** Satisfactory operation, but limited capacity.
  - **Actions:** Trial was suspended.

2007

- A skip hoist is installed to evaluate the feasibility of substituting the pneumatic feed.
  - **Result:** Lack of security mechanism (guillotine) starts a fire of the band in two occasions.
  - **Actions:** Trial was suspended.

- A guillotine is installed in the skip hoist feeding system.
  - **Result:** Satisfactory operation.
  - **Actions:** It is concluded that the skip hoist with guillotine is the most adequate mechanism for the biomass alimentation. The CAPEX has to be authorized to carry out all the required investment for the installation of the specific required equipment and facilities.

6. Further clarification is required why the emissions from off-site preparation of alternative fuels have not been considered.

Emissions from off-site preparation of alternative fuels (such as drying) had not been considered because the biomass residues to be used in the project activity will be sent to CEMEX Costa Rica plant in the exactly same conditions as the ones in which the biomass residues are

obtained from the suppliers' process. No additional treatment such as drying, compacting or any other treatment which requires energy consumption will be applied to the biomass residues[4].

7. The applied approved methodology requires that in the absence of the project activity the biomass would be dumped or left to decay or burned in an uncontrolled manner without utilizing them for energy purposes. Further evidence and substantiation that this is to be the case is required. Further clarification is required on how the DOE checked and validated the applicability of this condition. In addition, in this regard, the Validation Report states names of agencies that are mentioned in abbreviations (CONARROZ, FONAFIFO) and their roles are not clear. Further clarification is required.

The agencies full names and roles are:

- National Found for Forestry Finance (**FONAFIFO** - FONDO NACIONAL DE FINANCIAMIENTO FORESTAL).
  - It is an organism depending of the Ministry of Environment and Energy. FONAFIFO is the entity in charge of the coordination of the forestry sector and it has all the statistic data of the sector, plus promoting sustainable uses of the forest and their preservation. FONAFIFO, in coordination with Oficina Nacional Forestal (National Forestry Office, another department of the Ministry of Environment and Energy) provided CEMEX Costa Rica all the data used for the determination of the sawdust residues availability and final uses (sawdust residues are mainly burned in an uncontrolled manner).

- National Rice Corporation (**CONARROZ** - CORPORACIÓN ARROCERA NACIONAL)
  - Spokesperson of the rice industry in Costa Rica, it has all the sector information and it provided CEMEX Costa Rica all the data used for the determination of the rice husk residues availability.
  - During the site visit, the DOE confirmed with CONARROZ (represented by its Quality Manager) that around 20 – 30 % of the residues are used in the rice industry process and the rest is burned in an uncontrolled manner or left to decay in the company's or leased lands.

8. The applied methodology is applicable only for installed capacity (expressed in tonnes clinker/year) that exists by the time of validation of the project activity. Further clarification is required about the exact installed capacity, as in PDD section A.4.3 (page 4) it is stated as 2000 tons clinker/day and in section B2 at 3675 tons/day. Furthermore, clarification is required on the quantity of clinker production/day.

[4] A copy of the official supplier letter where it is stated that no treatment will be applied to the biomass residues is provided to the EB – Reference 04.

The first PDD version submitted to the UNFCCC for the period of comments during the validation process was considering only the actual production level of Colorado cement plant which is 2,000 tons clinker/day. This mistake was detected during the validation process with SGS and the proper corrections to the PDD were made, but apparently there was missing the update of the value in section A.4.3 of the PDD document.

Since the methodology applies only for the installed capacity that exists by the time of the validation of the project activity, the value of 3,675 tons clinker/day shall be used.

The installed clinker production capacity was determined as follows[5]:

$$Tpd = \text{production level} \cong \frac{10.28 \cdot D_i^{3.84}}{0.06 \cdot (\%\, ppal)^{0.72}} \cong \frac{10.28 \cdot 4.28^{3.84}}{0.06 \cdot (33)^{0.72}} = 3{,}675\ \text{TPD}$$

where :

$D_i = \text{Ferrule internal diameter}$

$\%\text{ppal} = \text{percentage of calories in the main burner}$

9. The DOE is requested to further clarify how it has complied with the requirement under paragraph 37 of CDM M&P that the DOE shall have a contractual arrangement with the project participant.

SGS United Kingdom Ltd (designated operational entity) and the Project Participant have a contract for validation of the proposed project activity. Under this contract, SGS validation team (SGS Panama & SGS United Kingdom Ltd) reviewed the PDD and the supporting documentation. All the personnel involved in the validation exercise have relevant authorization from SGS United Kingdom Limited, in accordance with the SGS procedure (accreditation). The following requirements have also been met:

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[5] A more detailed description of the calculation procedure will be provided to the EB – Reference 05.

(a) The participation requirements as set out in paragraphs 28–30 above are satisfied:

- In the LoA provide to PP by Costa Rican, Office on Joint Implementation - OCIC (DNA of Costa Rica) is addressed that *"the project participants participate voluntary in the CDM"*.
- The project Host Country is Costa Rica; the DNA is the Costa Rican, Office on Joint Implementation.
- No Annex I is participated in the project.

(b) Comments by local stakeholders have been invited, a summary of the comments received has been provided, and a report to the designated operational entity on how due account was taken of any comments has been received:

The local stakeholder consultation was celebrate on November 16, 2006 in one of meeting room of Colorado Plan; during the project site visit was confirm that the relevant stakeholders were invited. The PP provided the attendance list and other supporting documents (as the invitation letter, minutes of the meeting among others.) and photos of the stakeholder consultation; in the provided minutes of meeting the local stakeholders commentaries were reviewed and it was verified as these commentaries have been taken into account by the project design.

(c) Project participants have submitted to the designated operational entity documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts and, if those impacts are considered significant by the project participants or the host Party, have undertaken an environmental impact assessment in accordance with procedures as required by the host Party:

In the Host Country there is no regulatory requirement for carrying out an environmental impact assessment study for this type of project activity; however the cement plant must fulfill the Executive Decree 30-221 of the Environmental and Energy Ministry about air contaminant particles otherwise they have to stop operations, this was confirm by the DNA. None adverse environmental impacts or transboundary impact were reported by the local assessor. The project was found in compliance with the current legislation in the Host Country.

(d) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43–52 below:

The project has applied the "Consolidated Baseline Methodology for – "Emissions reduction through partial substitution of fossil fuels with alternative fuels in cement manufacture" ACM0003/Version 04 dated 28 July 2006 under sectoral scope 4. The baseline for the proposed project activity has been determined following the ACM0003 Version 4 and is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence

of the proposed project activity; also the baseline covers emissions from all gases and source categories within the project boundary.

(e) The baseline and monitoring methodologies comply with requirements pertaining to:

(i) Methodologies previously approved by the Executive Board; or
(ii) Modalities and procedures for establishing a new methodology, as set out in paragraph 38 below

The proposed project activity applied the “Consolidated Baseline Methodology for – “Emissions reduction through partial substitution of fossil fuels with alternative fuels in cement manufacture” ACM0003/Version 04 dated 28 July 2006 under sectoral scope 4.

(f) Provisions for monitoring, verification and reporting are in accordance with decision 17/CP.7, the present annex and relevant decisions of the COP/MOP:

All the documents related with proposed project activity are in accordance with decision 17/CP.7.
The proposed project activity conforms to all other requirements for CDM project activities in decision 17/CP.7

Therefore, with the above correction, explanation and evidence enclosed, we feel that the decision by the EB has been taken into account. We do however apologize if this was not sufficiently clear from the validation report.

Emilio Doens and Mr. Abraham Garza, (+34 620259611), agarza@co2-solutions.com can be contacted during the review process, they will address questions from the Board during the consideration of the case.

Yours sincerely,

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Enclosures:

- Reference 01 - Emissions_Financial_model_vf_English.xls
- Reference 02 - DRF_Analysis_CX&CR_2006.ppt
- Reference 03 - A06 CLimate CHange CTC 3.pdf
- Reference 04 - Textual translation letter of rice husk supplier.doc
- Reference 05 - Capitulo 3 Clinker para MDL_ING.doc