

Bogota D.C., May 10, 2011

CDM Team  
UNFCC  
Bonn  
Germany

Dear CDM team:

According to your notification regarding with *Request for review for: request for registration of 4201 LA CALERA BIODIGESTERS PROJECT*, the responses to the clarification requests are as follows:

**1. The DOE is requested to clarify how it has verified the suitability of the investment analysis as required by the Validation and Verification Manual ver. 1.2 paragraphs 111 and 114. In doing so the DOE shall substantiate:**

**a) how each input value has been validated;**

During validation process ICONTEC had access to information published by the Central Bank of Peru; this allowed ICONTEC to verify the information regarding to lending rates as well as the exchange rate (Peruvian Soles to American Dollars)

The prices of coal, LPG and guano were verified through the review and confirmation of purchase invoices maintained by the project.

The salvage value and depreciation rate per annum are in accordance with accounting practices in Peru. Income tax rate is according to Peruvian laws.

The CER price is in accordance with EEX average CER future price of June 2008 published in [www.eex.com](http://www.eex.com)

**b) how the suitability of the applied benchmark has been validated;**

ICONTEC, in compliance with the paragraph 111 of VVM conducted cross-check the information submitted by the PP as follows:

File “*Finance File 3 BCRP interest rates.xls*”, was cross-checked with *statistical series of consultation* through of the Reserve Bank of Peru link: <http://estadisticas.bcrp.gob.pe/consulta.asp?sIdioma=1&sTipo=1&sChkCount=9&sFrecuencia=M>, this statistical was exported to excel with the name “<http://estadisticas.bcrp.gob.pe/Variablesfame/xml/BCRP7665201121921-datos.xls>”

File “*Finance File 5 BCRP official exchange rate sol to USD.xls*”, was cross-checked with the information obtained from the official website of the Reserve Bank of Peru <http://www.bcrp.gob.pe/estadisticas/cuadros-anuales-historicos.html>, that includes the file Acuadro 08.xls with the Sale Average Exchange since 1950 to 2010.

According to the guidance on the assessment of investment analysis paragraph 11, the local commercial lending rate is appropriate for the benchmark of the IRR of the project. This commercial property lending rate was validated through a comparison with information on website of the on the official website of the Central Bank of Peru.

During assessment, the it was validated that the project IRR without CER revenues was correctly calculated as 10%, this IRR was compared with the commercial lending rate of 23.7% it was demonstrated to ICONTEC that the project would not be feasible without CDM revenues.

While the project is not feasible or profitable without CMD revenues, it was demonstrated to ICONTEC that including the CDM revenues the project would be feasible, making the CDM revenue

### **c) how the sensitivity analysis has been validated**

ICONTEC assessed the sensitivity analysis conducted by the project to ensure that the IRR without CDM is lower than the local commercial lending rate. The results show that for an IRR equal to the LCLR following conditions would need to be fulfilled:

The investment needs to be 54% lower than projected

The cost of Guano needs to be 91% lower than projected.

The value of coal saving needs to be 226% higher than projected.

The value of LPG savings needs to be 90% higher than projected

T ICONTEC verified that the probability that above conditions to have one or more of the above stated conditions is unlikely to happen...

***2. The DOE is requested to further validate the prevailing practice barrier according to VVM paragraph 115, considering that biodigesters are already used in the baseline scenario.***

The additionality of this CDM project was demonstrated through an investment analysis (see answers on request 1) according to the rules of UNFCCC (see: "Tool for the Demonstration and Assessment of Additionality" Version 5.2. Annex 10, EB 39) and not through a barrier analysis.

The mentioned prevailing practice barrier has been eliminated from the version 1.4 of the PDD and the validation report has been updated.

***3. The DOE should explain how it has validated the project compliance with the applicability conditions of the methodologies used, in line with VVM version 1.2 paragraph 76.***

ICONTEC performed a cross-check of all applicability conditions for the used methodologies AMS.III.D and AMS.I.C:

AMS.III.D, paragraph 1(a):

La Calera is a huge chicken farm with more than 4 million chicken and 1,600 hectares = 16 km<sup>2</sup> citrus fruits plantation. During the site visit ICONTEC checked the management of the livestock. All the procedure and processes for each chicken age are defined in manuals and instructions for the staff. Important data such as number of animals, production, feed ratio and weight of the chickens, etc. are recorded. The procedures are comprehensible and controllable.

ICONTEC could confirm after this site visit, that the livestock management is clearly defined and the livestock is kept in a good and clean manner in accordance with the best practice of the sector

AMS.III.D, paragraph 1(b)

ICONTEC confirmed that guano and the products from the manure treatment (such as Biol) are not released to natural water resources. During site visit no releasing facilities have been identified. All manure and products from treatment are used as fertilizer for the cultivations on the farm itself - some are sold to other cultivators. Thus AMS.III.D is the appropriate methodology according to the baseline scenario.

AMS.III.D, paragraph 1(c)

The temperature records of La Calera farm have been assessed. The measurement devices and equipment of La Calera farm has been checked and the equipment was functioning reliably. Furthermore, the average climate of the nearby town Ica was cross-checked on the internet (<http://www.mappedplanet.com/klima/klimadiagramm-978-Ica,Peru-Ica> and [http://www.agroica.gob.pe/Doc/diagnostico\\_chincha2007.pdf](http://www.agroica.gob.pe/Doc/diagnostico_chincha2007.pdf)). Thus, ICONTEC was able to certify that the annual average temperature is much higher than 5°C as demanded by the methodology.

AMS.III.D, paragraph 1(d)

ICONTEC visited the guano valley and checked the thickness of the guano layer optically on the fringes of the valley. The extension of the guano valley was checked on the map. The estimations made in the PDD could be verified and determined feasible. The weight of the guano flows into the valley was determined to be regularly controlled. The recorded data and the used figure in the PDD have been compared. Thus the used retention time in the guano valley was estimated correctly and thus the baseline scenario meets the applicability criteria.

The depths of the lagoons have been assessed according to construction design plans. The old lagoons will be covered and used as after-treatment. ICONTEC assessed the report of engineering company cross-checked the volume (area and deepness) of the lagoons in order to design the additional third lagoon. The depths of the lagoons are in compliance with the applicability criteria of the selected methodology.

AMS.III.D, paragraph 1(e)

The project activity does not include the improvement of the old digesters. Based on the project activity - reduced amount of guano to the guano valley and eliminate the open lagoon system through digesters – ICONTEC accepted the definition of the project boundary in the PDD (more details in answer 4 of this request).

AMS.III.D, paragraph 2(a)

In CLA2 and CLA 3 (see validation report) the project owner was requested to explain and demonstrate how methane emissions of the future sludge application would be prevented and controlled. ICONTEC assessed and checked the plausibility of the responses and concluded that the explications and the changes in the PDD were satisfactory and in compliance with the methodology AMS.III.D, paragraph 2(b)

The produced biogas can be used in different production procedures (e.g.: chicken breeding, egg-carton production, digester heatings, etc.). According to the checked engineering concept the produced biogas will not be enough to replace all fossil fuel. Thus all the produced biogas will be used gainfully. In the project activity design the flare will be only installed for emergency cases. ICONTEC concluded that the project activities are in compliance with the used methodology, furthermore, during verification will be assessed that the technical facilities are used appropriately in order to ensure that the produced biogas is eliminated completely.

AMS.III.D, paragraph 2(c)

La Calera farm regularly checks the dry matter content of the guano. The analysis reports have been assessed. The average dry matter content stated in the PDD and present in file: Copia de File 12\_Guano Flow and dry matter 2009.xls, was assessed and the information found to be complete, correct and reliable.

AMS.III.D, paragraph 7

ICONTEC assessed the CER-calculations and the parameters of these estimations in the spreadsheet CER-Spreadsheet%20LA%20CALERA%205.5.2011(1).xls. The emission reductions of the PDD were calculated according to the methodology and are less than 60 kt CO<sub>2</sub> equivalent.

AMS.I.C, paragraph 1

During the site visit ICONTEC confirmed through of coal and LPG invoices the amount and required fuel oil in the process, therefore, concluded that the designed project activity is able to replace fuel oil through the biogas produced in the digester and recovered in the covered lagoons. Thus, the methodology is applicable for this project.

AMS.I.C, paragraph 3

During the site visit ICONTEC assessed the in-built capacity of the different equipments on the name plates directly on the equipment. The estimations made in the PDD were resented correctly and found to be feasible.

**4. The DOE is requested to further validate the suitability of the project boundary as required in VVM paragraph 80. In doing so, the DOE shall justify:**

a) *Why excluding from the project boundary the old digester still producing biogas is conservative and complies with paragraph 8 of methodology AMS III.D;*

The emission reduction calculation in the PDD has been adjusted. The original PDD was based on measured average annual biogas production of the two old digesters (5,455 MWh). To be more conservative the maximum technical production capacity of the two old digesters (6,252 MWh) according to SMART Utilities Solution has been taken (see file N1).

The usage of the maximum technical capacity in the calculation of the emission reduction estimation (ex-ante and ex-post) is the most conservative option as in practice the maximum technical possible value is never achieved as can also be seen with the actual values as reported.

In this estimation it is considered that the old bio-digesters would produce without project activity 8,760 hours per year on a full load basis (100% technical capacity). Thus, in the emission reduction calculation the maximum energy production of the two old digesters have been subtracted from the estimated (ex-post: measured) future energy production of the project digester system. Therefore, with the adjustment of the PDD, ICONTEC concludes that the emission reduction calculation is conservative.

Paragraph 12 of the General Guidelines to SSC CDM methodologies Version 16 EB 59, defines: "Project boundary shall be limited to the physical project activity". The old digesters are not part of the project activity (no-upgrade or improvements) and thus ICONTEC accepted the proposed project boundary according to the mentioned guidelines. Based on the site visit and the project design (layout of SMART Utilities Solution) the biogas production of the remaining old digester and the new digester system can be clearly separated.

*b) Why it was considered appropriate to assume that the energy demand, which is increasing each year in the baseline scenario, would be completely met from fossil fuels (coal and LPG) in spite of historic use of biogas.*

The two old digesters have been working on the practical technical maximum. There was no option to increase the biogas production of these two old reactors. Thus the additional energy consumption based on the increasing egg production had to be covered through fossil fuels.

The construction of new biogas digesters is:

- a) Technically very complicated in the case of guano digestion and
- b) Not cost-effective, as was demonstrated in the financial analysis in the PDD. Thus an increasing biogas amount in the baseline scenario is not realistic.

**5. The DOE is requested to justify the suitability of using Bo and VS values which are applicable to developed countries, in compliance with paragraph 13 of AMS III.D ver 15.**

ICONTEC has assessed and validated during the site visit all the references included in the PDD (see page 27), including the reference to specific values as Bo and VS values of developed countries have been used.

All the chicken species for breeding in La Calera farm are from Europe. ICONTEC during validation process assessed the related documents (see file 21 and 23 Certified),.

La Calera farm regularly check the weight of all different chicken sorts. ICONTEC has compared the average weight of the chickens of La Calera farm with the default value of IPCC 2006. The average weight in La Calera farm is higher than the IPCC default value. The file 3 - summary of the hens weight - was assessed with the weighing minutes (see files 20). Furthermore, the weight of the hens was assessed during the site visit by weighing of some chickens.

During the site visit ICONTEC assessed the feeding program of La Calera farm. The reference documents (file 24) concerning the formulated feed rations for the different chickens - different ages - found to be in control, a cross check with related invoices was carried out. Based on this assessment during the site visit ICONTEC was able to confirm that all conditions according to paragraph 13 of the methodology are fulfilled and the use of Bo and VS values from developed countries are applicable. In the PDD all used reference documents have been added.

Best regards,



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