
VALIDATION REPORT

LA Global Carbon Trading Company Limited

Methane Capture and destruction on Calle 100 Landfill in Havana and Gascon Landfill in Santiago de Cuba. Bundle CDM Project

SGS Climate Change Programme
SGS United Kingdom Ltd
SGS House
217-221 London Road
Camberley Surrey
GU15 3EY
United Kingdom

Date of Issue:		Project Number:	
25-02-2009		CDM.VAL2156	
Project Title:			
Methane Capture and destruction on Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project			
Organisation:		Client:	
SGS United Kingdom Limited		LA Global Carbon Trading Company limited	
Publication of PDD for Stakeholders Consultation			
Commenting Period:		23-07-2008 to 21-08-2008	
First PDD Version and Date:		Version 7 dated 17 th July 2008	
Final PDD Version and Date:		Version 9 dated 24 th February 2009	
Summary:			
<p>LA Global Carbon Trading Company Limited has commissioned SGS to perform the validation of the project: Methane Capture and destruction on Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project.</p> <p>Methodology used: ACM0001 and AMS ID</p> <p>Version and Date: Version 8 dated 14th December 2007 and Version 13 dated 14th December 2007 respectively.</p> <p>The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.</p> <p>The report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.</p> <p>The report and the annexed validation describes a total of ten findings which include:</p> <ul style="list-style-type: none"> • Six Corrective Action Requests; • Three New Information Requests; and <p>All CARs and NIRs have been closed out satisfactorily and will be recommended to the CDM Executive Board with a request for registration</p>			
Subject:			
CDM Validaion			
Validation Team:			
Kamesh Iyer – Lead Assessor		<input checked="" type="checkbox"/> No Distribution (without permission from the Client or responsible organisational unit)	
Jairo Restrapo – Local Assessor			
Kaviraj Pradhan – Expert		<input type="checkbox"/> Limited Distribution	
Technical Review:			
Date: 20-09-2008, 16-10-2008, 25-02-2009		Name: Ajoy Gupta	
Name: Sanjeev Kumar			
Authorised Signatory:			
Name: Siddharth Yadav		<input type="checkbox"/> Unrestricted Distribution	
Date: 27-02-2009			
Revision Number:	Date:	Number of Pages:	
0	18-09-2008	51	
1	14-10-2008	51	
2	25-02-2009	53	

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CO ₂	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environmental Impact Assessment
GHG	Greenhouse Gas(es)
LFG	Landfill Gas
I	Interview
IPCC	Intergovernmental Panel on Climate Change
ISHC	international Stakeholder Consultation
MoV	Method of Verification
MP	Monitoring Plan
MWh	Mega Watt hour
NIR	New Information Request
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

Table of Content

1.	Validation Opinion	5
2.	Introduction	6
2.1	Objective.....	6
2.2	Scope.....	6
2.3	GHG Project Description	6
2.4	The Names and Roles of the Validation Team Members	6
3.	Methodology	7
3.1	Review of CDM-PDD and Additional Documentation	7
3.2	Use of the Validation Protocol	7
3.3	Findings	8
3.4	Internal Quality Control.....	8
4.	Validation Findings.....	9
4.1	Participation Requirements	9
4.2	Project Design	9
4.3	Eligibility as a Small Scale Project.....	9
4.4	Baseline Selection and Additionality	9
4.5	Application of Baseline Methodology and Calculation of Emission Factors	13
4.6	Application of Monitoring Methodology and Monitoring Plan	13
4.7	Choice of the Crediting Period	15
4.8	Environmental Impacts	15
4.9	Local Stakeholder Comments	15
5.	Comments by Parties, Stakeholders and NGOs	17
5.1	Description of How and When the PDD was Made Publicly Available	17
5.2	Compilation of all Comments Received	Error! Bookmark not defined.
5.3	Explanation of How Comments Have Been Taken into Account	17
6.	List of Persons Interviewed.....	18
7.	Document References	20

Annexes:

A.1	Annex 1: Local Assessment	21
A.2	Annex 2: Validation Protocol	22
A.3	Annex 3: Overview of Findings.....	41
A.4	Annex 4: Team Members Statements of Competency	41

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by LA Global Carbon Trading Company limited to perform a validation of the project: Methane Capture and destruction on Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project in Republic de Cuba.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By the capture and flaring of the methane gas along with envisaged electricity production the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies methodology ACM0001 Version 8 and AMS ID version 13. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 1,231,623 tCO₂e over a ten year crediting period, averaging **123,162** tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory



Signature:

Name: Siddharth Yadav

Date: 27th February 2009

2. Introduction

2.1 Objective

LA Global carbon Trading Company Limited has commissioned SGS to perform the validation of the project: Methane Capture and destruction on Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project with regard to the relevant requirements for CDM project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The project activity is based in Cuba and is a bundled project. One site is Calle 100 landfill in Havana and the other landfill is Gascon landfill in Santiago de Cuba. The project activity is to build, operate and maintain both these landfills where the LFG extracted would be flared. The possibility of electricity generation is also maintained but due to uncertainties associated with LFG extraction this will constitute the second stage of the project. Thus the project activity assists in mitigating GHG by capture and flaring of the LFG/using LFG to produce electricity (of which methane is a primary component) which otherwise would have been released into the atmosphere.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Kamesh Iyer	Lead Assessor	SGS IN
Jairo Restrepo	Local Assessor	SGS Columbia
Kaviraj Pradhan	Expert	SGS IN

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit was performed by Kamesh Iyer and Jairo Restrepo for both the Calle 100 landfill in Havana and Gascon Landfill in Santiago de Cuba. The lead and local assessor on the site visit checked the baseline, PDD related documents, CDM consideration, additionality and applicability and the results are summarised in Annex I: Local Assessment checklist. The local assessor was involved in verifying all necessary documents on site in the local language (Spanish) and also confirmed other statements in the PDD through review of documents direct contacts with key stakeholders.

A few key stakeholders were interviewed and various environmental laws, sustainability issues, energy statistics and all relevant data was cross checked and they are included as the following

- Directora Municipal Santiago de Cuba
- Vice-presidente Poder Popular Provincial (Provincial Government Authorities)
- Director Provincial de S.C. (Provincial Government Authorities)
- Subdirector Provincial de S. (Provincial Government Authorities)
- Director Unidad de Higiene
- Subdirector Unidad de Higiene
- Jefe técnico Unidad de Higiene
- Director del medioambiente (Cuban DNA – CITMA)
- Especialista del medioambiente (Cuban DNA – CITMA)
- Viceministra del MEP (Ministry of Planning and Economy)
- Director provincial de comunales (Ministry of Planning and Economy)
- Vicedirector provincial de comunales (Ministry of Planning and Economy)
- Especialista principal energético (MINBAS – Ministry of Industries)

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- I. mistakes have been made with a direct influence on project results;
- II. validation protocol requirements have not been met; or
- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.2). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

4. Validation Findings

4.1 Participation Requirements

The host party for this project is Cuba. Cuba has ratified the Kyoto protocol on 30th April 2002. CAR2 was raised asking project proponent to submit the Letter of Approval from Cuban DNA. The Letter of Approval dated 4th January 2008 from the host country (Cuba) was submitted in response (both Spanish and English copies) and this was verified. This letter of approval was also confirmed with the Cuban DNA (CITMA) during site visit interviews and it was found valid and OK. Hence, CAR2 was closed.

France has been identified as Annex 1 country and has ratified the Kyoto Protocol on 31st May 2002. CAR1 was raised asking project proponent to submit the Letter of Approval from French DNA. The French letter of approval (reference: P5-08-012-DD/553c) had been submitted. This was checked and found in conformance with the PDD version 9 and as per UNFCCC requirements. Hence CAR1 was closed out.

4.2 Project Design

The project activity is titled “Methane capture and destruction on Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project.” The project design and its objectives have been transparently explained in PDD Version 9 dated 24th February 2009 and are consistent with the timeline of the project history.

The project activity is a bundle of two landfill projects. The first one in Havana “Calle 100” Landfill and the second one in Santiago de Cuba “Gascon” Landfill. The information provided in the PDD Version 9 allows a clear indication of both sites along with its geographical co-ordinates. These were checked on site and are as follows

For Landfill site 1: CALLE 100 geographic coordinates are 23°04'57” N 82°24'29” W

For Landfill site 2: GASCON geographic coordinates are 20°03'24” N 75°51'13” W.

The project participants are in possession of all ownership licenses and documents to operate on site. These have been certified by the local municipalities document dated 21st December 2007, the Ministry of Economy and Planning (RS 0118 dated 20th December 2007) and local provincial authorities document dated 4th January 2008). This was verified on site and also through interviews conducted. The Cuban DNA also confirmed the same as this was also a requirement for issuance of Letter of Approval in Cuba.

The project activity is divided into two phases. Phase 1 is to capture Landfill gas through a network of vertical and horizontal wells and to flare LFG. Phase 2 of the project activity is to for electricity production, where the LFG operations will shift to utilization of LFG to supply electricity to the grid. The project activity will use the HOFGAS® extracting and flaring station that has been developed by the Swiss Hofstetter Umwelttechnik Company. The technical details were checked against the flare specifications and engineering layouts for the piping and gas collection for which the technology employed was found transparent and reflected good engineering practices. All information provided in the PDD version 9 is in conformance with the situation on-site and with the project planning.

4.3 Baseline Selection and Additionality

The project activity is based on the following methodologies ACM0001 version 08, “Consolidated baseline and monitoring methodology for landfill gas project activities”, has been applied to this project activity and has been approved by the EB.

For Phase 2, generation of electricity is also considered and hence the methodology AMS I.D version 13 “Grid connected renewable energy generation” has been applied. The project boundary for the project activities include the physical boundary of the landfill site under consideration and also as electricity is to be supplied to the grid and imported from the grid the “National Grid of Cuba” is considered in the project boundary.

As mandated by the methodology ACM0001 Version 8 the project participants have identified the baseline scenario and demonstrated additionality by using Version 5 of the “Tool for demonstration and assessment of additionality”

The procedure for the selection of the most plausible baseline scenario is briefed as validated below

Step 1: Identification of alternative scenarios

There is no mandatory landfill gas capture or landfill requirements in national/ regional environmental regulation of Cuba and this was verified through interviews with the Ministry of Economy and Planning and CITMA (Cuban DNA) during site visit. The local policies were also assessed through interviews with the local authorities (Directora Municipal Santiago de Cuba and local provincial authorities) and it was found that there were no current regulations governing landfills. Thus it was concluded that the assessment of alternative scenarios did take into account the local economic and technological circumstances.

The scenarios determining the landfill gas baseline scenarios were

LFG1: The project activity is undertaken without being registered as a CDM activity. This scenario was assessed and it was found that there was no economic incentive for the project to undertake flaring and electricity generation. There was no mandate for the project to undertake flaring or power generation through recovered landfill gas.

LFG2: Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements or to address safety or odour concerns. This scenario was assessed and it was found that in Cuba no landfill sites required partial capture of the gas and there was no mandate for the project to destrcut LFG. There was also no specific regulation catering to odour or safety in Landfills.

The landfill and waste management policies were validated with the legal report no 467 on” Muncipal Solid waste disposal sites regulations in Cuba” dated 22nd May 2008 by Notary Carmen Alicia Perez Diaz who is a member of the Department of Justice of the republic of Cuba.

Since LFG would also be used to produce electricity and supplied to the grid in the latter stages of the project i.e. Phase 2 the PDD version 9 has determined applicable power scenarios as well.

P1. Power generated from landfill gas undertaken without being registered as CDM project activity

P2. Existing or construction of a new on-site or off-site fossil fuel fired cogeneration plant

P3. Existing or construction of a new on-site or off-site renewable based cogeneration plant

P4. Existing or construction of a new on-site or off-site fossil fuel fired captive power plant

P5. Existing or construction of a new on-site or off-site renewable based captive power plant

P6. Existing and/or new grid-connected power plants

Alternatives P2 and P3 could be eliminated as the project would not aim at producing heat and would only be concentrating on production of electricity and supplying it to the national grid. These alternatives were discussed on site and through interviews it could be concluded that the scenarios undertaken are valid scenarios.

Step 2: Identify the fuel for the baseline choice of energy fuel source taking into account the national and /or sectoral policies as applicable

The project activity would be displacing the electricity produced in the grid and there by help in displacing the electricity equivalent to the carbon intensiveness of the grid.

Step 3: The project activity has used Step 2 of the “Tool of demonstration of assessment of additionality” Version 5 to determine the Investment analysis.

Since the project activity generates electricity in Phase 2 and at the same time the sale of electricity would contribute to the project revenues the project participants have demonstrated the Investment analysis with the benchmark analysis.

For the LFG1 scenario the additional cost do not contribute any additional benefit and this was checked through interviews on-site with the municipalities and provincial governments on site along with the review of the contracts of collaboration and lease contract between the project participant and the landfill authorities. Hence the assumption is appropriate and is considered OK.

Scenario P1 is considered as power generated in the landfill gas undertaken without being registered as CDM project activity. This scenario is been discussed as there are benefits associated with sale of electricity.

The investment cost is considered from the cost incurred due to construction of capture network, landfill cover, blowers and LFG generators associated with the project activity. The investment cost and assumptions were verified with the feasibility and inspection reports from CEFT and found OK.

The total CAPEX for Calle 100 landfill was found to be 4,123, 280 Euros, the OPEX cost (average period) was verified as 385, 542 Euros. Similarly for the Gascon landfill the total CAPEX was verified as 3,086,650 Euros and OPEX (average period) as 290,481Euros. This was verified with the feasibility studies carried out by CEFT who are specialised biogas consultants presenting investment cost of energy plant installation on each sites. The benchmark chosen was validated and it was found that the proponent had chosen the government bond rate of 4.25% and applied host country risk premium of 9 %. Both the references cited in the PDD footnotes were verified and found OK. The project IRR with all investment assumptions and sale of electricity falls at 4 %. The sensitivity analysis was also verified with variations of 10 % in the key components and it was found that even with these assumptions the project IRR barely becomes positive. The latest guidance as per EB41 Annex 45 for investment analysis for project IRR is being followed. This was verified and found OK.

Thus the determination of baseline scenario was validated and found appropriate. The methodology applicability was thus fulfilled as the combination of baseline options and scenario was LFG2 and P6 as determined in the PDD version 9.

The additionality was determined as per “Tool for demonstration and assessment of additionality” Version 5. The steps 1, 2 (step 3 for baseline determination as per ACM001 Version 8) are as briefed above.

Step 4 i.e. the common practice analysis was validated through the landfill and waste management policies as noted in the legal report no 467 on” Municipal Solid waste disposal sites regulations in Cuba” dated 22nd May 2008 by Notary Carmen Alicia Perez Diaz who is a member of the Department of Justice of the republic of Cuba and. The sub step 4a was validated and it was found that there are no other similar projects in Cuba. Sub step 4b was validated and it was found that LFG capture and electricity production was not in practice in Cuba and there were no regulatory requirements for the same. The subsequent interviews with the Ministry of Environment and Planning, CITMA (Cuban DNA), MINBAS confirmed the same. Thus, the common practice analysis was validated and found OK.

The project activity is additional as it follows and is applicable as per ACM001 Version 8, Tool for demonstration and assessment of additionality (Version 5), all based on the validated evidences and cross checks through interviews with key stakeholders.

CAR3 was raised as the PDD Version 7 was not clear and serious CDM consideration as per EB41 Annex 46 was not observed. The project proponent responded by detailing a chronological order of events briefed below with evidences.

Timeline	Events	Documentary evidences
Mar 07	A site inspection report and assessment for GASCON Landfill Stakeholder Meeting	Inspection report dated 09/07/2007 Stakeholders Meeting report
May 07	A site inspection report and assessment for CALLE 100 Landfill Stakeholder meeting	Inspection report 09/07/2007 Stakeholders Meeting report
Jun 07	Initial contract of collaboration signing with the municipalities and obtaining consent where CDM funds and their intent is clearly stated	Contract of collaboration copies for CALLE 100 dated 21/06/2007 and GASCON landfills dated 23/06/2008
Jul 07	Project activity start dates as the main equipment for flares were ordered on 31/07/2007.	Flare Order copy dated 31/07/2008
Oct 07	Contract Signing with DNV for validation of GASCON and Calle 100 as two separate projects and also webhosting of the PDD under the UNFCCC website CALLE 100 : http://cdm.unfccc.int/Projects/Validation/DB/IFXX69KWK EC5JQN83SVL09RJFJWUFI/view.html	DNV Order form and UNFCCC website

	<p>period of comments 24 Oct 2007 - 22 Nov 2007 GASCON : http://cdm.unfccc.int/Projects/Validation/DB/P7F38YUYWL6RG1IRSYB5Q9B5Q82NI1/view.html Period of comments 25 Oct 2007 - 23 Nov 2007</p>	
Nov 07	<p>Bundling of CALLE 100 and GASCON projects as a single project http://cdm.unfccc.int/Projects/Validation/DB/WV7GSVSBIS57S9L3NXREZBT50IZBO5/view.html Period of comments: 20th November 2007 - 19th December 2007</p>	<p>DNV Order form and UNFCCC website</p>
Dec 07	<p>Payment for the flare</p>	<p>Invoice dated 17th december 2007</p>
Jan 08	<p>CITMA (Cuban DNA approval)</p>	<p>Interviews and Cuban LoA dated 4th January 2008</p>
Apr 08	<p>Importation of plant equipment</p>	<p>PO/Invoices dated 4th April 2008</p>
Jun-08	<p>Finalization of contracts with landfill operators for both the sites CDM is the core issue for both the sites</p>	<p>Contracts were verified CALLE 100 contract dated 17th June 2008 GASCON contract dated 17th June 2008</p>
Jul-08	<p>Change in DOE for reasons of delay</p>	<p>DNV(Signed on 1st August 2008 and Bionersis (Signed on 25th July 2008) mutual consent for withdrawal Communication with UNFCCC on withdrawal email dated 23rd August 2008 confirming reasons for withdrawal</p>
Jul- 08	<p>Webhosting of the PDD</p>	<p>23rd July 2008</p>

The chronology was verified and it was found that the project participants were demonstrated prior knowledge of CDM and its seriousness could be ascertained through the contract of collaboration for both the landfill which is before the project start date. This document clearly mentions that the intention is relations and obligations between both parties for the execution of the biogas capture and utilization project in the Calle 100 landfill and in the financing and distribution section it has clearly been mentioned that the revenue stream from UNFCCC and its ownership related to its investment. This was verified along with the chronological order which demonstrates continual efforts and hence CAR3 was closed as the project activity demonstrates serious CDM consideration as per guidelines set in EB41 Annex 46.

CAR 4 was raised as clarification was required for Electricity Sale price, appropriation of exactness to the inflation rates applied from 2005 to 2007, Capex and Opex cost figures justification and also the Benchmarking was not appropriate and does not follow the recent guidance of EB 41 Annex 45. The electricity price was then changed by the project proponent based on the Cuban government's supply tariff. To consider a conservative approach the project participants also assumed that the electricity price as twenty two times the tariff price (In Cuba the electricity is subsidized as all power entities are state owned and regulated by the Cuban government). This approach and the tariff were confirmed through interviews with MINBAS and the tariff card by the assessors. The Capex and Opex justification was submitted through documentary evidence from CEFT who are specialized biogas consultants and the assumptions were found OK. The benchmarking

was revised and corrected and this was verified through the website sources as cited in the PDD version 9. Hence CAR4 was closed

The baseline selection and additionality were assessed and on the basis of the evidences and the closure of the CARs it is concluded that the selected baseline and the additionality for the project has been established as per PDD version 9.

4.4 Application of Baseline Methodology and Calculation of Emission Factors

The proposed CDM project activity is the land fill gas recovery in phase I & grid connected power generation facility in Phase II and uses baseline methodology as described in ACM0001 version 08 and AMS I.D. version 13. PDD version 7 has used ACM0001 version 8 during determination of emission reductions, but the methodological choice towards the project activity for AMS ID version 13 has not been represented properly. Thus, CAR 5 was raised. In reply to CAR 5, project proponent submitted revised description in PDD version 09 under section B.6.1 including the baseline emissions resulting from the methodology AMS I D version 13; the same has been checked and found OK.

The description towards methodological choice towards the project activity with reference to ACM0001 version 8 and AMS I.D. version 13 has been checked as follows -

- The equations for GHG emission reductions calculation and explanation towards the same as provided in Section B.6.1 - "Explanation of methodological choices" of final PDD, has been checked and in line with the methodology.
- The description provided for calculations and considerations of the parameter MD_{project,y} - "The Amount of methane that would have been destroyed/combusted during the year" in Section B.6.1 has been checked and found justified and in line with ACM0001 version 8.
- Further elaboration provided in Section B.6.1 - "Explanation of methodological choices" of final PDD has been checked towards choice of methodology for the project activity and justification towards GHG emission reductions calculation (in case of CO₂ emission factor for baseline electricity and CO₂ emission factor for project electricity consumption scenario) has been found satisfactory and well substantiated.
- The description towards consideration and basis for calculation of CO₂ emission factor for baseline electricity generation and the application of AMS.I.D version 13 (Combined Margin) as provided in Section B.6.1 - "Explanation of methodological choices" of final PDD has been checked and found justified.
- The project proponent has provided calculation worksheet with traceable references for CO₂ emission factor of baseline electricity generation applying AMS.I.D version 13, the traceability of the figures has been cross checked with reference to the Oficina Nacional de Estadísticas (O.N.E.), República de Cuba and MINBAS. These were also checked and verified through on-site interviews with MINBAS and data accuracy was determined.

The BM was not calculated as per the Tool to calculate the emission factor for an electricity system. Hence CAR6 was raised. The proponent responded by calculating the BM and revising the data for CO₂ emission factor for baseline electricity generation for the most recent years from 2003 – 2007. This data was checked with the Oficina Nacional de Estadísticas (O.N.E.), República de Cuba and MINBAS. The data values and the plants under consideration were crosschecked through interviews and official data at MINBAS. Hence, CAR06 was closed.

NIR07 was raised as it was not clear in the calculation sheet whether the auxiliary consumption for the electricity consumption and also a mismatch was found in the installed capacities in the PDD and the calculation sheet. The project proponent responded by including the auxiliary consumption and correcting the installed capacity in the PDD version 9. This was checked against the calculation sheet and the PDD and found OK.

4.5 Application of Monitoring Methodology and Monitoring Plan

The present CDM project activity uses monitoring methodology as described in ACM0001 version 8 and AMS I.D. The following tools have been used as specified by ACM0001 version 8 and their monitoring parameters have been clearly indicated.

Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site

Tool to determine project emissions from flaring gases containing methane

Tool to calculate baseline, project and/or leakage emissions from electricity consumption

Tool to calculate the emission factor for an electricity system

The methodological choice towards project emission calculation from flaring of landfill gases as provided in final PDD has been checked and found justified and in line with ACM0001 version 8 and "Tool to determine project emissions from flaring gases containing Methane". The ex-ante calculation procedure has been checked and found satisfactory with requirement of ACM0001 version 8 and AMS-I.D. version 13 and NCV of the fossil fuel and emission factor values for the same have been applied in line with the requirements of the methodology and its relevant tool.

The description towards the ex-ante parameters available at validation in section B.6.2 of final PDD has been checked and found in accordance with the project scenario.

Project proponent has provided the clarified description towards the data and parameters required to be monitored at the ex-post scenario in final PDD, which has been checked and found complete and appropriate with ACM0001 version 8 and project monitoring plan.

The overall authority and responsibility of project management and project registration in CDM modalities is clearly defined and has been assessed during the site visit and found OK.

The overall responsibility of project management and authority for project registration in CDM modalities has been cross checked with reference to the Modalities of Communication and The description of project management modalities such as responsibility of members of the monitoring team, routine reminders for site staff, QA/QC procedures, service forms for data reporting, corrective action plans, maintenance plans and monitoring schedules as described in Section B.7.2. Description of the monitoring plan and Annex 4 of final PDD have been checked and found satisfactory and justified for the current project activity which is yet to start its commercial operation.

During the on-site validation it has been found that with reference to the LFG collection efficiency the expected installed power generation capacity will be up to 2 MW for the Calle 100 landfill and 1 MW for the Gason Landfill. This scenario will only take place in January 2010 as the landfill gas capture is an uncertain phenomenon and depends on several factors such as quality of gas, amount of gas and the gas content etc. The calculation procedure of project emissions from the enclosed flaring systems is in accordance with the "Tool to determine project emissions from flaring gases containing Methane" has been properly described in Section B.6.1. - Explanation of methodological choices of the final PDD which is justified and in line with ACM0001 version 8.

The Power Purchase Agreement (PPA) with the local grid system as the requirement towards the evacuation of power to the state grid system, was not available during the validation site visit, the PPA is yet to be signed between the project proponent and relevant government authority. This will take place in due time and this was ascertained through interviews with MINBAS. This should be checked during verification when the project starts supplying electricity to the grid.

The monitoring plan is in line with the monitoring methodology and monitoring the following parameters:

- Global Warming Potential of CH₄
- Total amount of landfill gas captured and flared
- Amount of landfill gas flared
- Total amount of landfill gas captured and used for electricity production
- Total amount of landfill gas captured
- Average fraction of methane in the LFG
- Temperature of Landfill gas
- Pressure of Landfill gas
- Net amount of electricity generated using LFG
- Operating hours of the power plant

- Project emissions from flaring of the residual gas stream in the year y
- Volumetric fraction of component i in the residual gas in the hour h where i= CO₂, O₂, N₂ and CH₄
- Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour h
- Volumetric fraction of O₂ in the exhaust gas of the flare in the hour h
- Concentration of methane in the exhaust gas of the flare in wet basis at normal conditions in the hour h
- Combustion temperature
- Quantity of electricity consumed by the project activity during the year y

NIR8 was raised as the data archiving was not discussed in the PDD and was not clear. The proponent clarified that on pg 41 the PDD data archiving has been described and also clearly stated that all data shall be stored up to two years till the end of the crediting period. This was found ok and hence NIR8 was closed.

NIR9 was raised as the procedures on training were not well defined. In response the proponent had attached the training manual which was checked by the local assessor and found OK. The operation and maintenance were also well defined. Hence NIR9 was closed.

Thus it can be concluded that the monitoring plan mentioned in the PDD is in conjugation with ACM0001 version 8 and AMS ID version 13 is inline.

Further, minor corrections were requested during the period for request for review for the project activity where corrections were sought to include the monitoring of parameters in line with the Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site, The parameters W_x (Total amount of organic waste prevented from disposal in year x), P_{n,j,x} (Weight fraction of the waste type j in the sample n collected during the year x), and z (Number of samples collected during the year x) were incorporated in the PDD Version 9. The revised PDD version 9 has been verified and the following parameters have now been incorporated.

4.6 Choice of the Crediting Period

The crediting period chosen by the project participant is the fixed crediting for 10 years. The start date of the project activity as indicated in the PDD Version 9 is 01/02/2009. This is mentioned in PDD in section C.2. The project start date is 31-07-2007 when the first purchase order for the project activity was placed.

The project start date was changed in response to CAR3 as discussed earlier. The projects operational lifetime was not exceeding the crediting period however in response to NIR7 the calculations had an error in the closure of the landfill which was rectified and the estimation was corrected.

4.7 Environmental Impacts

In the Republic de Cuba Environmental Impact assessment is mandatory to obtain host country approval for projects as per CITMA (Cuban DNA). EIA has been carried out for both the landfill sites CALLE 100 and GASCON and it was found that the project in its overall sense contributed to positive impacts with the prevailing condition of the landfills in Cuba. This was validated through the EIA reports and subsequent interviews with the Cuban DNA (CITMA.)

It was found that the project impact is positive on the local and national environment as a whole.

4.8 Local Stakeholder Comments

There is a requirement as per Cuban DNA regulations to conduct EIA. The stakeholder consultation was conducted as a part of the EIA for the CALLE 100 and GASCON landfills. The public consultation for GASCON landfill took place on March 21, 2007 in the meeting room of the Manuel Isla School in the Jose Marti district (Micro 7 Distrito Jose Marti) of Santiago de Cuba and for CALLE 100 the public consultation took place on May 21, 2007 at the CECAT theatre of the Mariano Municipality of La Habana.

Interviews were conducted by the local assessor in Spanish on site to verify the process and to confirm the stakeholder concerns. Based on the interviews and minutes of meeting which was verified for the local



stakeholder, comments received the documentation is in a transparent manner and no anomalies were detected.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the UNFCCC website <http://cdm.unfccc.int/Projects/Validation/DB/MCFH8YA4JCKTNREL8DPSIA0JJ0YINP/view.html> and was open for comments from 23-07-2008 until 21-08-2008.

No comments have been received during the crediting period

5.2 Explanation of How Comments Have Been Taken into Account

No comments have been received

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
26-08-2008	Madelaine Conde T.	Directora Municipal Santiago de Cuba	Contract of collaboration Contract and CDM
26-08-2008	Onel López Lemes	Vice-presidente Poder Popular Provincial de Santiago de Cuba (Provincial Government Authorities)	Local Policies and regulation in Cuba Stakeholder consultation Impact of project activity on local
26-08-2008	Elvio Crespo Serguera	Director Provincial de S.C. de Santiago de Cuba (Provincial Government Authorities)	Local Policies and regulation in Cuba
26-08-2008	Félix Cardonne Molina	Subdirector Provincial de de Santiago de Cuba (Provincial Government Authorities)	Local Policies and regulation in Cuba
27-08-2008	Anibal Alvarez (Delegate)	Director Unidad de Higiene	Local policies and regulation for landfill in regard to sanitary conditions Legal requirements for operation
27-08-2008	Camilo Montes de Oca	Subdirector Unidad de Higiene	Local regulations pertaining to Safety and Environment
27-08-2008	Pedro V. Pérez Diaz	Jefe técnico Unidad de Higiene	Local regulations pertaining to Safety and Environment
27-08-2008	Orlando Rey Santos	Director del medioambiente (Cuban DNA – CITMA)	Process of letter of approval DNA assessment of Sustainability and Environmental aspects Stake holder consultation Environmental Impact Assessment Letter of Approval General impression of the Project
27-08-2008	Omar Rivero del Cristo	Especialista del medioambiente (Cuban DNA – CITMA)	Stake holder consultation Environmental Impact Assessment Letter of Approval Local Policies and Regulations for Landfill
27-08-2008	Magalys Estrada Diaz	Viceministra del MEP (Ministry of Planning and Economy)	Letter of approval Landfill site regulations Common practice in Cuba for landfills
27-08-2008	Luis Rivero Pérez	Director provincial de comunales (Ministry of Planning and Economy)	Landfill site regulations Common practice in Cuba for landfills
27-08-2008	Sergio Luis Aguilera	Vicedirector provincial de comunales (Ministry of Planning and Economy)	Landfill site regulations Common practice in Cuba for landfills
28-08-2008	Antonio Rodriguez Moltó	Especialista principal energético (MINBAS – Ministry of Industries)	Energy policies & tariff in Cuba Operating Margin and build margin for the National Grid of Cuba
26-08-2008 to 28 -08-2008	Pablo Valenzuela Orrego	Gerente Finanzas Sur Continente S.A.	Project boundary
25-08-2008 to	Abel Castaño Spengler	Co-ordinador Sur	Stake holder consultation

Date	Name	Position	Short Description of Subject Discussed
28 -08-2008		Continente S.A.	Environmental Impact Assessment
25-08-2008 to 28 -08-2008	Anne-Sophie Zirah	CDM Project Manager Bionersis S.A.	Project Design Document Additionality Baseline determination
25-08-2008 to 28 -08-2008	Maritza Rojas	Gerente Desarrollo Área Norte Bionersis SA	Project Engineering Project planning and Design Piping operation of the landfills
25-08-2008 to 28 -08-2008	Gabriel Castro Celis	Coordinador CDM Bionersis S.A.	Project boundary
25-08-2008 to 28 -08-2008	Miguel E. Morales	Asesor técnico Biosur en Cuba	Project implementation

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ PDD Version 07 dated 17th July 2008
- /2/ PDD Version 08 dated 1st September 2008
- /2a/ PDD version 09 dated 24th February 2009 (Following minor corrections)
- /3/ ACM001 version 8
- /4/ AMS I D version 13

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /5/ Letter of Approval – Cuban DNA dated 4th January 2008
- /6/ Letter of approval – France dated 10th October 2008
- /7/ Collaboration contract 02/07 for the execution of the project: Santiago de Cuba landfill
- /8/ Collaboration contract 01/07 for the execution of the project: Calle 100 landfill
- /9/ Inspection report for GASCON and Calle 100 landfill dated 09/07/2007
- /10/ Stakeholders report for GASCON and Calle 100 landfill
- /11/ Purchase Orders
- /12/ DNV Work Order 1-20KYL9 dated 8th October 2008
- /13/ Contract for the execution of the degasification project & attribution of the carbon credits CALLE100
- /14/ Contract for the execution of the degasification project & attribution of the carbon credits CALLE100
- /15/ Letter of Withdrawal between DNV and Bionersis
- /16/ Confirmation of withdrawal with UNFCCC
- /17/ CEFT Feasibility reports for GASCON and CALLE 100
- /18/ Power Tariff card
- /19/ MINBAS report
- /20/ Calculation Sheets for GASCON and CALLE 100 landfills
- /21/ On-site training manual MAN-OPE-01 Version 0

- oOo -

A.1 Annex 1: Local Assessment

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS(India)

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
1. Host Country Approval from Annex 1 and non Annex 1 parties.	LoA of Cuba has been provided Interviews with CITMA i.e. Cuban DNA have confirmed project is in compliance	Interviews	CAR1 and CAR2 have already been raised CAR1 & 2 have been closed
2. Project Boundary for the project activity	The project participants have the necessary licences as the project activity is well within the premises of the project boundary indicated	Physical land boundary, Interviews	None
3. Emission Reduction calculation sheet assumptions evidence	The actual project is in compliance with the details	Physical inspection and Interviews	NA
4. CDM consideration proof for the project activity	CAR3 was raised Interviews with CITMA, Ministry of Economy and planning and provincial authorities.	Interviews and DR	NA
5. Evidence for no use of Official Development Assistance	The project has been implemented based on the internal accruals and no funding has been found on-site	Financial records and interviews	NA
6. Evidence is required to be submitted that the technology used would not be changed during the crediting period	Undertaking from PP	DR and Interviews	NA
7. Technical specifications for the project activity	Piping and engineering records, flare technical specification	DR and Interviews	NA
8. Start date of the project activity	Purchase order copies for flare and piping equipment	DR and Interviews	NA

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
9. Consents and approval from Local regulatory Bodies	Consent from the Ministry of Economy and Planning and local provincial authorities	DR and Interviews	NA
10. Purchase Order	The purchase orders and invoices were checked and they were found in Order	DR and Interviews	NA
11. Evidence for all figures and assumptions in investment barrier	CEFT analysis has been checked for both the GASCON and CALLE 100 has been checked	DR and interviews	NA
12. MoM of local stakeholder consultation is required. Discussion with the local stakeholders is required during the site visit	EIA is required and this was checked and only after the EIA was submitted the Cuban DNA (CITMA) has issued the LoA.	SHC Agenda, Interviews and MoM	NA
13. EIA requirement for the project activity	EIA reports for CALLE 100 and GASCON has been checked and found OK	DR and Interviews	NA
14. Scheduling for implementation	Project planning has been checked on both sites and found Ok	DR	NA
15. QA/QC procedures for data monitoring or ISO certificates for the company (if applicable)	The QA/QC procedures are well defined and a training manual has been found on-site	DR and interviews	NA
16. Monitoring plan and assumptions	The monitoring plan and assumption have been checked on-site and found OK	DR and interviews	NA

A.2 Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	The parties that are identified for the project activity are Cuba and France. Cuba had ratified the KP on 30 th April 2002 (www.maindb.unfccc.int/public/country.pl?country=CU) and France has ratified the KP on 31 st May 2002 (www.maindb.unfccc.int/public/country.pl?country=FR)	Y
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	The bundled Project activity is to capture landfill gas and destruct them and thereby reduce GHG emissions voluntarily. The annex I country, France has been identified by the project proponent. A Letter of Approval is required from the Annex I party to conclude compliance. Letter of Approval has been received and is in compliance	CAR1 is closed

Requirement	Reference	Comments	Conclusion
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	The project is a bundled project activity and will contribute to sustainable development. Letter of Approval from Host country has been obtained. The letter of approval has been verified and this was done by interviews with the Director of Science, Technology and Environment (Mr. Orlando Rey Santos)	CAR2 is closed
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	For the global stakeholder process the PDD is directly webhosted on the UNFCCC website: http://cdm.unfccc.int/Projects/Validation/D B/MCFH8YA4JCKTNREL8DPSIA0JJ0YI NP/view.html The GSP is starting from 23 Jul 08 and ends on 21 Aug 08 Number of comments received: 0	Y
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The PDD is as per the CDM- PDD version 03.1 format.	Y
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	Modalities of communication is pending The modalities of communication has been received as on 11 th September 2008	Y
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?		NA	NA

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	1	DR	The project title mentioned in the PDD is Methane capture and destruction on “Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project.” The uniqueness of the CDM activity shall be further assessed against the LoA of Cuba. This has been assessed and is OK	Y	Y
A.1.2. Are there an indication of a revision number and the date of the revision?	1	DR	The version number of the PDD is clearly indicated and is dated 17/07/2008	Y	Y
A.1.3. Is this in consistency with the time line of the project’s history?	1	DR	This shall be checked until final Submission The project title and version no and dates have been consistent with the timeline of the project’s history.	Y	Y
A.2. Description of the Project Activity					
A.2.1. Is the description delivering a transparent overview of the project activities?	1	DR	The project activity is bundled projects to build operate and maintain landfill gas system at two landfill sites in Cuba. Two primary operations for both the landfill sites are envisaged one is flaring and the other is electricity generation.	Y	Y

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.2.2. Is all information provided in compliance with actual situation or planning?	1	DR	To be assessed during site visit The information provided in the PDD is in conformance with the actual situation and planning This was verified on site and through site interviews and documentation on site.	Y	Y
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	1	DR	All information provided is consistent with details	Pending	Y
A.3. Project Participants					
A.3.1. Is the table required for the indication of project participants correctly applied?	1	DR	The table required for the indication of project participants is correctly applied	Y	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1	DR	This will be checked against the Modalities of communication	Pending	Y
A.4. Technical Description of the Project Activity					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	1	DR	The information provided does allow clear indication of both the sites. For Landfill site 1: CALLE 100 geographic coordinates are 23°04'57" N 82°24'29" W For Landfill site 2: GASCON geographic coordinates are 20°03'24" N 75°51'13" W.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	1	DR	To be checked during site visit The Ministry of Economic and Planning consent to the projects. Agreement No 940- dated 20 December 2007	Y	Y
A.4.3. Is the category(ies) of the project activity correctly identified?	1	DR	The category of the project activity is correctly identified	Y	Y
A.4.4. Does the project design engineering reflect current good practices?	1	DR	The CDM project activity is to capture landfill gas through a series of horizontal and vertical wells. For flaring systems the project activity proposes to use the HOFGAS® extracting and flaring station that has been developed by the Swiss Hofstetter Umwelttechnik company. The design envisaged will also be checked on site. The design was checked on site and the technology is transparent and will achieve the desired GHG reductions	Y	Y
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	1	DR	The CDM project activity is to capture landfill gas through a series of horizontal and vertical wells and in the first phase flare the landfill gas. In the second phase the extracted gas would be used to generate electricity and supply it to the grid. The design of the landfill is checked and has been identified as to be Ok	Y	Y
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	1	DR	This will be checked during Site Visit The information provided is in compliance with actual situation on planning, one of the drilled wells were checked during site visit and the wells were found OK,	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.7. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1	DR	The project uses the HOFGAS® extracting and flaring station that has been developed by the Swiss Hofstetter Umwelttechnik company and flaring is not a common practice in Cuba	Y	Y
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1	DR	The project is not likely to be substituted by more efficient technologies.	Y	Y
A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1	DR	The PDD Version 07 mentions that the project will have operators who will be qualified to handle the operations and will be aided by experts. This will also be confirmed during site visit Interviews conducted on site visit affirm that the project also the document MAN-OPE-01 Version 0.	Y	Y
A.4.10. Does the project make provisions for meeting training and maintenance needs?	1	DR	Refer A.4.8	Y	Y
A.4.11. Is a schedule available on the implementation of the project and are there any risks for delays?	1	DR	The schedule is available and the project is ready to commissioned as per schedule. The main delays envisaged is material procurement due to embargo restrictions and this has been well accounted in project planning	Y	Y
A.4.12. Is the table required for the indication of projected emission reductions correctly applied?	1	DR	The table is indicated correctly The table has been corrected in response to NIR8	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.5. Public Funding					
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	1	DR	As per PDD there is no public funding involved in the project activity.	Y	Y
A.5.2. Is all information provided consisting with details provided by further chapters of the PDD (in particular annex 2)?	1	DR	The information provided is consistent with Annex 2 of PDD.	Y	Y
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	1	DR	No public funding has been observed from Annex I countries	Y	Y
B. Baseline and Monitoring Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1	DR	The Methodology ACM0001 version 08, "Consolidated baseline and monitoring methodology for landfill gas project activities", has been applied to this project activity and has been approved by the EB In Phase 2, generation of electricity is envisaged hence the methodology AMS I.D version 13 "Grid connected renewable energy generation" has been applied	Y	Y
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	1	DR	Yes, the baseline methodology is the one deemed most applicable for the project	Y	Y
B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?	1	DR	Pending CARs	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.2. Project Boundary					
B.2.1. Are all emission sources and gasses related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?	1	DR	All emissions sources and gases are identified	Y	Y
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	1	DR	Yes, the Cuban national grid has been considered as per AMS ID requirements and the tool to calculate emissions from electricity sources	Y	Y
B.2.3. Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	1	DR	The projects spatial boundaries are clearly defined and also will be assessed on site	TBC Checked on-site the spatial boundaries are clearly defined	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3. Identification of the Baseline Scenario					
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1	DR	<p>The baseline selected for the project activity would be the continuation of the current scenario that is the as the Cuban regulations do not require controlled capture and destruction the LFG would be vented out into open air of generation in course of time. This is most likely the baseline scenario.</p> <p>This has been checked against the legal report on Municipal Solid waste disposal sites regulation in Cuba and through interviews with the Ministry of Economics and planning, Ministry of Science, technology and environment (CITMA)</p>	Y	Y
B.3.2. Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	1	DR	<p>The application of the baseline scenario does consider all potential realistic and credible baseline scenaris in discussion with the Cuban national policies, macro economics and political aspirations. This will also be checked during site visit</p> <p>The determination of the chosen baseline is transparent and supported by evidences from the legal report by the Notary Carmen Alicia Perez Diaz who is a member of the Department of Justice of the republic of Cuba</p>	TBC	Y
B.3.3. Is the choice of the baseline compatible with the available data?	1	DR	Pending	TBC	Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	1	DR	Yes, the conservativeness is defined	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1	DR	Pending	TBC	Y
B.4. Additionality					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?	1	DR	Pending CARs	Pending	Y
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	1	DR	The latest tool of additionality Version 5 has been followed and this shall be also be checked till final submission	Pending	Y
B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	1	DR	Please provide proof for serious CDM consideration. Also, please elaborate on the delays occurred between the start date and the uploading of PDD as per EB 41 Annex 46	CAR03	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
<p>B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios</p> <p>B.4.5. Do the identified alternative include technologies and practices that include outputs (e.g) cement or services comparable with the proposed CDM project activity</p>	1	DR	<p>The discussion on additionality is based on comparison with realistic and credible alternatives and follows the additionality tool version 5</p> <p>However, the following things have to be justified</p> <ul style="list-style-type: none"> • Electricity Sale price needs to be justified in appropriation of exactness to the inflation rates applied fro 2005 to 2007. • Capex and Opex cost figures justification <p>Benchmarking is not appropriate and does not follow the recent guidance of EB 39 Annex 35. Please Justify why the benchmarking is based on current evidences and not at the time of CDM consideration.</p>	CAR4	Y
B.4.6. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	1	DR	Pending CAR04	Pending	Y
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	1	DR	Pending CAR04	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.8. Has it been shown that the project is not common practice?	1	DR/I	Yes, it has been demonstrated that the project is a common practice in the republic of Cuba. The legal report from the notary and subsequent site visits confirm the same.	TBC	Y
B.4.9. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	1	DR	Pending CAR04	Pending	Y
B.5. Application of the Baseline Methodology					
B.5.1. Has the approved methodology been applied correctly for determining baseline emissions ?	1	DR	The approved methodology ACM0001 V8, however the baselines emissions resulting from AMS I D Version 13 has not been applied under section B.6.1 been applied correctly as per the worksheet submitted. Please Justify.	CAR5	Y
B.5.2. Has the approved methodology been applied correctly for determining project emissions ?	1	DR	Project emission due to on-site flaring operation has been determined as per the methodological requirement of ACM0001 v8 Pending CAR5	Pending	Y
B.5.3. Has the approved methodology been applied correctly for determining leakage ?	1	DR	No leakage is to be considered as per ACM0001 V8	Y	Y
B.5.4. Where applicable, has the approved methodology been applied correctly for the direct calculation of emission reductions	1	DR	Pending CAR5	Pending	Y
B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct	1	DR	Pending CAR5	Pending	Y
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1	DR	Pending CAR5	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	01 & 02	DR	The Build margin is not calculated as per the Tool to calculate the emission factor for an electricity system Version 1.1	CAR6	Y
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	1	DR	Pending CAR6	Pending	Y
B.6.3. Is the vintage of the baseline data correct?	1	DR	Pending CAR6	Pending	Y
B.7. Calculation of Emissions Reductions					
B.7.1. Has the approved methodology been applied correctly for determining emission reductions ?	1	DR	The PDD has incorporated the calculations as per the tools, however this will be checked on site with the evidences that would be provided	TBC	Y
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	1	DR	It is not clear from the calculation sheet whether the auxiliary consumption for the electricity system has been taken onto account. Kindly clarify	NIR07	Y
B.7.3. Have conservative assumptions been used to calculate emission reductions?	1	DR	Pending NIR7	Pending	Y
B.7.4. Is the projection based on provable input parameter?	1	DR	Pending NIR7	Pending	Y
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	1	DR	Pending NIR7	Pending	Y
B.7.6. Is the calculation of the emission reduction correct?	1	DR	Pending NIR7	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.8. Emission Reductions					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	01 & 02	DR	The PDD mentions the emission reduction for both the landfills however pending closure of CARs and NIRs.	Pending	Y
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	01 & 02	DR	The table has been applied correctly	Y	Y
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	01	DR	The start date of the crediting period as mentioned in the PDD is 01/01/2009	Y	Y
B.9. Monitoring Methodology					
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD? Are all parameters and data that is available at validation consistent with the approved methodology	01, 02	DR	The monitoring methodology is consistent in context to all parameters	Y	Y
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	01, 02	DR	The monitoring methodology is applied correctly.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10. Data and Parameters Monitored					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	01	DR	The data archiving system has not been discussed in the PDD	NIR08	Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	01	DR	Not applicable	NA	Y
B.10.3. Will it be possible to determine the specified project GHG indicators?	01	DR	The net electricity supplied to the grid would be monitored and can be accurately measured.	Y	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	01	DR	Presented table in Section B.7.1. of PDD is sufficient to ensure the verification of a proper implementation of the monitoring plan.	Y	Y
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	01	DR	Information given ensures the delivery of high quality data.	Y	Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	01	DR	The Monitoring approach looks consistent.	Y	Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	01	DR	Yes, the formulae used are in compliance with the methodology.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures					
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	01	DR	The data will undergo QA/QC procedures and look complete however will be checked on site	Pending	Y
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	01	DR	Yes	Y	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	01	DR	Will be checked on-site	Pending	Y
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	01	DR	IPCC values have been used	Y	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	01	DR	Will be checked on-site	Pending	Y
B.12. Operational and Management Structure					
B.12.1. Is the authority and responsibility of project management clearly described?	01	DR	The same is discussed under Section B.7.2. of PDD Version07.	Y	Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	01	DR	The same is discussed under Section B.7.2. of PDD Version07.	Y	Y
B.12.3. Are procedures identified for training of monitoring personnel?	01	DR	Please substantiate on the procedures identified for training.	NIR09	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13. Monitoring Plan (Annex 4)					
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	01	DR	Will be checked On-site The MP is complete and clearly addresses the monitoring required	TBC	Y
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	01	DR	Will be checked On-site The MP is complete and all parameters as per the various tools included in the methodology are followed and includes measures to ensure data quality.	TBC	Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	01	DR	Will be checked On-site This was checked on-site and measures have been undertaken	TBC	Y
B.13.4. Are procedures identified for calibration of monitoring equipment?	01	DR	Will be checked On-site All relevant procedures are identified for continuous monitoring of equipments and identified for calibration	TBC	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	01	DR	Will be checked On-site Maintenance manual is available	TBC	Y
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	01	DR	Will be checked On-site Maintenance manual is available	TBC	Y
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems??	01	DR	Will be checked On-site The procedures have been identified for redundancy in data and missing data	TBC	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	01	DR	Will be checked On-site Procedures are identified for internal audits of GHG project compliance with operational requirements	TBC	Y
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	01	DR	Will be checked On-site The procedures are identified for project performance and reviews.	TBC	Y
B.14. Baseline Details					
B.14.1. Is there any indication of a date when determine the baseline?	01	DR	There is an indication of date of determination of baseline	Y	Y
B.14.2. Is this in consistency with the time line of the PDD history?	01	DR	Pending CAR10 The timeline is consistent	Pending	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	01	DR	Pending CAR10 All data is provided in a complete and transparent manner	Pending	Y
C. Duration of the Project / Crediting Period					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	01	DR	The project start date is 18/10/2007. The documents for start date shall be checked Not matching however was changed by the PP in response to CAR3.	Pending	Y
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	01	DR	The assumed crediting period is for 10years and is reasonable.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
C.1.3. Does the project's operational lifetime exceed the crediting period	01	DR	The projects operational lifetime will exceed the crediting period. This was not the case at the start and this was due to the fact that the closure of the landfill was not appropriately calculated. This was corrected by the proponent in response to NIR07	TBC	Y
D. Environmental Impacts					
D.1.1. Does the project comply with environmental legislation in the host country?	1	DR	Yes the project does comply with the environment legislation of the host country	Y	Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1	DR	As per PDD there are no negative environmental impacts associated with the project activity	Y	Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1	DR	As per the current regulations of the host country there is no need for EIA study to be conducted for this project activity.	Y	Y
D.1.4. Will the project create any adverse environmental effects?	1	DR	As per PDD the project will not create adverse environmental effects.	Y	Y
D.1.5. Are transboundary environmental impacts considered in the analysis?	1	DR	There will be no transboundary environmental impacts because of the project activity.	Y	Y
D.1.6. Have identified environmental impacts been addressed in the project design?	1	DR	As per PDD there are no negative environmental impacts because of the project activity	Y	Y
E. Stakeholder Comments					
E.1.1. Have relevant stakeholders been consulted?	1	DR	The relevant stakeholders have been consulted. The documents will be checked.	TBC	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	1	DR	Will be checked On-site The key stakeholders were invited and comments were documented	TBC	Y
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1	DR	Will be checked On-site The stakeholder consultation has been carried out in accordance	TBC	Y
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	1	DR	Will be checked On-site The undertaken stakeholder process has been transparent	TBC	Y
E.1.5. Is a summary of the stakeholder comments received provided?	1	DR	Will be checked On-site The meeting minutes have been provided and the summary has been checked and found OK	TBC	Y
E.1.6. Has due account been taken of any stakeholder comments received?	1	DR	Will be checked On-site Due account has been taken	TBC	Y

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of “Calle 100 landfill in Havana and Gascon landfill in Santiago de Cuba. Bundle CDM project”.

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.

Description of Table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Please Note: This is an open list and more findings may be added as validation progresses.

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	1	Type:	CAR	Issue :	Letter of Approval from Annex I	Ref.:	Table 1, Point 2
Lead Assessor Comment:				Date: 08/08/2008			
<p>The bundled Project activity is to capture landfill gas and destruct them and thereby reduce GHG emissions voluntarily.</p> <p>The annex I country, France has been identified by the project proponent.</p> <p>A Letter of Approval is required from the Annex I party to conclude compliance.</p>							
Project Participant Response:				Date: 13/08/2008			
Draft validation report is a mandatory document to provide to the French DNA: application for LoA from France will start as soon as Draft validation report is obtained.							
Acceptance and Close out by Lead Assessor:				Date: 14/10/2008			
<p>Information Provided: LoA in French (ref: P5-08-012-DD/553c) LoA in English</p> <p>Information Verified: The letter of approval from France was checked and found to be in order.</p>						<p>Verified Document Reference: 6</p>	
<p>Reasoning for not acceptance or acceptance and close out: CAR1 is closed as the letter of approval from France has been submitted and the copies have been verified and found Ok in accordance with Article 12 of KP.</p>							

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	2	Type:	CAR	Issue :	Letter of Approval from Non Annex I	Ref.:	Table 1, Point 3
Lead Assessor Comment:				Date: 08/08/2008			

The project is a bundled project activity and will contribute to sustainable development.	
Letter of Approval from Host country (Cuba) is pending	
Project Participant Response:	Date: 13/08/2008
LoA form Host country has been obtained: see attached files	
Acceptance and Close out by Lead Assessor:	Date: 17/09/2008
Information Provided: LoA in Spanish LoA in English Information Verified: The letter of approval and its translation were verified with the DNA during the site visit meetings and it was found in accordance	Verified Document Reference: 5
Reasoning for not acceptance or acceptance and close out: CAR1 is closed as the letter of approval dated 4 th January 2008 addressed voluntary participation of the project, contributes to sustainable development with Cuba having ratified the KP and this has been checked and verified with subsequent interviews with the Cuban DNA	

Date:	08/08/2008	Raised by:	Kamesh Iyer		
No.:	3	Type:	CAR	Issue	CDM consideration and delay
				:	Ref.: Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008			
Please provide proof for CDM consideration. Also, please elaborate on the delays occurred between the start date and the uploading of PDD.					
Project Participant Response:		Date: 30/08/2008			
<p>CDM consideration: Initially, the project did not consider electricity production, as stated in the PDD uploaded on UNFCCC website from 20th November to 19th December hence no revenue other than CER was expected, therefore project activity would not have taken place without CDM. See section A.2, page 2 of the revised PDD: "At a later stage, the landfill gas collected may be used as fuel for electricity generation. The feasibility of electricity generation will be revisited once the project is fully operational, and it is therefore not part of the project activity presented in this PDD"</p> <p>Other proofs of CDM consideration:</p> <ul style="list-style-type: none"> local stakeholders consultations carried out at the very beginning of the project (March 2007 for Gascon and May 2007 for Calle 100) initial contract with municipalities signed in June 2007 and mentioning UNFCCC registration of the project <p>Timeline: March 2007: a site inspection and assessment is carried out on Gascon landfill, in Santiago de Cuba. The landfill has been receiving the waste of the second biggest city of the country for 20 years. The biogas potential of the site is such that the landfill is considered appropriate to launch biogas recovery operations. Nevertheless, the project is not financially sustainable without carbon credits because the only revenue would come from sale of electricity and electricity sale price in Cuba is too low to cover investment costs. In addition, project developers are not in a financial position enabling to face significant delays associated with electricity production in a country such as Cuba, where risk associated to specific administration and political situation is considered high. These investment barriers are such that CDM registration is a sine qua none condition for the execution of the project. A public meeting explaining the project, detailing technical means and results, principles of CDM and the Kyoto protocol is held shortly after. Local population and administration are enthusiastic about the potential benefits of the project and support the project. See inspection report and stakeholders' meeting report – documents already provided</p>					

May 2007: similar situation for Calle 100 landfill in La Habana, which is the main landfill of the capital
See inspection report and stakeholders' meeting report – documents already delivered

June 2007: project developers make official their intention to proceed with the Gascon project by signing an initial contract with the municipalities of La Habana and Santiago de Cuba. These contracts – signed on 23/06/2007 – settle the basis of the project operations and take into account CDM as mentioned in paragraph 3.3.

See initial contracts between Biosur and municipalities for operations on the landfills. CDM was already considered in these contracts, as UNFCCC is mentioned in paragraph 3.3 (see documents above)

July 2007: on 31/07/2007, main component of equipment – flares – is ordered. The flare order is considered the first step of physical implementation of the project and thus corresponds to the starting date of the project activity according to Glossary of CDM terms version 03.

October 2007: project developers sign a contract with DNV for the validation of landfill gas recovery projects in Cuba. A PDD in small-scale methodology AMS III.G version 5 is prepared for Gascon landfill which is uploaded on UNFCCC website from 25th October to 23rd November 2007. A PDD in large-scale methodology ACM001 version 6 is prepared for the registration of Calle 100 landfill which is uploaded on UNFCCC website from 24th October to 22nd November 2007.

See attached file DNV order form

November 2007: project developers write another PDD for a bundle project including the two sites in order to optimize cost and process of registration. The PDD is prepared under methodology ACM0001 version 7 and is webhosted for commenting period from 20th November to 19th December.

See attached file DNV order form

December 2007: on 17/12/2007, main component of equipment – flares – is invoiced. The construction of the equipment (landfill cover, network) started after that date.

See attached file flare invoice

January 2008: the Cuban DNA, CITMA, approves the bundle project and delivers the letter of approval.

See LoA (provided in answer to CAR2)

April 2008: importation of equipment component (consumables, pipes)

See PO/invoices

June 2008: on 17/06/2008 contracts with landfill operators of the two sites (municipalities of La Habana and Santiago de Cuba) are finalized and signed. CDM is a core issue in these contracts as mentioned in the title.

See first and last pages of the contracts

July 2008: a new PDD is written in order to comply with methodology update, ACM0001 version 7 expiry date 13th August, and to include electricity production. The new version of PDD (“PDD version 7 of 17/07/2008”) follows methodology ACM0001 version 8 and AMS I.D version 13.

Project developers have chosen to contract another DOE for the validation of this PDD. This change is mainly due to delays within DNV that we consider critical for the project (time elapse between starting of operations and registration). This opinion is based on experience with other projects in Chile carried out by Bionersis.

See withdrawal letter and UNFCCC webhosting from 23/07/2008 to 21/08/2008

Acceptance and Close out by Lead Assessor:

Date: 17/09/2008

<p>Information Provided: Collaboration contract 02/07 for the execution of the project: Santiago de Cuba landfill Collaboration contract 01/07 for the execution of the project: Calle 100 landfill Inspection report for GASCON landfill Stakeholders report for GASCON landfill Purchase order for Flare and Piping DNV work order 1-20KYL9 dated 8th October 2008 Contract for the execution of the degasification project & attribution of the carbon credits CALLE100 Contract for the execution of the degasification project & attribution of the carbon credits GASCON Letter of withdrawal between DNV and Bionersis Confirmation of withdrawal communication to UNFCCC Information Verified: The above chronology was assessed along with the guidelines of EB41 Annex 46 and was found OK</p>	<p>Verified Document Reference: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16</p>
<p>Reasoning for not acceptance or acceptance and close out: CAR3 is closed since serious CDM consideration has been demonstrated in the document contract of collaboration which states that the [project shall go ahead with registration with UNFCCC and also demonstrates subsequent timelines as per guidance set in EB41 Annex 46 and this also has been verified on site visit.</p>	

Date:	08/08/2008			Raised by:	Kamesh Iyer			
No.:	4	Type:	CAR	Issue	Additionality		Ref.:	Table 1, Point 3
Lead Assessor Comment:					Date: 08/08/2008			
<p>The discussion on additionality is based on comparison with realistic and credible alternatives and follows the additionality tool version 5</p> <p>However, the following things have to be justified</p> <ul style="list-style-type: none"> • Electricity Sale price needs to be justified in appropriation of exactness to the inflation rates applied fro 2005 to 2007. • Capex and Opex cost figures justification • Benchmarking is not appropriate and does not follow the recent guidance of EB 39 Annex 35 guidance 6. Please Justify why the benchmarking is based on current evidences and not at the time of CDM consideration. 								
Project Participant Response:					Date: 30/08/2008			
<p>1. Electricity sale price</p> <p>Electricity sale price as been modified in accordance with information provided by the Ministry of Basic Industry of Cuba (Ministerio de Industrias Basicas – MINBAS). The following parameters have been taken into account to set a conservative electricity price for the investment analysis:</p> <ul style="list-style-type: none"> • In Cuba, electric market is a state monopoly: electricity is produced, distributed and sold by Union Electrica (UNE). Electricity is subsidized for residential consumption, which makes sale price very low compared to production costs (22 times) • In order to be conservative, we have stated that UNE would buy our electricity production at a price 22 times higher than basic residential sale price, which is 0.09 cuban pesos per kWh. Electricity sale price to UNE would therefore be <u>0.072 euro per kWh</u>. • Supporting documents: <ul style="list-style-type: none"> • information obtained during interviews at MINBAS office and reported by email (in Spanish) 								

- information solicited to the Mission Economique, French administrative relay in Cuba and answer by email (in French)
- Currency exchange rates applied:

Currency exchange rate	
24	Cuban pesos/CUC
1.15	CUC/EUR
27.6	Cuban pesos/EUR

2. Capex and Opex

See attached file: feasibility studies realized by CEFT, specialized biogas consultant, presenting investment costs of energy plant installation on each sites. This assessment has been done in August 2008 taking into account ultimate update of gas emission volumes (as of latest version of PDD). It has not been carried out at the time of CDM consideration as electricity production was not considered then.

3. Benchmark

- Error: please note that there was a mistake in the chosen country risk premium presented in PDD version 7 of 17/07/2008: 9% should have been applied instead of 13.79%. Hence appropriate benchmark is $4.25\% + 9\% = 13.25\%$, instead of 18.04%.
- Clarification on chosen benchmark: at the time of CDM consideration, electricity generation was not considered by PP and PDD (PDD version 6 of 14/11/2007 webhosted from 20/11/2007 to 19/12/2007) presented a simple cost analysis. Electricity production has been included in a new PDD (PDD version 7 of 17/07/2008 webhosted from 23/07/2008 to 21/08/2008) and baseline study has been updated at that time, including a benchmark analysis. The chosen benchmark is therefore based on current evidence at the time of preparing the benchmark analysis.

Acceptance and Close out by Lead Assessor:	Date: 17/09/2008
Information Provided: MINBAS Report CEFT reports for GASCON and CALLE 100 Power tariff Card Information Verified: The electricity sale prices were verified and found OK The CEFT report clearly represents the CAPEX and OPEX cost Benchmarking has been corrected	Verified Document Reference: 17, 18, 19, 20
Reasoning for not acceptance or acceptance and close out: CAR4 is closed based on above evidence submitted for electricity sale price consideration which is verified from the Power tariff card by MINBAS. The CEFT feasibility report clearly defines the CAPEX and OPEX cost considerations and its cost. The benchmarking has been assessed with the help of EB41 Annex 45 guidance and this has been checked. All details also co-relate with the observation and findings observed during Site Visit and hence CAR4 is closed..	

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	5	Type:	CAR	Issue	Application of AMS ID	Ref.:	Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008					
The approved methodology ACM0001 V8, however the baselines emissions resulting from AMS I D Version 13 has not been applied under section B.6.1 been applied correctly as per the worksheet submitted. Please Justify.							
Project Participant Response:		Date: 29/08/2008					

<p>Section B.6.1 has been modified including the baseline emissions resulting from methodology AMS.I-D, see page 16: “According to methodology AMS.I-D version 13, the baseline is the kWh produced by the energy plant ($EL_{LFG,y}$) multiplied by an emission factor measured in tCO_2e/MWh ($CEF_{elec,BL,y}$), that we will calculate according to the procedures prescribed in the Tool to calculate the emission factor for an electricity system: (1c) $BE_y = EL_{LFG,y} * CEF_{elec,BL,y}$</p>	
Acceptance and Close out by Lead Assessor:	Date: 17/09/2008
<p>Information Provided: PDD version 2 Information Verified: PDD Version 2 and AMS ID V 13 have been verified and have been found OK</p>	<p>Verified Document Reference: 1, 2, 4</p>
<p>Reasoning for not acceptance or acceptance and close out: CAR5 is closed as the baseline emissions under AMS ID have now been included and verified and found OK.</p>	

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	6	Type:	CAR	Issue	BM	Ref.:	Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008					
<p>The Build margin is not calculated as per the Tool to calculate the emission factor for an electricity system Version 1.1</p>							
Project Participant Response:		Date: 01/09/2008					
<p>Information required to calculate the build margin has been obtained for year 2007 and calculations have been included in PDD: $EF_{BM,2007} = 0.875 tCO_2/MWh$ Operating margin calculation have been modified taking into account year 2007: $EF_{OM,2005-2007} = 0.808 tCO_2/MWh$. Hence, $EF_{grid,CM} = 0.875 tCO_2/MWh$</p>							
Acceptance and Close out by Lead Assessor:		Date: 17/09/2008					
<p>Information Provided: MINBAS Report Information Verified: MINBAS has provided the data required for calculation of BM and these have been verified during the site visit</p>		<p>Verified Document Reference: 1, 2, 3, 4, 19</p>					
<p>Reasoning for not acceptance or acceptance and close out: CAR6 is closed as the MINBAS report has been verified. The BM calculations have been calculated as per the tool and this was also verified with interviews with MINBAS officials who confirmed the data.</p>							

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	7	Type:	NIR	Issue	Calculation sheet	Ref.:	Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008					
<p>It is not clear from the calculation sheet whether the auxiliary consumption for the electricity system has been taken onto account. Kindly clarify</p>							
Project Participant Response:		Date: 01/09/2008					

<p>Electricity consumed on site has been taken away from electricity produced. Electricity delivered to the grid is thus lower. Auxiliary consumption accounted for Calle 100 energy plant, considering an installed capacity of 2 MW is approximately 432 MWh per year. Auxiliary consumption accounted for Gascon energy plant, considering an installed capacity of 1 MW is approximately 216 MWh per year. See updated calculation spreadsheets [Calle 100 UNFCCC model PDD 01.09.2008.xls] and [Gascon UNFCCC model PDD 01.09.2008.xls]</p>	
Acceptance and Close out by Lead Assessor:	Date: 17/09/2008
Information Provided: Calculation sheets Information Verified: Calculation sheets have accounted the necessary calculations pertaining to electricity consumption on-site	Verified Document Reference: 20
Reasoning for not acceptance or acceptance and close out: NIR7 is closed.as the electricity consumption on-site has been incorporated for the crediting period and found OK	

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	8	Type:	NIR	Issue	Data Archiving	Ref.:	Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008					
The data archiving system has not been discussed in the PDD. Justify							
Project Participant Response:		Date: 26/08/2008					
The data archiving system is presented in page 41 of the PDD, paragraph DATA TRANSMISSION, PROCESSING AND STORAGE: "Copies of the files will be stored up to two years after the end of the crediting period of the project"							
Acceptance and Close out by Lead Assessor:		Date: 17/09/2008					
Information Provided: PDD Version 2 Information Verified: The PDD version 2 has been found OK		Verified Document Reference: 1, 2					
Reasoning for not acceptance or acceptance and close out: NIR8 is closed as the data archiving is now mentioned in the PDD which was not evident in the earlier version							

Date:	08/08/2008	Raised by:	Kamesh Iyer				
No.:	9	Type:	NIR	Issue	Training procedures	Ref.:	Table 1, Point 3
Lead Assessor Comment:		Date: 08/08/2008					
Please substantiate on the procedures identified for training.							
Project Participant Response:		Date: 13/08/2008					
Training material is available							
Acceptance and Close out by Lead Assessor:		Date: 17.09.2008					

<p>Information Provided: On-site Training material</p> <p>Information Verified: The training material is available in the local language and has been checked on site and found Ok</p>	<p>Verified Document Reference: 21</p>
<p>Reasoning for not acceptance or acceptance and close out: NIR 9 is closed as on-site training manual takes care of complete procedures for training and maintenance which has been checked and verified.</p>	

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Kamesh Iyer

SGS Affiliate: India

Status

- Product Co-ordinator
- Operations Co-ordinator
- Technical Reviewer
- Expert

Validation Verification

- Local Assessor
- Lead Assessor
- Assessor
- / Trainee Lead Assessor

Scopes of Expertise

- 1. Energy Industries (renewable / non-renewable)
- 2. Energy Distribution
- 3. Energy Demand
- 4. Manufacturing
- 5. Chemical Industry
- 6. Construction
- 7. Transport
- 8. Mining/Mineral Production
- 9. Metal Production
- 10. Fugitive Emissions from Fuels (solid,oil and gas)
- 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
- 12. Solvent Use
- 13. Waste Handling and Disposal
- 14. Afforestation and Reforestation
- 15. Agriculture

Approved Member of Staff by: Siddharth Yadav

Date: 06.04.2008

Statement of Competence

Name: Kaviraj Singh Pradhan

SGS Affiliate: SGS India Pvt. Ltd.

Status

- Product Co-ordinator
- Operations Co-ordinator
- Technical Reviewer
- Expert

Validation

Verification

- | | | |
|------------------------|-------------------------------------|-------------------------------------|
| - Local Assessor | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Lead Assessor | <input type="checkbox"/> | <input type="checkbox"/> |
| - Assessor | <input type="checkbox"/> | <input type="checkbox"/> |
| /Trainee Lead Assessor | | |

Scopes of Expertise

- | | |
|---|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input checked="" type="checkbox"/> |
| 2. Energy Distribution | <input type="checkbox"/> |
| 3. Energy Demand | <input type="checkbox"/> |
| 4. Manufacturing | <input type="checkbox"/> |
| 16. Chemical Industry | <input type="checkbox"/> |
| 17. Construction | <input type="checkbox"/> |
| 18. Transport | <input type="checkbox"/> |
| 19. Mining/Mineral Production | <input type="checkbox"/> |
| 20. Metal Production | <input type="checkbox"/> |
| 21. Fugitive Emissions from Fuels (solid, oil and gas) | <input type="checkbox"/> |
| 22. Fugitive Emissions from Production and
Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/> |
| 23. Solvent Use | <input type="checkbox"/> |
| 24. Waste Handling and Disposal | <input checked="" type="checkbox"/> |
| 25. Afforestation and Reforestation | <input type="checkbox"/> |
| 26. Agriculture | <input type="checkbox"/> |

Approved Member of Staff by Siddharth Yadav Date: 8th October 2007

Statement of Competence

Name: Jairo Alonso Restrepo Marin

SGS Affiliate: SGS Colombia

Status

- Product Co-ordinator
- Operations Co-ordinator
- Technical Reviewer
- Expert

Validation Verification

- Local Assessor
- Lead Assessor
- Assessor
- /Trainee Lead Assessor

Scopes of Expertise

- 1. Energy Industries (renewable / non-renewable)
- 2. Energy Distribution
- 3. Energy Demand
- 4. Manufacturing
- 27. Chemical Industry
- 28. Construction
- 29. Transport
- 30. Mining/Mineral Production
- 31. Metal Production
- 32. Fugitive Emissions from Fuels (solid, oil and gas)
- 33. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
- 34. Solvent Use
- 35. Waste Handling and Disposal
- 36. Afforestation and Reforestation
- 37. Agriculture

Approved Member of Staff by Shivananda Shetty

Date: 18th Sep 2008