PoA Validation Report Caixa Econômica Federal

Validation of the Caixa Econômica Federal Solid Waste Management and Carbon Finance Project

Report No. BRAZIL-val/03745/2010-SPL

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BUREAU VERITAS CERTIFICATION

62/71 Boulevard du Château
92571 Neuilly Sur Seine Cdx - France

VALIDATION REPORT

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13/01/2012	Bureau Veritas Certification Holding SAS
Client:	Client ref.:
Caixa Econômica Federal	International Bank for Reconstruction and Development acting as the Trustee of the Carbon Partnership Facility

Summary:
Bureau Veritas Certification has been commissioned by the International Bank for Reconstruction and Development acting as the Trustee of the Carbon Partnership Facility for the validation of the PoA Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, project of Caixa Econômica Federal, located in Brazil at SBS QD 4 LT 3 and 4 – 12nd Floor, Brasília, DF, ZIP 70092-900 - on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

Report No.:	Subject Group:
BRAZIL-val/03745/2010-SPL	CDM

Project title:
Caixa Econômica Federal Solid Waste Management and Carbon Finance Project

Work carried out by:
Antonio Daraya – Lead Verifier
Diego Serrano – Verifier

Internal Technical Review carried our by:
Rubens Ferreira

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Work approved by:
Name and signature of GPM

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1 INTRODUCTION

International Bank for Reconstruction and Development acting as the Trustee of the Carbon Partnership Facility has commissioned Bureau Veritas Certification to validate its CDM project PoA Caixa Econômica Federal Solid Waste Management and Carbon Finance Project (hereafter called "the project") at Brazil.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of 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 a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the CDM-PoA-DD, a typical CDM-CPA-DD and a specific real case CDM-CPA-DD (CPA-1), 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.

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.

1.3 Validation team

The validation team consists of the following personnel:

FUNCTION	NAME	CODE HOLDER	TASK PERFORMED*
Lead Verifier	Antonio Daraya	☒Yes ☐ No	☒DR ☒SV ☒RI
Verifier	Diego Serrano	☐Yes ☒ No	☒DR ☒SV ☐RI
Technical Specialist	Ricardo Costa	☒Yes ☐ No	☒DR ☒SV ☒RI
Financial Specialist	Bernardo Lima	☐Yes ☒ No	☒DR ☐SV ☒RI
Internal Technical Reviewer (ITR)	Rubens Ferreira	☒Yes ☐ No	☒DR ☐SV ☐RI
Specialist supporting ITR	N.A.	☐Yes ☐ No	☐DR ☐SV ☐RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a PoA project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The CDM-PoA-DD, a typical CDM-CPA-DD and a real case CDM-CPA-DD (CPA-1) were submitted by Caixa Econômica Federal (Brazil) and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Caixa Econômica Federal (Brazil) revised the CDM-PoA-DD, a typical CDM-CPA-DD and a real case CDM-CPA-DD (CPA-1) and resubmitted it on 20/01/2012.

The validation findings presented in this report relate to the project as described in the CDM-PoA-DD (Caixa Econômica Federal Solid Waste Management and Carbon Finance Project), version 6, dated 18/01/2012, a typical CDM-CPA-DD, version 5, dated 18/01/2012 and a real case CDM-CPA-DD (CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa), version 6, dated 18/01/2012.

2.2 Follow-up Interviews

In the period of 20 to 22/10/2010, Bureau Veritas Certification made a visit to the CTR Santa Rosa in Rio de Janeiro State and performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Caixa Econômica Federal, Carbon Finance (The World Bank) and SERB – Saneamento e Energia Renovável do Brasil S.A., were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	**Interview topics**
Project Participants: Caixa Econômica Federal Carbon Finance (The World Bank)	➢ CDM-PoA-DD, typical CDM-CPA-DD and a real case CDM-CPA-DD (CPA-1) design document ➢ Technology description ➢ Additionality assessment ➢ Environmental assessment ➢ Monitoring plan ➢ Monitoring methodology ➢ Baseline emission estimation ➢ Project emission estimation ➢ Emission reduction estimation ➢ Stakeholder consultation process ➢ Record keeping system of the PoA
Project Implementer: SERB – Saneamento e Energia Renovável do Brasil S.A.	➢ CDM-PoA-DD and a real case CDM-CPA-DD (CPA-1) design document ➢ Technology description ➢ Additionality of the real case CPA-DD (CPA 01) ➢ Monitoring plan ➢ Monitoring methodology ➢ Baseline emission estimation ➢ Project emission estimation ➢ Emission reduction estimation. ➢ Environmental requirement compliance. ➢ Stakeholder consultation process

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions, clarification requests and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Requests (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
(b) The CDM requirements have not been met;
(c) There is a risk that emission reductions cannot be monitored or calculated.

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the Verification Protocol in Appendix A.

2.4 Internal Technical Review

The validation report underwent a Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

> The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
>
> The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the

stakeholders comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s), the finalized Validation Report is accepted for further processing, such as uploading on the UNFCCC webpage.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated in the Validation Protocol, in Appendix A. The validation of the Project resulted in 44 Corrective Action Requests (CARs) and 31 Clarification Requests (CLs). Due to the decision of the CME to utilize in the PoA only the methodology ACM0001, and not anymore also the Methodology AM0053, 10 CARs and 9 CLs referring to this methodology were not included in the total of 44 CARs and 31 CLs.

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the beginning of each section corresponds to the VVM paragraph.

3.1 Approval (49-50)

A letter of approval has not yet been received from the DNA-Designated National Authority.
The final decision from the DNA will be available only after its first ordinary meeting, after the receiving of all the required documents necessary for evaluation, including this validation report, according to Article 3º of the Resolution nº 9 of CIMGC – Comissão Interministerial de Mudança Global do Clima (Interministerial Commission of Global Climate Change).

3.2 Participation (54)

The participation of each project participant is approved together with the letter of approval of the project activity from the DNA.

3.3 Project design document (57)

The validation team hereby confirms that the CDM-PoA-DD /6/, the typical CDM-CPA-DD /12/, and the real case CDM-CPA-DD (CPA-1) /17/ comply with the latest forms /J/ of the guidance documents for completion of CDM-PoA-DD , typical CDM-CPA-DD and a real case CDM-CPA-DD.

3.3.1 Specific PoA Requirements

(a) Operational and Management Arrangements for the PoA (166)

As described in section A.4.4.1 of the CDM-PoA-DD, Caixa Econômica Federal is the coordinating/managing entity of this PoA.
Caixa has established the operational and management plan for the PoA "Caixa Econômica Federal Solid Waste Management and Carbon Finance Project", which includes the following:

a) **Letter of Intent and provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA:** If a landfill site operator is interested in joining this PoA, it shall submit a letter of intent (LoI) to participate in Caixa's PoA. The LoI will indicate their voluntary participation within the PoA, their authorization to give the financial information relevant for the projects evaluation, and confirmation that they are not part of any other registered CDM project or PoA. Then the CPA proponent will be briefed by Caixa about the criteria for inclusion under the PoA.

b) **System/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA:** After receiving the LoI, Caixa will proceed to confirm that the project is not part of another Program, or contained as another registered CDM project, by double checking the projects geographical coordinates with the Brazilian DNA and with published information from the UNFCCC website. At this point, a unique number will be assigned to the CPA, which will serve for reference within Caixa's database which will contain the projects location (GPS coordinates) and private operator's name, among other details.

c) **Eligibility assessment:** Caixa will collect the necessary information to conduct an analysis of the project design as per the eligibility criteria established in Section A.4.2.2 of the POA-DD.

d) **Memorandum of agreement:** if the CPA proponent qualifies, a Memorandum of Agreement (MOA) shall be negotiated and signed. The MOA will outline responsibilities for the development of the project to meet basic technical and financial criteria, as well as the criteria and documentation requirements under the CPA. This will include the roles of Caixa and of the CPA operator in the PoA.

e) **Data gathering and documentation:** After the MOA is signed, the detailed project information necessary to elaborate the CPA-DD will be collected. This includes the project additional technical and financial information on the CPA, feasibility study, evidences etc. Caixa will make itself available to the landfill site operator to provide this service.

f) **CPA-DD preparation:** After the necessary information and documentation requirements have been incorporated in the CPA-DD and Caixa has approved the final version of the document, Caixa as CME will submit the information to the DOE for inclusion as per the rules and procedures of inclusions of CPAs under registered PoAs.

g) **Inclusion of CPA in the PoA:** After the DOE confirms that the CPA is eligible for inclusion under the PoA, Caixa will finalize the financing arrangements for carbon finance and the monitoring arrangements for the specific CPA-DD. During project activity operation, the monitoring plan (as outlined in Sections A.4.4.2 and E.7.2 of the PoA) will be strictly followed by Caixa and the CPA project implementer. Training of the CPA project implementer staff will also be provided at this time to ensure that data monitoring and recording, reporting, internal quality control, operation, calibration, and maintenance are followed by the CPA Project Implementer.

h) **A record keeping system for each CPA under the PoA:** Caixa will maintain the monitoring reports for each of the CPA included in the PoA, including a list of all projects that are under review for inclusion in the PoA and approved for inclusion in the PoA and the status of verification. A database will be developed to contain the major project features important for identifying the CPA and quantifying the emission reductions. This documentation will ensure no double counting occurs in the claiming of emission reductions since each CPA will list the location (GPS coordinates), ownership and a copy of the letter of confirmation from the CPA proponent that the CPA is not a component of another CDM programme or project activity. Monitored data will be kept by project implementers. Recorded data will be kept for two years after the end of the crediting period. For further details please refer to section A.4.4.2 of the PoA-DD.

Caixa will maintain the monitoring reports for each of the CPAs included in the PoA, a list of all CPAs that are under review for inclusion in the PoA, a list of the CPAs already approved for inclusion in the PoA and the status of the verifications.

On 06/12/2012, the DOE made a second visit to the Caixa Econômica Federal's Headquarters in Brasília. The objective of the visit was to verify the database which is being developed to contain the major project features necessary for identifying the CPAs and for quantifying the emission reductions achieved. This information system will be able to ensure that no double counting occurs in the claiming of emission reductions, since for each CPA it will be listed its location (GPS coordinates), ownership and a copy of the letter of confirmation from the CPA proponent that the CPA is not a component of another CDM programme or project activity. Monitored data will be kept by project implementers. Recorded data will be kept for two years after the end of the crediting period.

The DOE assessed the operational and management arrangements which have been established by Caixa, which is the coordinating/managing entity of the PoA and determined that these arrangements are suitable for the PoA being validated. The arrangements have been considered to be sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure each CPA is being operated in accordance with the specific requirements of the programme.

(b) Eligibility Criteria for CPAs (167)

According to the EB 60 Annex 26 Clarifications regarding the procedures for registration of a Programme of Activities as a single CDM Project Activity and issuance of Certified Emission Reductions for a Programme of Activities version 04.1 /K/, a full additionality assessment is not required in the context of component project activities (CPA), rather the confirmation of additionality for CPAs should be conducted by means of the eligibility criteria.

Caixa clearly establishes the eligibility criteria for inclusion of a project as a CPA under the PoA "Caixa Econômica Federal Solid Waste Management and Carbon Finance Project" in its section A.4.2.2 - Eligibility criteria for inclusion of a CPA in the PoA.
The eligibility criteria are as follows:

- Signature by the project implementer of the CPA of a letter of intent (LoI) to confirm both their voluntary participation to the proposed PoA coordinated by Caixa, and that the project under the CPA is neither registered as an individual CDM project activity nor included as part of another registered PoA;

- The CPA must be a Municipal or Regional sanitary landfill;

- The baseline scenario consists of the total or partial release of LFG to the atmosphere;

- LFG can be flared, used for energy generation and/or used to supply consumers through a natural gas distribution network;

- The solid waste disposal site where the waste would be dumped can be clearly identified;

- Only those sites that receive municipal solid waste will be eligible under the CDM-PoA-DD, therefore, at the project site there should be no hazardous wastes;

- The project implementer has agreed to follow stakeholder consultation requirements as per Brazil's DNA, and as outlined in Section D of the CDM-PoA-DD;

- The CPA proponent shall take responsibility for operating and monitoring the CPA as per the CDM rules and guidelines provided by Caixa;

- Additionality analysis is performed at the CPA level, following a financial analysis and demonstrating that the project is not viable unless it is registered as a CDM project;

- In the case the implementation of the CPA requires a loan, the CPA proponent must have confirmation from the financial institution providing the loan for the project activity, where future carbon revenues have been presented for the loan evaluation and are a partial guarantee to repay the loan.

The DOE assessed the specified eligibility criteria in the POA-DD and confirms that they are considered sufficient to ensure that all CPAs will comply with the CDM requirements applicable to the PoA. These requirements included inter alia the means of demonstrating the additionality of the CPA and the applicability of the applied methodology. The eligibility criteria represent an essential element of ensuring the smooth functioning of the PoA.

(c) Validation of the real case CPA-DD (CPA-1) (168)

The Entity responsible for the CPA-1 is SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A.

The CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa complies with all the eligibility criteria and therefore is eligible to be included under the PoA.

The CPA-1 is eligible to be included in the Caixa PoA because:

- Bureau Veritas Certification has confirmed that SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. has provided the letter of intent (LoI) with their voluntary participation to the proposed PoA coordinated by Caixa, and that the CTR Santa Rosa is neither registered as an individual CDM project activity nor included as part of another registered PoA;

- Through documented evidence and site visit, it has been confirmed that the CTR Santa Rosa is a Regional sanitary landfill project, receiving municipal solid waste from Rio de Janeiro, Seropédica and Itaguaí municipalities.

- The baseline scenario consists of the total or partial release of LFG to the atmosphere;

- The project activity intends to collect LFG to be flared, used for energy generation and used to supply consumers through a natural gas distribution network.

- The solid waste disposal site where the waste would be dumped can be clearly identified;

- Only municipal solid waste will be received at the site as per the technical specifications of the concession; therefore, hazardous wastes are not allowed to be disposed at the site;

- SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. has agreed to conduct the stakeholder consultation as required by Brazil's DNA, and as outlined in Section D of the PoA;

- SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. will take responsibility for operating and monitoring the CPA-1 CTR Santa Rosa as per the CDM rules and guidelines provided by Caixa;

- Additionality analysis is performed at the CPA level, within section B.3, following a financial analysis and demonstrating that the project is not viable unless it is registered as a CDM project;

- SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. has confirmation from Caixa, where future carbon revenues have been presented for the loan evaluation and are a partial guarantee to repay the loan.

The DOE assessed the CPA-DD (CPA-1), which the coordinating/managing entity Caixa included in the PoA, to determine that it complies with the eligibility criteria specified in the POA-DD. The means of validation to determine compliance with the eligibility criteria were a desk review of the documentation, follow-up interviews with the project participants and site visits to the landfill area and to the Caixa Econômica Federal's Headquarters in Brasília.

3.4 Changes in the Project Activity

During the site visit, no changes were observed in project as compared to details mentioned in webhosted PoA-DD, version /1/, typical CPA-DD, version 1 /13/, and the first specific CPA-DD (CPA 01), version 1.1 /7/. These documents were webhosted in 22/09/2010 and they were considering the utilization of two methodologies for the project:

-"Consolidated baseline and monitoring methodology for landfill gas project activities", ACM0001, version 11, and
-"Biogenic methane injection to a natural gas distribution grid", AM0053, version 02.

Given that the intention of the PoA is to scale up the use of landfill gas collection and use systems, reaching a broader audience than the webhosted project, it has become evident that the pool of facilities that are willing to implement a gas treatment plant for upgraded biogas is quite small, even taking into account the benefit of the CDM revenues. There are few landfill sites in Brazil, which are not already CDM projects, with the magnitude required for a gas treatment plant. Therefore the CME has decided to make a more conservative PoA, by not claiming credits for the operation of this option, but to leave it as an option on implementation, for those cases that may want to implement the treatment plant under this PoA. As a consequence, only the methodology ACM0001 will be used under this PoA.

Due to the reason appointed, it was necessary, on 09/11/2011, to webhost new versions of the documents, which were: PoA-DD, version 3, typical CPA-DD, version 2, and the first specific CPA-DD (CPA 01), version 3.

All the changes occurred between the final versions PoA-DD, version 6 /6/, typical CPA-DD, version 5 /17/ and the first specific CPA-DD (CPA 01), version 6 /12/ and the webhosted versions (on 09/11/2011), PoA-DD, version 3 /3/, typical CPA-DD, version 2 /14/, and the first specific CPA-DD (CPA 01), version 3 /9/, were due to modifications made required by CARs and CLs raised during the validation process.

3.5 Project description (64)

The process undertaken to validate the accuracy and completeness of the project description includes a document review, interviews with the project participants - Representatives of Caixa Econômica Federal and Carbon Finance (The World Bank) and with the Entity responsible for the CPA-1 -SERB – Saneamento e Energia Renovável do Brasil S.A, and site visits, in the period of 20 to 22/10/2010 and on 06/12/2011.

The geographical boundary for the PoA is Brazil. All the CDM programme activities (CPAs) included in the PoA will be implemented in Brazil taking into consideration all applicable national and/or sectoral policies and regulations.

BV validated the information provided by the CME indicating that the current and expected practice of solid waste management by municipalities in Brazil is that of open dumps and some landfill sites, very few of which have gas collection systems, much less renewable energy generation technologies /28/.

Caixa Econômica Federal has taken the voluntary initiative for the development of this programme of activities as its CME-Coordinating/Managing Entity. The objective of the PoA is to enable municipalities to implement a better solid waste management practice by helping them overcome the existing barriers and leverage financial resources that otherwise would not be available, in the absence of the PoA. The PoA is therefore a voluntary coordinated action initiated by Caixa, where the participation of CPA implementers in the program is also done on a voluntary basis;

The objective of this PoA is therefore to provide solid support to municipalities with a strong coordinating/managing entity able to lead the process, providing financial assistance along with technological training for the concession process with private operators, and technical training for the realization of the CER revenues, so that the above mentioned barriers can be overcome. In essence, the voluntary coordinated action that will be implemented through this PoA, would not, and has not, been implemented in the absence of the PoA.

A typical CPA under this PoA will involve the installation of a landfill gas collection and flaring/use system to an existing or new landfill to reduce a significant amount of greenhouse gas emissions.
The determination of the proportions of the landfill gas to be destined in the different uses will be determined by the availability of gas, and therefore will be described in more detail at the CPA level. A monitoring plan and data recording and archiving

system will be implemented, where Caixa will keep all records for the elaboration of the monitoring reports.

The length of the PoA is 28 years.
The proposed PoA contributes to sustainable development (social, environmental and economic benefits) of the host country Brazil.

In the original documents the starting date of the PoA-DD was defined as 01/08/2010, without any further explanation, and 01/01/2011 was the starting date of the CPD-DD-1. Since this is not in line with the Glossary of CDM Terms version 5, CAR_AVD_15 was raised. The Project Proponent has changed the starting date of the PoA-DD to 22/09/2010, which is when the PoA-DD was first published for global stakeholder consultations, and the starting date of the CPA-DD to 31/12/2011 when the implementation of the gas collection and flare system is expected to begin with the signature of the contract with the supplier of the flare. Based on interviews and the site visit, BV can confirm that at the time that validation started, no CPA had started nor equipment had been ordered, or contract signed for construction services, and no expenditures had been committed to project implementation apart from preliminary studies or costs incurred by CDM such as validation services, therefore CAR_AVD_15 was closed.

There is no public funding from Annex I Parties of UNFCCC for Caixa Econômica Federal Solid Waste Management and Carbon Finance Project.

The first specific CPA-DD is CPA-1 - Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa.

The privately operated landfill of CTR Santa Rosa is located in Rio de Janeiro state, in Seropédica municipality, close to Rio de Janeiro city, the second most populous Brazilian city. CTR Santa Rosa covers an area of 1,699,512.97 m^2 and started receiving waste on January 2011, having received all the necessary environmental licenses for operation. The landfill will initially receive an expected 6,000 tons per day for the first year of domestic solid waste from Rio de Janeiro, Seropédica and Itaguaí municipalities.

In the CTR Santa Rosa CPA, the baseline scenario consists in the complete release of the LFG to the atmosphere, since there are no laws, nor regulatory incentives to enforce the capture or flaring of methane on landfill sites, apart from rare cases where rudimentary and inefficient systems are installed so as to reduce the risk of explosion. Without the additional financial incentive of the emissions reductions revenues, the high cost of modern methane capture and flaring technology preclude their implementation in Brazilian landfills.

The objective of the CPA-1 CTR Santa Rosa landfill is to capture and burn/use the methane generated by the decay of organic waste from the CTR Santa Rosa Sanitary Landfill. The project also intends to generate electricity from the combustion of methane and upgrade the LFG and distribute it via a natural gas grid.

In this CPA, the baseline scenario consists in the release of huge amounts of GHG emissions to the atmosphere, further contributing to global warming and its harmful consequences. The technology implemented by the CPA under Caixa PoA completely changes this scenario locally, reducing the GHG emissions to the atmosphere by almost 50%. Additionally, the Santa Rosa CPA foresees the generation of renewable energy from methane collected, displacing electricity that would have otherwise been produced by fossil fuel sources connected to the Brazilian National Electricity Grid (SIN). Santa Rosa CPA will contribute to sustainable development through the following activities:

Capacity building and job creation: Landfill gas capture projects are not common in Brazil, so there are not enough qualified people on the market. As part of Caixa PoA, Santa Rosa CPA proponents will invest in training activities in order to get a properly skilled staff (engineers, technicians, operators, etc) able to conduct the implementation and management of this CPA.

Renewable energy generation: the renewable energy generated by this CPA will contribute to the country efforts to increase the participation of renewable energy in the Brazilian energy generation profile, helping the country to achieve the goals outlined in the National Climate Change Plan.

The chosen crediting period for the CPA-1 Santa Rosa was 7 years, renewable. The total estimated emission reductions during the "1st" 7 year crediting period are 6,094,170 tCO_2e, or an average of 870,596 tCO_2e/year.

The DOE hereby confirms that the project description in the CDM-PoA-DD-Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, version 6, dated 18/01/2012, the typical CDM-CPA-DD, version 5, dated 18/01/2012 and the real case CDM-CPA-DD-CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, version 6, dated 18/01/2012 is accurate and complete in all respects and that there are no changes to the project activity/design or boundary as compared to the webhosted PDD.

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

According to the PoA-DD, the CPAs under the PoA will apply the consolidated baseline and monitoring methodology for landfill gas project activities, ACM0001, version 11.

ACM0001 – "Consolidated baseline and monitoring methodology for landfill gas project activities – Version 11" is applicable to landfill gas capture project activities, where the baseline scenario is the partial or total atmospheric release of the gas and the project activities include situations such as:

a) The captured gas is flared; and/or
b) The captured gas is used to produce energy (e.g. electricity);
c) The captured gas is used to supply consumers through natural gas distribution network. If emissions reductions are claimed for displacing natural gas, project activities may use approved methodology AM0053.

The ACM0001 methodology is applicable to the Caixa PoA because the baseline scenario in each CPA is the partial or total atmospheric release of the gas and the project activity comprises the scenarios outlined above. Since emission reductions are not intended to be claimed for displacing natural gas, the methodology AM0053 will not be used.

Methodology ACM0001 (version 11) is, therefore, applicable to the CPAs.

The methodology also refers to the latest approved version of the following tools:

– "Tool to determine project emissions from flaring gases containing methane", EB28, Annex 13, version 01;
The tool is applicable to projects where the residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen, and residual gas stream to be flared shall be obtained from decomposition of organic material (through landfills, bio-digesters or anaerobic lagoons, among others). The project activities include burning of the residual landfill gas which is obtained from decomposition of municipal organic waste and produced by the microbiological decomposition of land-filled garbage where most of the residual gas is methane (about 50-55%) and carbon dioxide (about 40-45%); thus the tool is applicable to all CPAs.

– "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01;
The tool is applied to situations where electricity is consumed in the project, thus this tool is applicable to the CPAs that may use electricity from the grid to power equipment such as blowers or pumps.

– "Tool to calculate the emission factor for an electricity system", version 02.2.1;
The tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid. Thus the tool is applicable to all CPAs that may claim ERs from renewable energy generation.

– "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", version 02;
This tool provides procedures to calculate project and/or leakage CO_2 emissions from the combustion of fossil fuels. It can be used in cases where CO_2 emissions from fossil fuel combustion are calculated based on the quantity of fuel combusted and its properties. Therefore the tool is applicable to the CPAs which may use fossil fuel for the operation of the project activity.

– "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05.1.0;
The tool is applicable in cases where the solid waste disposal site where the waste would be dumped can be clearly identified. The disposed site where the waste is deposited is clearly identified thus the tool is applicable to the project.

– "Tool for the demonstration and assessment of additionality", version 05.2.1.

Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory. According to the methodology ACM0001, version 11, the additionality of the project activity shall be demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality. The utilization of this tool is a request of the methodology ACM0001 for all the CPAs under the PoA, because they utilize this methodology.

The DOE hereby confirms that the selected baseline and monitoring methodology ACM0001 (version 11), the "Tool to determine project emissions from flaring gases containing methane", EB28, Annex 13, version 01, the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01, the "Tool to calculate the emission factor for an electricity system", version 02.2.1, the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", version 02, the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05.1.0 and the "Tool for the demonstration and assessment of additionality", version 05.2.1 are previously approved by the CDM Executive Board and are applicable to the project activity, which, complies with all the applicability conditions therein.

The DOE hereby confirms that, as a result of the implementation of the proposed CDM project activity, there are no greenhouse gas emissions occurring within the proposed CDM project activity boundary, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.6.2 Project boundary (80)

The DOE validated the project boundary by:
a) The project documentation: The CDM-PoA-DD-Caixa Econômica Federal Solid Waste Management and Carbon Finance Project), version 6, dated 18/01/2012, the typical CDM-CPA-DD, version 5, dated 18/01/2012 and the real case CDM-CPA-DD CPA-1: Landfill gas recovery, energy generation and distribution from CTR Santa Rosa, version 6, dated 18/01/2012 description, the methodology ACM0001 - Consolidated baseline and monitoring methodology for landfill gas project activity, version 11, Project Flowsheets and Timetables.
b) A site visit undertaken in the period of 20 to 22/10/2010, to the CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, which will be located in Rio de Janeiro state, in Seropédica municipality, close to Rio de Janeiro city, and is to be implemented as part of the CDM-PoA: Caixa Econômica Federal Solid Waste Management and Carbon Finance Project.
Only the landfill area was visited, because project equipments had not been delivered yet until that time.

The geographical boundary for the PoA is Brazil. All the CDM programme activities (CPAs) included in the PoA will be implemented in Brazil taking into consideration all applicable national and/or sectoral policies and regulations.

A typical CDM Programme Activity (CPA) consists of the capture of LFG, flaring and/or use for electricity production at a specific landfill site identified in the CPA-DD.

As per the PoA and as per methodology ACM0001, the project boundary is the site of the project activity where the gas is captured and destroyed/used.
Given that the electricity for project activity is sourced from grid, and electricity generated by the LFG captured would have been generated by power generation sources connected to the grid, the project boundary shall include all the power generation sources connected to the grid to which the project activity is connected.
Likewise because the captured gas is sent through a natural gas distributed network, the network has been included in the project boundary.

The table 3 of Section B.4 of the CDM-CPA-DD CPA-1 represents the sources and gases included in the baseline and in the project boundary and Figure 8 of Section B.4, a Simplified schematic representation of the CPA-1 project boundary.

Based on the above assessment, the DOE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

3.6.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 81 and 82 of the VVM are described below:

For project activities that either flare the landfill gas, and/or generate electricity and/or, have a component where consumers will be supplied with gas through a natural gas distribution grid, given that for the latter case emissions reductions are not going to be claimed for displacing natural gas, baseline scenario assessment and description is performed according to approved baseline methodology ACM0001, version 11.

Baseline scenario assessment and description for all CPAs

ACM0001: According to approved methodology ACM0001 version 11, the baseline scenario to the project activity is assessed through the following steps:

Step 1: Identification of alternative scenarios consistent with current laws and regulations

Using Step 1 of version 05.2.1 of the "Tool for the demonstration and assessment of additionality", alternatives to the baseline i.e. the scenario relevant for estimating baseline methane emissions to be analyzed should include, *inter alia*:

Sub-step 1a: Define alternatives to the project activity:

Alternatives for the disposal/treatment of the waste in the absence of the project activity, i.e. the scenario relevant for estimating baseline methane emissions, to be analysed should include, *inter alia*:

LFG1: The project activity (i.e. capture of LFG and its flaring and/or its use) undertaken without being registered as a CDM project activity;

LFG2: Atmospheric release of the LFG or partial capture of landfill gas and destruction to comply with regulations or contractual requirements, or to address safety and odor concerns.

Since the PoA may also consider CPAs where LFG is used for generation of electricity to the grid, realistic and credible alternatives should also be separately determined for power generation.

As per the methodology, the realistic and credible alternative(s) for energy generation may include, *inter alia*:

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.

As heat energy is not one of the options within the PoA, scenarios P2, P3 and H1-H7 were not considered as an alternative by the project participants. The alternatives P4 and P5 were not considered realistic as there is no need for a power plant at any landfill site in the baseline scenario. In all cases it would be more reasonable to consume energy from the Brazilian grid. Therefore for all CPAs the alternatives for the CPAs are LFG1, LFG2, P1 and P6.

Outcome of Step 1a: The most plausible and credible alternatives to the project activity are: LFG1 and P1, LFG2 and P6.

The establishment of the baseline scenario as a LFG2, P6 as required by the approved methodology ACM0001 Version 11 will be done at the CPA level.

Sub-step 1b: Consistency with mandatory laws and regulations

All scenarios described earlier are consistent with Brazilian laws and regulations, as there are no laws or regulations mandating capture and flaring or use of landfill gas, nor due to safety issues or to promote the productive use of LFG. The Brazilian legislation establishes that each state is responsible for the environmental license process for landfills. Thus, each state defines the laws, minimum standards, technologies, restrictions and environmental requirements for the landfills. Furthermore, the Ministry of Cities has indicated that the priority for investments should consider the (i) reduction of open dumps by 50% within 5 years; (ii) unification and coordination of existing financing lines and programs; (iii) capacity building with a focus on the elaboration of integrated solid waste management plans for municipalities and states, as well as on research and support to NGOs and other technical assistance programs; and (iv)

promotion of programs with socioeconomic objectives linked to waste collection, such as creation and enhancement of solid waste collection cooperatives. That may be done through concessions to private entities either to build and operate sanitary landfills or to be responsible for the whole municipality's waste management. In all cases, however, active collection and flaring of the landfill gas has never been required, thus regulations concerning solid waste disposal do not foresee an obligation on LFG flaring and destruction, or other gainful use.

Outcome of Step 1b**:** LFG1 and P1 along with LFG2, P6 continue to be considered plausible baseline scenarios consistent with country implementation of laws and regulations.

As per methodology ACM0001, we continue with step 2
Step 2: Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable

ACM0001 states that the CPA-DD must demonstrate that the identified baseline fuel is available in abundance in the host country and there is no supply constraint.

Step 2 is not applicable to the proposed project activity, since the baseline is the continuation of open dumps where there is no fossil fuel consumption.

As per methodology ACM0001, we continue with step 3
Step 3: Step 2 and/or Step 3 of the approved version 05.2.1 of the "*Tool for demonstration and assessment of additionality*" shall be used to assess which of these alternatives should be excluded from further consideration (e.g. alternatives facing prohibitive barriers or those clearly economically unattractive).

For this PoA, and all CPAs that are to be included under the PoA, Step 2 of the tool: "*Investment Analysis*" will be followed, and step 3 of the tool will be skipped; please refer to section E.5 of the PoA-DD for all details on how the assessment will be done. The outcome of this analysis per CPA will depend upon the economic comparison between the identified benchmark value for the CPA and the project IRR/NPV value of the project activity without CDM revenue.

Outcome of Step 2 of the Tool: If after the analysis it is concluded that: (1) the proposed CPA CDM project activity is unlikely to be the most financially/economically attractive (as per Step 2c para 10a of the tool) or is unlikely to be financially/economically attractive (as per Step 2c para 10b of the tool), then proceed to Step 4 of the tool (Common practice analysis).

Step 4 of the Tool: Common practice analysis
Please see section E.5 of the PoA-DD for complete analysis, as per the Guidelines on Common Practice (EB63 Annex 12).

Outcome of Step 4 of the Tool: as per the section E.5 of the PoA-DD, the outcome of the stepwise approach is that the CPAs under the PoA are not the common practice for landfill sites in Brazil.

As per methodology ACM0001, we continue with step 4
Step 4: Where more than one credible and plausible alternative remains, project participants shall, as a conservative assumption, use the alternative baseline scenario that results in the lowest baseline emissions as the most likely scenario. The least emission alternative will be identified for each component of the baseline scenario. In assessing these scenarios, any regulatory or contractual requirements should be taken into consideration.

As demonstrated in section E.5 of the PoA-DD, the outcome of the analysis for CPAs that are to be included under this PoA is that the most plausible baseline scenario for these project activities will be LFG2 "Atmospheric release of the landfill gas" and P6 "Existing and/or new grid-connected power plants", and therefore Step 4 of the methodology does not need to be applied because there is only one credible and plausible alternative remaining.

Outcome of the Baseline scenario assessment and description for all CPAs: the most plausible baseline scenario for these project activities will be LFG2 "Atmospheric release of the landfill gas" and P6 "Existing and/or new grid-connected power plants".

The CPA-1 CTR Santa Rosa:
The CPA-1 CTR Santa Rosa is additional as per eligibility criteria listed in the PoA. This additionality is justified as follows:

- There should not be any existing operating LFG collection system – CTR Santa Rosa landfill is still being constructed and there are no plans to implement a LFG collection system without CDM registry.

- The costs for installation of the LFG collection and use systems should be prohibitive without CDM revenues. Estimated costs necessary to implement the LFG capture system, flaring system, electricity generators and LFG upgrading and distribution station exceeds R$ 90 million, making this project not viable without CDM revenues. This is demonstrated as follows:

As stated by the PoA, additionality assessment will be performed according to the "Tool for demonstration and assessment of additionality", version 05.2.1.

Step 1. Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity:
As described in section E.4. of the PoA-DD, alternative scenarios for the CPA are:
• LFG1: The project activity undertaken without being registered as a CDM project activity
• LFG2: Atmospheric release of the LFG
• P1: Power generated from landfill gas undertaken without being registered as CDM project activity
• P6: Existing and/or new grid-connected power plants

Outcome of Step 1a, as per the PoA-DD: The most plausible and credible alternatives to the project activity are: LFG1 and P1, LFG2 and P6.

Sub-step 1b: Consistency with mandatory laws and regulations
As explained on the PoA-DD all alternatives are consistent with Brazilian laws and regulations. For this CPA, the state of Rio de Janeiro does not have any regulation requiring landfills to have gas collection systems.

Outcome of Step 1b, as per the PoA-DD: LFG1 and P1 along with LFG2, P6 continue to be considered plausible baseline scenarios consistent with country implementation of laws and regulations.

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

The step 2 is not applicable to the proposed CPA, as the baseline energy source is the electricity provided by the national grid.

Step 3: Step 2 of the Tool for demonstration and assessment of additionality shall be used to assess which of these alternatives should be excluded from further consideration.

Refer to Section 3.7 – Additionality of a Project Activity and to Section 3.7.3 – Investment Analysis.

As recommended by the Tool for demonstration and assessment of additionality, the analysis showed that the CPA is unlikely to be financially/economically attractive.

Outcome of Step 2 of the tool, as per the PoA-DD: Given that after the financial analysis it is concluded that the proposed CPA CDM project activity is unlikely to be financially/economically attractive (as per Step 2c para 10b of the tool), then proceed to Step 4 of the tool (Common practice analysis).

Step 4. Common practice analysis

As has been demonstrated in the PoA, and following the Guidelines on Common Practice (EB63 Annex 12) the outcome of the stepwise approach is that the CPAs under the PoA are not the common practice for landfill sites in Brazil.

Refer to Section 3.7.5 – Common Practice Analysis.

Therefore, the CPA-1 Santa Rosa meets all criteria described in the PoA. Costs are definitely prohibitive without the benefits of CDM registry, and current practices in Brazil (baseline scenario in the host country) are the total release of LFG to the atmosphere.

Therefore as per the PoA, the proposed CPA is additional, and as the project activity is unlikely to be financially/economically attractive, the most plausible baseline scenario is confirmed to be LFG2 “Atmospheric release of the landfill gas” and P6 “Existing and/or new grid-connected power plants”.

The Baseline scenario for all the CPAs, including CPA-1, is:

LFG2, P6

Based on the above assessment, the DOE hereby confirms that:
(a) All the assumptions and data used by the project participants are listed in the PoA-DD and the first specific CPA-DD CPA-1, including their references and sources;
(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD and the first specific CPA-DD CPA-1;
(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD and the first specific CPA-DD CPA-1;
(e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM are described below:

In the PoA Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, the emissions reductions are calculated according to version 11 of approved methodology ACM0001 and its recommended tools.

Baseline emissions

Baseline emissions are calculated with the following equation:

$$BE_y = \left(MD_{project,y} - MD_{BL,y}\right) * GWP_{CH4} + EL_{LFG,y} \cdot CEF_{elec,BL,y} + ET_{LFG,y} * CEF_{ther,BL,y} \quad (1)$$

Where:

BE_y = Baseline emissions in year y (tCO_2e)

$MD_{project,y}$ = The amount of methane that would have been destroyed/combusted during the year, in tonnes of methane (tCH4) in project scenario

$MD_{BL,y}$ = The amount of methane that would have been destroyed/combusted during the year in the absence of the project due to regulatory and/or contractual requirement, in tonnes of methane (tCH_4)

GWP_{CH4} = Global Warming Potential value for methane for the first commitment period is 21 tCO_2e/tCH_4

$EL_{LFG,y}$ = Net quantity of electricity produced using LFG, which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation, during year y, in megawatt hours (MWh)

$CEF_{elecy,BL,y}$ = CO_2 emissions intensity of the baseline source of electricity displaced, in tCO_2e/MWh This is estimated as per the section *Determination of* $CEF_{elec,BL,y}$ below

$ET_{LFG,y}$ = The quantity of thermal energy produced utilizing the landfill gas, which in the absence of the project activity would have been produced from onsite/offsite fossil fuel fired boiler/air heater, during the year *y* in TJ

$CEF_{ther,BL,y}$ = CO_2 emissions intensity of the fuel used by boiler/air heater to generate thermal energy which is displaced by LFG based thermal energy generation, in tCO_2e/TJ.

The methane that would be destroyed in the baseline is calculated as follows.

$$MD_{BL,y} = MD_{project,y} * AF \quad (2)$$

- *Guidance on estimating AF:*

ACM0001 provides the guidance on how to estimate AF. AF should be considered in cases where a specific system for collection and destruction of methane is mandated by regulatory or contractual requirements or is undertaken for other reasons, the ratio of the destruction efficiency of the baseline system to the destruction efficiency of the system used in the CPA shall be used. Since the Brazilian legislation establishes that each state is responsible for the environmental license process for landfills, each state then defines the laws, minimum standards, technologies, restrictions and environmental requirements for the landfills /53/, /54, /55/. Therefore under the current PoA, each CPA will determine its AF depending on its geographical location and state regulations which it is subject to. This will be reviewed accordingly by each CPA if there is a change, with the renewal of its crediting period.

Therefore, since there is no thermal energy generation as part of this PoA, equation 1 is reduced to the following equation, which will be used for all CPAs under the PoA:

$$BE_y = (MD_{project,y} - MD_{BL,y}) * GWP_{CH4} + EL_{LFG,y} * CEF_{elec,BL,y} \quad (3)$$

Ex-Ante Baseline emissions

Ex ante methane emissions that are generated in the landfill ($MD_{project,y}$) are calculated following methodology ACM0001, and based on parameter $BE_{CH4,SWDS,y}$ calculated as per the approved "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" where the following guidance from the methodology should be taken into account:

- In the tool, x will refer to the year since the landfill started receiving wastes [x runs from the first year of landfill operation (x=1) to the year for which emissions are calculated (x=y)];
- Sampling to determine the different waste types is not necessary. The waste composition can be obtained from previous studies.
- The efficiency of the degassing system which will be installed in the project activity should be taken into account while estimating the *ex ante* estimation.

As per the tool these will be calculated considering the following equation:

$MD_{project,y} = BE_{CH4,SWDS,y}/GWP_{CH4}$ (4)

Where:

$BE_{CH4,SWDS,y}$ = Methane generation from the landfill in the absence of the project activity at year *y* (tCO_2e), calculated as per the "*Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site*". The tool estimates methane generation adjusted for, using adjustment factor (f) any landfill gas in the baseline that would have been captured and destroyed to comply with relevant regulations or contractual requirements, or to address safety and odor concerns. As this is already accounted for in equation 2, "f" in the tool shall be assigned a value 0.

$$BE_{CH4,SWDS,y} = \varphi \cdot (1-f) \cdot GWP_{CH4} \cdot (1-OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^{y} \sum_{j} W_{j,x} \cdot DOC_j \cdot e^{-k_j \cdot (y-x)} \cdot \left(1-e^{-k_j}\right) \quad (5)$$

Where:

$BE_{CH4,SWDS,y}$ = Methane emissions avoided during the year y from preventing disposal at the solid waste disposal site (SWDS) during the period from the start of the project activity to the end of the year y (tCO_2e)

φ = Model correction factor to account for model uncertainties (0.9)

f = Fraction of methane captured at the SWDS and flared, combusted or used in another manner

GWP_{CH4} = Global Warming Potential (GWP) of methane, valid for the relevant commitment period

OX = Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)

F = Fraction of methane in the SWDS gas (volume fraction) (0.5)

DOC_f = Fraction of degradable organic carbon (DOC) that can decompose

MCF = Methane correction factor

$W_{j,x}$ = Amount of organic waste type j prevented from disposal in the SWDS in the year x (tonnes)

DOC_j = Fraction of degradable organic carbon (by weight) in the waste type j

k_j = Decay rate for the waste type j

j = Waste type category (index)

x = Year during the crediting period: x runs from the first year of the crediting period (x = 1) to the year y for which avoided emissions are calculated (x = y)

y = Year for which methane emissions are calculated

The amount of different waste types ($W_{j,x}$) were calculated through waste data based on a recent study. However, if sampling is needed, $W_{j,x}$ will be calculated as follows:

$$W_{j,x} = W_x . \frac{\sum_{n=1}^{z} P_{n,j,x}}{Z} \quad (6)$$

Where,

$W_{i,x}$ = Amount of organic waste type *j* prevented from disposal in the SWDS in the year *x* (tons)

W_x = Total amount of organic waste prevented from disposal in year *x* (tons)

$P_{n,j,x}$ = Weight fraction of the waste type *j* in the sample *n* collected during the year *x*

Z = Number of samples collected during the year *x*

The second part of the baseline equation represents the baseline emissions produced by the amount of expected energy that would have been produced by the grid, and will be replaced by the electricity produced by the project activities in the CPAs. This is calculated by multiplying $EL_{LFG,y}$ times $CEF_{elec,BL,y}$.

Determination of $CEF_{elec,BL,y}$

The *"Tool to Calculate the Emission Factor for an Electricity System" (version 02.2.1)* is applied to calculate the combined margin emission factor for the Brazilian grid, using the supplied information provided by the Brazilian DNA. This will be done per CPA, reported in the CPA-DD and will be monitored ex-post by each project activity.

Ex-Post Baseline emissions

$MD_{project,y}$ will be determined *ex post* by metering the actual quantity of methane captured and destroyed once the project activity is operational.

The methane destroyed by the project activity ($MD_{project,y}$) during a year is determined by monitoring the quantity of methane actually flared and gas used to generate electricity and/or produce thermal energy and/or supply to end users via natural gas distribution grid, if applicable, and the total quantity of methane captured.

The sum of the quantities fed to the flare(s), to the power plant(s), and to the natural gas distribution grid (estimated using equation 3) must be compared annually with the total quantity of methane generated. The lowest value of the two must be adopted as $MD_{project,y}$.

The following procedure applies when the total quantity of methane generated is the highest. The working hours of the energy plant(s) should be monitored and no emission reduction could be claimed for methane destruction in the energy plant during non-operational hours. As per the methodology we have that:

$$MD_{project,y}=MD_{flared,,y}+MD_{electricity,y}+MD_{thermal,\ y}+MD_{PL,\ y} \quad (7)$$

Where:

$MD_{flared,y}$ = Quantity of methane destroyed by flaring (tCH_4)

$MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity (tCH_4)

$MD_{thermal,y}$ = Quantity of methane destroyed for the generation of thermal energy (tCH_4)

$MD_{PL,y}$ = Quantity of methane sent to the pipeline for feeding to the natural gas distribution network (tCH_4)

Right hand side of equation (7) is the sum over all the points of captured methane use in case the methane is flared in more than one flare, and/or used in more than one energy generation source. The supply to each point of methane destruction, through flaring or use for energy generation, shall be measured separately. Since there is no thermal energy generation contemplated in this PoA, the third term, $MD_{thermal,y}$ is always assumed as zero. As for the first term, we have that:

$$MD_{flared,y} = \{LFG_{flare,y} * w_{CH4,y} * D_{CH4}) - (PE_{flare,y} / \mathrm{GWP_{CH4}}) \quad (8)$$

Where:

$LFG_{flare,y}$ = Quantity of landfill gas fed to the flare(s) during the year measured in cubic meters (m^3)

$w_{CH4,y}$ = Average methane fraction of the landfill gas as measured* during the year and expressed as a fraction (in m^3 CH_4/m^3 LFG)

D_{CH4} = Methane density expressed in tonnes of methane per cubic meter of methane (tCH_4/m^3CH_4)†

$PE_{flare,y}$ = Project emissions from flaring of the residual gas stream in year y (tCO2e) determined following the procedure described in the "*Tool to determine project emissions from flaring gases containing methane*". If methane is flared through more than one flare on a CPA, the $PE_{flare,y}$ shall be determined for each flare

Since the CPAs under this PoA will implemented enclosed flares, then as per the tool, the temperature in the exhaust gas of the flare will be measured to determine whether the flare is operating or not.

For enclosed flares, either of the following two options can be used to determine the flare efficiency:

* Methane fraction of the landfill gas and LFG flow have to be measured on same basis (either wet or dry). In case the "Tool to determine project emissions from flaring gases containing methane" is used, follow the standard approaches to convert the flow on wet basis to dry basis. For example, refer to the procedures provided in the book "Fundamentals of Classical Thermodynamics"; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4º Edition, 1994, John Wiley & Sons, Inc.

† At standard temperature and pressure (0 degree Celsius and 1,013 bar) the density of methane is 0.0007168 tCH_4/m^3CH_4.

(a) To use a 90% default value. Continuous monitoring of compliance with manufacturer's specification of flare (temperature, flow rate of residual gas at the inlet of the flare) must be performed. If in a specific hour any of the parameters are out of the limit of manufacturer's specifications, a 50% default value for the flare efficiency should be used for the calculations for this specific hour.

(b) Continuous monitoring of the methane destruction efficiency of the flare (flare efficiency).

In both cases for all CPAs, if there is no record of the temperature of the exhaust gas of the flare or if the recorded temperature is less than 500 ℃ for any particular hour, it shall be assumed that during that hour the flare efficiency is zero.

Project implementers will document in the CPA-DD, which option is taken to determine the flare efficiency. In case of use of the default value for the methane destruction efficiency, the manufacturer's specifications for the operation of the flare and the required data and procedures to monitor these specifications will be documented in the CPA-DD.

For the second term of equation (7) we have that:

$$MD_{electricity,y} = LFG_{electricity,y} * w_{CH4,y} * D_{CH4} \quad (9)$$

Where:
$MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity
$LFG_{electricity,y}$ = Quantity of landfill gas fed into electricity generator

And for the fourth term of equation (7) we have that:

$$MD_{PL,y} = LFG_{PL,y} * w_{CH4,y} * D_{CH4} \quad (10)$$

Where $LFG_{PL,y}$ is the quantity of landfill gas sent to pipeline for feeding to the natural gas distribution grid.

At the renewal of the crediting period of the PoA, the following data should be updated according to default values suggested in the most recent version of the tool:

- Oxidation factor (*OX*);
- Fraction of methane in the SWDS gas (*F*);
- Fraction of degradable organic carbon (*DOC*) that can decompose (DOC_f);
- Methane correction factor (*MCF*);
- Fraction of degradable organic carbon (by weight) in each waste type *j* (*DOCj*);
- Decay rate for the waste type *j* (k_j).
- Global Warming Potential (GWP)

Project Emissions:

According to the methodology, project emissions are determined by the following:

$$PE_y = PE_{EC,y} + PE_{FC,j,y} \quad (11)$$

Where:

$PE_{EC,y}$ = Emissions from consumption of electricity in the project case.

$PE_{FC,j,y}$ = Project emissions from fossil fuel combustion

Project emissions from electricity consumption ($PE_{EC,y}$) are calculated following version 01 of *"Tool to calculate baseline, project and/or leakage emissions from electricity consumption";* from it, scenario A "Electricity consumption from the grid" will be applied for all CPAs, where $PE_{EC,y}$ is calculated as follows:

$$PE_{EC,y} = \sum EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad (12)$$

Where:

$EC_{PJ,j,y}$ Quantity of electricity consumed by the project activity during the year MWh

$EF_{EL,j,y}$ Brazilian grid emission factor tCO_2/MWh (same as $CEF_{elecy,BL,y}$ mentioned above)

$TDL_{j,y}$ Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site.

Project emissions from fossil fuel combustion ($PE_{FC,j,y}$) are calculated following the latest version of "*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*". These emissions are calculated as follows:

$$PE_{FC,j,y} = FC_{i,j,y} * COEF_{j,y} \quad (13)$$

Where

$FC_{i,j,y}$ is the fossil fuel combusted of type i, in the process j, for the year y

$COEF_{j,y}$ is the CO_2 emission coefficient of the fossil fuel i

Where

$COEF_{j,y}$ is calculated by following option B of the tool:

$$COEF_{j,y} = NCV_{i,y} * EF_{CO2y} \quad (14)$$

Where

$NCV_{i,y}$ Is the weighted average net calorific value of the fuel type i

$EF_{CO2y`}$ Is the weighted average CO_2 emission factor of fuel type

Project emissions from flaring have not been shown in this section since they are already taken into account in the $MD_{project}$ parameter.

Leakage

No leakage effects need to be accounted under this methodology.

Emission Reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \quad (15)$$

Where:

ER_y = Emission reductions in year *y* (tCO_2e/yr)
BE_y = Baseline emissions in year *y* (tCO2e/yr)
PE_y = Project emissions in year *y* (tCO_2/yr)

CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa

Ex-ante calculation of emission reductions

Baseline emissions

Baseline emissions are calculated with the following equation:

$$BE_y = \left(MD_{project,y} - MD_{BL,y}\right) * GWP_{CH4} + EL_{LFG,y} \cdot CEF_{elec,BL,y} + ET_{LFG,y} * CEF_{ther,BL,y} \quad (1)$$

Where:

BE_y = Baseline emissions in year *y* (tCO_2e)
$MD_{project,y}$ = The amount of methane that would have been destroyed/combusted during the year, in tonnes of methane (tCH4) in project scenario
$MD_{BL,y}$ = The amount of methane that would have been destroyed/combusted during the year in the absence of the project due to regulatory and/or contractual requirement, in tonnes of methane (tCH_4)
GWP_{CH4} = Global Warming Potential value for methane for the first commitment period is 21 tCO_2e/tCH_4
$EL_{LFG,y}$ = Net quantity of electricity produced using LFG, which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation, during year *y*, in megawatt hours (MWh)
$CEF_{elecy,BL,y}$ = CO_2 emissions intensity of the baseline source of electricity displaced, in tCO_2e/MWh This is estimated as explained in the PoA-DD and Annex 3 of this CPA-DD
$ET_{LFG,y}$ = The quantity of thermal energy produced utilizing the landfill gas, which in the absence of the project activity would have been produced from onsite/offsite fossil fuel fired boiler/air heater, during the year *y* in TJ
$CEF_{ther,BL,y}$ = CO_2 emissions intensity of the fuel used by boiler/air heater to generate thermal energy which is displaced by LFG based thermal energy generation, in tCO_2e/TJ.

The methane that would be destroyed in the baseline is calculated as follows.

$$MD_{BL,y} = MD_{project,y} * AF \quad (2)$$

- *Guidance on estimating the Adjustment Factor, AF:*

ACM0001 provides the guidance on how to estimate AF. AF should be considered in cases where a specific system for collection and destruction of methane is mandated by regulatory or contractual requirements or is undertaken for other reasons, the ratio of the destruction efficiency of the baseline system to the destruction efficiency of the system used in the CPA shall be used. Since the Brazilian legislation establishes that each state is responsible for the environmental license process for landfills, each state then defines the laws, minimum standards, technologies, restrictions and environmental requirements for the landfills. For the case of the CTR Santa Rosa landfill site, which is located in the state of Rio de Janeiro, the environmental agency of the state does not require the landfill to install any landfill gas collection and flare system, including passive flaring. This is the common practice in the state of Rio de Janeiro.

As a result the term *AF* is equal to zero, and hence $MD_{BL,y}$ is equal to zero. Therefore equation (1) is reduced to:

$$BE_y = MD_{project,y} * GWP_{CH4} + EL_{LFG,y} \cdot CEF_{elec,BL,y} \quad (3)$$

Ex ante estimation of the amount of methane that would have been destroyed/combusted during the year, in tonnes of methane ($MD_{project,y}$)

The *ex ante* estimation [*] of the amount of methane that would have been destroyed/combusted during the year, in tonnes of methane ($MD_{project,y}$) were calculated as per the fifth version of the approved "*Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site*", considering the following additional equation:

$$MD_{project,y} = \frac{BE_{CH4,SWDS,y}}{GWP_{CH4}} \quad (4)$$

Where:

$$BE_{CH4,SWDS,y} = \varphi \cdot (1-f) \cdot GWP_{CH4} \cdot (1-OX) \cdot \frac{16}{12} \cdot F \cdot DOC_f \cdot MCF \cdot \sum_{x=1}^{y} \sum_{j} W_{j,x} \cdot DOC_j \cdot e^{-k_j \cdot (y-x)} \cdot \left(1 - e^{-k_j}\right) \quad (5)$$

Where:

$BE_{CH4,SWDS,y}$ = Methane emissions generated during the year y from disposal at the solid waste disposal site (SWDS) during the period from the start of

[*] Actual emissions reductions will be monitored ex-post.

		the project activity to the end of the year y (tCO_2e)
φ	=	Model correction factor to account for model uncertainties (0.9)
f	=	Fraction of methane captured at the SWDS and flared, combusted or used in another manner
GWP_{CH4}	=	Global Warming Potential (GWP) of methane, valid for the relevant commitment period (21)
OX	=	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F	=	Fraction of methane in the SWDS gas (volume fraction) (0.5)
DOC_f	=	Fraction of degradable organic carbon (DOC) that can decompose
MCF	=	Methane correction factor
$W_{j,x}$	=	Amount of organic waste type j prevented from disposal in the SWDS in the year x (tonnes)
DOC_j	=	Fraction of degradable organic carbon (by weight) in the waste type j
k_j	=	Decay rate for the waste type j
j	=	Waste type category (index)
x	=	Year during the crediting period: x runs from the first year of the crediting period (x = 1) to the year y for which avoided emissions are calculated (x = y)
y	=	Year for which methane emissions are calculated

The project implementer for CPA-1 CTR Santa Rosa foresees that the project will be undertaken in three phases; the first one will encompass the installation of the LFG collection system and flare. The second phase will be one where the energy generation system is put in place, and the third one will be the implementation of the gas treatment plant which will upgrade landfill gas to be distributed via a natural gas distribution network.

The estimated amount of waste to be received is based on the technical details of the concession of the site[*] and the waste collection data available for the municipalities that will deposit MSW to CTR Santa Rosa, increased yearly by the coefficient of population vegetative growth[†]. The characterization of the municipal solid waste is based on the waste characterization done by the prefecture of the city of Rio[‡]. As soon as CTR Santa Rosa is operational, all waste being disposed in Gramacho will be redirected to Santa Rosa.

Table 4- Waste composition data used in the ex-ante estimation of emissions reductions for this CPA

Waste type	(%) wet basis	Classification as per the Tool
Paper/Paperboard	16.08%	Pulp, paper and cardboard
Plastics	20.31%	Glass, plastic, metal, other inert
Glass	2.84%	Glass, plastic, metal, other ine

[*] Anexo A do Edital de concorrência, itens 20.1 e 20.2.
[†] Ibid.
[‡] Waste characterization by Rio prefecture, (Caracterização gravimétrica e microbiológica dos resíduos sólidos domiciliares – 2009) also found online at http://comlurb.rio.rj.gov.br/download/caracteriza%C3%A7%C3%A3o%202009.pdf

Organic Matter	53.63%	Food, food waste, beverages and tobacco
Metal	1.74%	Glass, plastic, metal, other inert
Other Inert	1.09%	Glass, plastic, metal, other inert
Leaf	1.26%	Garden, yard and park waste
Wood	0.34%	Wood and wood products
Rubber	0.23%	Wood and wood products
Textiles	1.75%	Textiles
Leather	0.18%	Wood and wood products
Bone	0.01%	Wood and wood products
Coconut	0.40%	Wood and wood products
Paraffin	0.01%	Food, food waste, beverages and tobacco
Electronics	0.13%	Electrical and Electronics

$MD_{project,y}$ will be determined *ex post* by metering the actual quantity of methane captured and destroyed once the project activity is operational.

The methane destroyed by the project activity ($MD_{project,y}$) during a year is determined by monitoring the quantity of methane actually flared and gas used to generate electricity and/or supply to end users via natural gas distribution grid, when applicable, and the total quantity of methane captured.

The sum of the quantities fed to the flare(s), to the power plant(s), and to the natural gas distribution grid (estimated using equation 3) must be compared annually with the total quantity of methane generated. The lowest value of the two must be adopted as $MD_{project,y}$.

The following procedure applies when the total quantity of methane generated is the highest. The working hours of the energy plant(s) should be monitored and no emission reduction could be claimed for methane destruction in the energy plant during non-operational hours. As per the methodology we have that:

$$MD_{project,y} = MD_{flared,y} + MD_{electricity,y} + MD_{thermal,y} + MD_{PL,y} \quad (6)$$

Where:

$MD_{flared,y}$ = Quantity of methane destroyed by flaring (tCH_4)

$MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity (tCH_4)

$MD_{thermal,y}$ = Quantity of methane destroyed for the generation of thermal energy (tCH_4)

$MD_{PL,y}$ = Quantity of methane sent to the pipeline for feeding to the natural gas distribution network (tCH_4)

Right hand side of equation (6) is the sum over all the points of captured methane use in case the methane is flared in more than one flare, and/or used in more than one energy generation source. The supply to each point of methane destruction, through flaring or use for energy generation, shall be measured separately. Since there is no

thermal energy generation contemplated in this CPA, the third term, $MD_{thermal,y}$ is assumed as zero. As for the first term, we have that:

$$MD_{flared,y} = \{LFG_{flare,y} * w_{CH4,y} * D_{CH4}) - (PE_{flare,y} / \mathrm{GWP_{CH4}}) \quad (7)$$

Where:

$LFG_{flare,y}$ = Quantity of landfill gas fed to the flare(s) during the year measured in cubic meters (m^3)

$w_{CH4,y}$ = Average methane fraction of the landfill gas as measured* during the year and expressed as a fraction (in m^3 CH_4/m^3 LFG)

D_{CH4} = Methane density expressed in tonnes of methane per cubic meter of methane (tCH_4/m^3CH_4)†

$PE_{flare,y}$ = Project emissions from flaring of the residual gas stream in year y (tCO2e) determined following the procedure described in the "*Tool to determine project emissions from flaring gases containing methane*".

Since this CPA will implement one enclosed flare, then as per the tool, the temperature in the exhaust gas of the flare will be measured to determine whether the flare is operating or not.

For enclosed flares, for the current CPA option (a) has been taken regarding the two options that can be used to determine the flare efficiency. We have that these options are:

(a) To use a 90% default value. Continuous monitoring of compliance with manufacturer's specification of flare (temperature, flow rate of residual gas at the inlet of the flare) must be performed. If in a specific hour any of the parameters are out of the limit of manufacturer's specifications, a 50% default value for the flare efficiency should be used for the calculations for this specific hour.

(b) Continuous monitoring of the methane destruction efficiency of the flare (flare efficiency).

For the second term of equation (6) we have that:

$$MD_{electricity,y} = LFG_{electricity,y} * w_{CH4,y} * D_{CH4} \quad (8)$$

Where:

$MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity

$LFG_{electricity,y}$ = Quantity of landfill gas fed into electricity generator

And for the fourth term of equation (6) we have that:

* Methane fraction of the landfill gas and LFG flow have to be measured on same basis (either wet or dry). In case the "Tool to determine project emissions from flaring gases containing methane" is used, follow the standard approaches to convert the flow on wet basis to dry basis. For example, refer to the procedures provided in the book "Fundamentals of Classical Thermodynamics"; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4º Edition, 1994, John Wiley & Sons, Inc.

† At standard temperature and pressure (0 degree Celsius and 1,013 bar) the density of methane is 0.0007168 tCH_4/m^3CH_4.

$$MD_{PL,y} = LFG_{PL,y} * w_{CH4,y} * D_{CH4} \quad (9)$$

Where $LFG_{PL,y}$ is the quantity of landfill gas sent to pipeline for feeding to the natural gas distribution grid.

Therefore, following the projects planned implementation schedule, and as per the estimated availability of landfill gas, the ex-ante estimations for baseline emissions are:

Table 5 -Yearly amount of methane destroyed by flaring in the project activity

Year	MD flared (tCH4)
01/07/2012-31/12/2012	7,227
2013	17,978
2014	11,742
2015	11,446
2016	15,312
2017	13,215
2018	15,828
01/01/2019-30/06/2019	6,372
Total	**99,120**

Tables 6 - Yearly amount of methane used to generate electricity and the amount of electricity generated and displaced from the grid

Year	MD electricity (tCH4)
01/07/2012-31/12/2012	0
2013	5,806
2014	5,806
2015	11,612
2016	11,612
2017	17,418
2018	17,418
01/01/2019-30/06/2019	11,517
Total	**81,189**

Electricity displaced from the grid		
Year	**MWh**	**tCO2e**
01/07/2012-31/12/2012	0	-
2013	33,960	10,512
2014	33,960	10,512
2015	67,920	21,024

2016	67,920	21.024
2017	101,880	31,535
2018	101,880	31,535
01/01/2019-30/06/2019	67,362	20,851
Total	**474,882**	**146,992**

Table 7 - Amount of methane injected yearly in the natural gas distribution network

Year	MD pl (tCH4)
01/07/2012-31/12/2012	0
2013	0
2014	14,128
2015	14,128
2016	14,128
2017	14,128
2018	14,128
01/01/2019-30/06/2019	7,006
Total	**77,646**

The total baseline emissions are:

Table 8 - Ex-ante estimation of baseline emissions (adjusted for CO2e) in this CPA

Year	MD project * GWP CH4 (tCO2e)	Grid displacement (tCO2e)	BE,y (tCO2e)
01/07/2012-31/12/2012	151,775	10,512	151,775
2013	499,463	10,512	509,975
2014	665,197	21,024	675,708
2015	780,919	21.024	801,943
2016	862,100	31,535	883,123
2017	939,997	31,535	971,532
2018	994,871	20,851	1,026,406
01/01/2019-30/06/2019	1,054,262	10,512	1,075,113
Total	5,948,584	146,992	6,095,576

Project emissions

Project emissions are determined from two sources, one from the use of electricity, estimated as per the "*Tool to calculate baseline, project and/or leakage emissions from electricity consumption*" – Scenario A: Electricity consumption from the grid; and another, from fossil fuel combustion, estimated as per the "*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*":

$$PE_y = PE_{EC,y} + PE_{FC,j,y} \quad (10)$$

$PE_{EC,y}$ consists in the consumption of electricity from the grid in the project scenario For CTR Santa Rosa we have that option A1 has been selected, i.e., the combined margin emission factor will be calculated, using the procedures of the Tool to calculate the emission factor for an electricity system ($EF_{EL,j/k/l,y} = EF_{grid,CM,y}$).

The generic approach has been selected for this project activity:

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad (11)$$

where:

$EC_{PJ,y}$ Quantity of electricity consumed by the project activity during the year MWh

$EF_{EL,j,y}$ Brazilian grid emission factor tCO_2/MWh (same as $CEF_{elecy,BL,y}$ mentioned above)

TDL_y Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site.

For the first term of the above equation, for the ex-ante calculation of project emissions, the most conservative estimate has been made where 100% of all electricity consumed by the project activity has been assumed to come from the national grid.
The second term of equation (11) has been calculated following version 02.2.1 of "*Tool to calculate the emission factor for an electricity system*". For complete details please refer to Annex 3 of CPA-DD CPA-1. The emission factor for the Brazilian electricity grid is 0.3095 tCO2e/MWh. As per data availability when the project started validation and as per the options outlined in the tool, TDL_y for this CPA is 20%. Therefore the project emissions are:

Table 9 - Project emissions due to electricity consumed on site

Year	$PE_{EC,y}$ (tCO2)
01/07/2012-31/12/2012	101
2013	201
2014	201

2015	201
2016	201
2017	201
2018	201
01/01/2019-30/06/2019	100
Total	1,406

Project emissions from fossil fuel combustion ($PE_{FC,j,y}$) are calculated following the latest version of "*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*". These emissions are calculated as follows:

$$PE_{FC,j,y} = FC_{i,j,y} * COEF_{j,y} \quad (12)$$

Where

$FC_{i,j,y}$ is the quantity of fossil fuel *i* (LPG) combusted in process *j* (flare ignition) during year *y* (m^3)

$COEF_{j,y}$ is the CO_2 emission coefficient of the LPG (tCO_2/ m^3 fuel)

Where

Due to data availability, $COEF_{j,y}$ is calculated by following option B of the tool:

$$COEF_{j,y} = NCV_{i,y} * EF_{CO2i,y} \quad (13)$$

Where

$NCV_{i,y}$ Is the weighted average net calorific value of the fuel type *i* (LPG) in year *y* (GJ/ m^3)

$EF_{CO2i,y}$ Is the weighted average CO_2 emission factor of fuel type *i* (LPG) in year *y* (tCO_2/GJ)

Based on monitored values of similar project, 0.00000206829 m3/year of LPG for the parameter $FC_{i,j,y}$ has been used. Considering a value for $NCV_{i,y}$ of 0.1059 GJ/m3 and $EF_{CO2i,y}$ of 0.0656 tCO2/GJ, the project emissions due to fuel consumption are:

Table 10 - Project emissions due to fuel consumed on site

Year	$PE_{FC,y}$ (tCO2)
01/07/2012-31/12/2012	0.0000000072
2013	0.0000000144
2014	0.0000000144
2015	0.0000000144
2016	0.0000000144
2017	0.0000000144
2018	0.0000000144
01/01/2019-30/06/2019	0.0000000071
Total	0.000000101

Leakage

No leakage effects need to be accounted under this methodology.

Emission Reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \quad (14)$$

Where:
ER_y = Emission reductions in year *y* (tCO_2e/yr)
BE_y = Baseline emissions in year *y* (tCO2e/yr)
PE_y = Project emissions in year *y* (tCO_2/yr)

Table 11 - Estimation of Emission Reductions

Year	Estimation of project activity emissions (tonnes of CO2e)	Estimation of baseline emissions (tonnes of CO2e)	Estimation of overall emission reductions (tonnes of CO2e)
01/07/2012-31/12/2012	101	151,775	151,674
2013	201	509,975	509,774
2014	201	675,708	675,508
2015	201	801,943	801,742
2016	201	883,123	882,923
2017	201	971,532	971,331
2018	201	1,026,406	1,026,205
01/01/2019-30/06/2019	100	1,075,113	1,075,013
Total (tonnes of CO2e)	**1,406**	**6,095,576**	**6,094,170**

The total Estimated Emission Reductions for CPA-1 are **6,094,170 tCO_2e**, or an average of **870,596 tCO_2e/year**

Note on Brazilian Emission Factor Validation

In order to comply with the guidance provided by the EB-CDM, on its 43rd meeting, regarding the validation of grid emission factors made available to project participants for use in CDM project activities by some DNAs,

the Brazilian DNA sent, in January 2009, official letters addressed to several DOEs inviting them for a meeting with the purpose to grant the opportunity for the DOEs to have access to the calculation of the emission factor of the national grid system.

The DOEs representatives had access to confidential data and were requested by Mr. Miguez from the Brazilian DNA that such information must not be disclosed for national strategic and market reasons.

The DOEs members had the opportunity to: i) assess the formulae used in the calculation spreadsheet; ii) to be informed about the sources of data and information used in the calculation spreadsheet; and, iii) to discuss and to take note of the assumptions adopted by the calculation working group from the Brazilian DNA.

A new meeting was conceded by the Brazilian DNA in order to allow two DOEs representatives to check the findings of the first meeting of 05 February 2009 regarding the Brazilian grid emission factor calculation again.

The second meeting took place in MCT's office, located at Praia do Flamengo, n° 200 – 7th floor, Rio de Janeiro, on 24 July 2009. The following participants attended the meeting: Mr. Newton Paciornik and Ms. Ana Carolina Avzaradel, both from MCT, on behalf of the Brazilian DNA, and; Mr. Ricardo Fontenele (BVC Holding SAS) and David Freire da Costa (DNV), both representing the group of DOEs.

During this second meeting, the DOEs' representatives were able to assess and verify a larger range of samples used in the emission factor calculation spreadsheets. Operating Margin (OM) and Build Margin (BM) data, sources, references, formulas and calculation were verified for the years 2007 and 2008. For the year 2009, only the OM calculation was verified, because the BM for the referred year will be only calculated after the end of 2009, as the Brazilian DNA needs to gather annual consolidated information from the power plants serving the Interconnected National System. In addition, the results of the emission factor calculation spreadsheets were cross-checked with the information made available at the Brazilian DNA website, on a sampling basis, and no discrepancy or inconsistencies of the verified values were found.

The second meeting, on 24 July 2009, was extremely useful for the DOEs' members to assess cross-check and verify complementary data and related information used in the emission factor calculation spreadsheets, given even more credibility and assurance of the calculation provided by the Brazilian DNA.

It was a common sense of the DOEs members, that the calculations provided in the spreadsheet are clearly and transparently demonstrated. The formulae, equations and steps followed in the calculations are in accordance to the "Tool to calculate the emission factor for an electricity system (Version 01.1)". The assumptions made in the calculations are considered reasonable and acceptable.

Under consideration of the general conditions, the group of DOEs express a final favorable validation opinion in regards of the results from the calculation of the emission factor of the Brazilian grid system provided by the Brazilian DNA.

Observation: It has been noticed that, during EB 50 meeting it has been approved the version 02 of the "Tool to calculate the emission factor for an electricity system". The DOE assessed this new version of the Tool and understands that the changes in version 02 don't affect the results of the emission factor as calculated by the Brazilian DNA and validated by the DOES during the meetings of February 2009 (1st meeting) and 24 July 2009 (2nd meeting).

Based on the above assessment, the DOE hereby confirms that:
(a) All assumptions and data used by the project participants are listed in the PoA-DD and CPA-DD CPA-1, including their references and sources;
(b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD and CPA-DD CPA-1;
(c) All values used in the PoA-DD and CPA-DD CPA-1 are considered reasonable in the context of the proposed CDM project activity;
(d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
(e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PoA-DD and CPA-DD CPA-1.

The DOE has verified the data and parameters used in the equations, including references to any other data sources used, by cross-checking them against the PoA-DD and CPA-DD CPA-1, the Methodology ACM0001, version 11, Tool for the demonstration and assessment of additionality-Version 05.2.1, Tool for determining methane emissions avoided from disposal of waste at a solid waste disposal site - version 05.1.0, Tool to calculate baseline, project and/or leakage emissions from electricity consumption-version 01, Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion-version 02, Tool to determine project emissions from flaring gases containing methane-EB28, Annex 13, Tool to calculate the emission factor for an electricity system-version 02.2.1, the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the Bibliographic References, the UNFCCC site, other CDM projects, Excel File WB BRCaixa-SantaRosaLFG ERCalc_110520, Excel File Financial Analysis_CPA_1_Santa Rosa_110518, and the site visit.

3.7 Additionality of a project activity (97)

The steps taken and sources of information used, to cross-check the information contained in the PoA-DD and CPA-DD on this matter are described below:

One of the Eligibility criteria for inclusion of a CPA in the PoA is that the Additionality analysis should be performed at the CPA level, following a financial analysis and demonstrating that the project is not viable unless it is registered as a CDM project.

The CPA-1 CTR Santa Rosa is additional as per eligibility criteria listed in the PoA. This additionality is justified as follows:

- There should not be any existing operating LFG collection system – *CTR Santa Rosa landfill is still being constructed and there are no plans to implement a LFG collection system without CDM registry.*

- The costs for installation of the LFG collection and use systems should be prohibitive without CDM revenues. *Estimated costs necessary to implement the LFG capture system, flaring system, electricity generators and LFG upgrading and distribution station exceeds R$ 90 million, making this project not viable without CDM revenues. This is demonstrated below.*

As stated by the PoA, additionality assessment will be performed according to the "Tool for demonstration and assessment of additionality", version 05.2.1

Step 1. Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity:
As described in section E.4. of the PoA-DD, alternative scenarios for the CPA are:
• LFG1: The project activity undertaken without being registered as a CDM project activity
• LFG2: Atmospheric release of the LFG
• P1: Power generated from landfill gas undertaken without being registered as CDM project activity
• P6: Existing and/or new grid-connected power plants

Sub-step 1b: Consistency with mandatory laws and regulations
As explained on the PoA-DD all alternatives are consistent with Brazilian laws and regulations. For CPA-1, the state of Rio de Janeiro does not have any regulation requiring landfills to have gas collection systems.

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

The step 2 is not applicable to the proposed CPA, as the baseline energy source is the electricity provided by the national grid.

Step 3: Step 2 of the Tool for demonstration and assessment of additionality shall be used to assess which of these alternatives should be excluded from further consideration.

Sub-step 2a. Determine appropriate analysis method
Since the CPA-01 involves flaring, electricity generation and supply of gas to consumers through natural gas distribution grid, then as indicated by the PoA the appropriate analysis method is the benchmark analysis, and so this analysis has been followed.

Sub-step 2b. – Option III. Apply benchmark analysis

As per the PoA, CPAs with electricity generation and/or supply of gas to consumers through natural gas distribution network (scenario 2), the project shall apply benchmark analysis. As also described in the PoA, when benchmark analysis is to be used in assessing the additionality of a CPA, the benchmark used will be derived from government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data

In order to conduct the benchmark analysis, an evaluation of the project's cash-flow and its internal rate of return (IRR) (without CDM financial incentives) is undertaken through a 21 years period[*]. The benchmark analysis is undertaken by comparing the project IRR against Brazil Federal Treasury Bonds.

As per the PoA, the benchmark has been determined by the Brazilian Federal Treasury Bonds, a low-risk long-term investment indicator from the Brazilian Federal Treasury, where the average of July's NTNF 010117, governmental bond with 12.09% rate, was used for comparison.

Based on the Investment Analysis, the BVC has concluded that the project activity faces investment barrier in as much as the IRR is less than the benchmark return and will continue to remain additional even under most optimistic conditions (based on sensitivity analysis), and thus the validation team has arrived at the conclusion that the project activity is additional and is not a business-as-usual case. The CDM registration would help PP in overcoming the barrier identified above.

Please, refer to Section 3.7.3 in this report, Investment Analysis.

3.7.1 Prior consideration of the clean development mechanism (104)

This Section is not applicable.

According to paragraph 3 of Annex 26 of EB 60, Clarifications regarding the procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities, version 01, "The Board agreed that the Guidelines for the demonstration and assessment of prior consideration of the CDM do not apply to PoAs, as at present it is expected that no component of the programme will commence prior to the start date of validation.

3.7.1.1 Historical information on project timeline

This section is not applicable.

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[*] The detailed cash-flow was based on a 21-years period without CERs revenues, The spreadsheet has been made available to the DOE

3.7.2 Identification of alternatives (107)

A detailed explanation on the identification of alternatives has been described in section 3.6.3 of this report.

The DOE considers the listed alternatives to be credible and complete

3.7.3 Investment analysis (114)

As stated by the PoA, additionality assessment will be performed according to the "Tool for demonstration and assessment of additionality", version 05.2.1 /H/, which refers to the "Guidelines on the assessment of investment analysis" version 5 /G/ and, therefore, these guidelines were used in the following analysis.

Validation Team adopted a five steps strategy to confirm the veracity of the conclusion drawn by the project developer:

a) Evaluating the appropriateness of the benchmark applied for the type of financial indicator presented;
b) Conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters and cross-checking the parameters against third-party or publicly available sources;
c) Reviewing annual financial reports related to the project participant;
d) Assessing the correctness of computations carried out and documented /20/, /48/, /49/, /50/; and
e) Subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions /21/, /50/.

a) Suitability of financial indicator and benchmark:
Financial indicator: The project participant has chosen IRR to demonstrate the additionality of the project. "Tool for demonstration and assessment of additionality", version 05.2.1 /H/ permits the use of financial indicator, IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of either project IRR or equity IRR. Since the project developer is demonstrating the financial unattractiveness of the project, IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project. As such, the selection of IRR as financial indicator to demonstrate the additionality of the project is appropriate conforms to the "Tool for demonstration and assessment of additionality", version 05.2.1 /H/.
Benchmark: The project participant benchmark was based on standard parameters available in the market.
Based on paragraph 5 from "Tool for demonstration and assessment of additionality", version 05.2.1 /H/ which states "When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered, and paragraph 13 from EB62 Annex 05 which states that "In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in

the market. The DOE's validation of the benchmark shall also include its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity" the validation team concluded that:
Based on "Tool for demonstration and assessment of additionality", version 05.2.1 sub-step 2 paragraph 6 (a): "Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data". So, the PP has chosen a government bond rate and in a conservative manner not increased the benchmark by a risk premium. The DOE assessed the correctness of the calculations and concluded that the Benchmark was computed according to the CDM rules.
Benchmark: 7.26%
BVC agrees with all the data used in benchmark calculations and would like to point out that they were clearly presented, available to consult and correct.

b) Description of the parameters and assumptions used in the investment analysis, description of the means of validation and the procedures to cross-check the parameters against third-party or publicly available sources.

<table>
<tr><th>Input Values/Assumptions</th><th>Value</th><th>Means of validation</th></tr>
<tr><td>Total Investment</td><td>EUR 613,333.33 / generator. Source: investment analysis spreadsheet and calculation – total investment per total generated energy from "Financial Analysis_CPA_1_Santa Rosa_110518".</td><td>It was cross-checked by using third parties available sources.
Recent CAPEX value from supplier' quotation /23/, /26/, /29/ was used to develop the investment analysis. The quotation is considered to be reliable and credible evidence for the investment costs since it is from an independent third party sources and is specific to the equipment to be used for the project activity. The value provided is valid at the time of validation and the expected time of investment decision expected
The total investment cost is consistent with the values provided in the quotation reviewed by BVC as below:
<table>
<tr><th>Evidences Name</th><th>Description</th><th>Value (RS)</th></tr>
<tr><td>GE ENERGY JENBACHER - HAZTEC - Proposta Comercial.pdf</td><td>Engines of Power Energy (3 generators)</td><td>R$ 4,048,000</td></tr>
<tr><td>GE ENERGY JENBACHER - HAZTEC - Proposta Comercial.pdf</td><td>Construction of Biogas and Energy Plant</td><td>R$ 8,105,000</td></tr>
<tr><td>GE ENERGY JENBACHER - HAZTEC - Proposta Comercial.pdf</td><td>Grid connection</td><td>R$ 1,530,462</td></tr>
<tr><td>TOTAL</td><td></td><td>R$ 13,683,462</td></tr>
</table></td></tr>
</table>

		The suitability of such values were assessed by cross-checking with a validation report from project number "CTR Candeias Landfill Gas Project" reference number 3958 which based on other comparable projects concluded that in average the investment cost is 2,213 USD/kW around the world and 2,339.9 USD/kW in Brazil which is much lower than the referred project.
O&M costs	BRL 16,000 / year / generator plus BRL 36 / MWh. Source: investment analysis spreadsheet and calculation – Total O&M cost per total generated energy	It was cross-checked by using a third party available source /47/ and by comparing with other similar registered projects. The referred input value was checked by assessing a supplier quotation which confirmed that the proposed values were BRL 16,000 / year / generator plus BRL 36 / MWh for maintenance. The suitability of such values were assessed by cross-checking with a validation report from registered project number 3958 "CTR Candeias Landfill Gas Project" which used very close estimates assumptions.
Sales price or energy price	BRL 148.39 / MWh	It was cross-checked by using a third party available source. The project does not yet have a signed power purchase agreement or agreed electricity price for sale of electricity to the grid. The electricity tariff used in the investment analysis is based on the highest value registered in the latest Alternative Energy Auction in Brazil (R$ 148.39/MWh), as of 26 August 2010, which involves starting supply in 2013*. The tariff was adjusted correctly by inflation in the free cash-flow provided. The lack of database information to estimate the electricity tariff was verified based on BVC's local and sectoral knowledge, and consequently the use of the 2010 tariff level was considered appropriate. Further details of the validation of the electricity tariff are presented in the sensitivity analysis section below.

* Available at: http://www.ccee.org.br/cceeinterdsm/v/index.jsp?contentType=RESULTADO_LEILAO&vgnextoid=ed7c645eb56ba210VgnVCM1000005e01010aRCRD&qryRESULTADO-LEILAO-CD-RESULTADO-LEILAO=0101645eb56ba210VgnVCM1000005e01010a____&x=10&y=8. Accessed on 20/08/2011.

PLF	8000 hours. Source: Total energy calculation spreadsheet sheet Data sources line 24 column C from "WB BRCaixa-SantaRosaLFG ERCal_110520".	It was cross-checked by using third party available source. The amount of electricity expected to be produced was calculated according to the technical parameters i.e. the expected landfill gas generation and capture from the landfill, the capacity of the engines to be installed /36/, and the operating hours of 8,000 hours per year – the technical parameters were validated against the technical documentation of the project including the feasibility report from conceptual report of Santa Rosa and the Technical specifications of the Landfill Gas Enclosed Flare System provided by the equipment supplier /38/. The suitability of such values were assessed by cross-checking with a validation report from registered project number 3958 "CTR Candeias Landfill Gas Project", which used exactly the same assumption.

Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, was added back to net profits for the purpose of calculating the project IRR. Taxation was not included as an expense in the IRR calculation.

BV has validated that all the input values used in all investment analysis were valid and applicable at the time of the investment decision taken by the project participant. The validation team validated the timing of the investment decision and the consistency and appropriateness of the input values with this timing. Also it were validated that the listed input values had been consistently applied in all calculations. Project participants supplied spreadsheets versions of all investment analysis. All formulas used in this analysis were readable and all relevant cells were viewable and unprotected.

c) Assessment of correctness of computation: BVC checked all formulas in all spreadsheets presented by the project proponent /20/, /48/, /49/, /50/. The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle and arithmetical accuracy. BVC checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted for computing depreciation, tax, costs are found to be in order. The arithmetical accuracy is also found to be correct. The principle adopted by the project participant for computing IRR is in conformity with the "Guidance on the Assessment of Investment Analysis" issued by EB 61 annex 13. Based on the above, the IRRs of the project were lower in contrast to the benchmark. However, the conclusion was checked by subjecting the critical assumptions to reasonable variations.

d) Sensitivity analysis: The Guidance on Assessment of Investment Analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation (± 10%). To confirm how solid the investment analysis is, project participants presented a sensitivity analysis varying the most important parameters for the cash flow: (i) the tariff, (ii) total investment, (iii) O&M costs and (iv) LFG price.

The sensitivity analysis confirmed that the project activity is not financially attractive once the project internal rate of return is lower than the benchmark in all scenarios analysed. Sensitivity analysis is available at Page 14 of CPA-1.
Conclusion:
Project IRR:
Santa Rosa CPA-DD-1: 5.09%
PDD's Benchmark: 7.26%
Based on the foregoing, BVC has concluded that the project activity faces investment barrier in as much as the IRR is less than the benchmark return and will continue to remain additional even under most optimistic conditions (based on sensitivity analysis), and thus the validation team has arrived at the conclusion that the project activity is additional and is not a business-as-usual case. The CDM registration would help PP in overcoming the barrier identified above.

CLs BQA 1 to 2 and CARs BQA 1 to 3 were issued and they have been satisfactorily solved and closed. Refer to Appendix A.

The DOE, based on the assessment result by the financial expert engaged, hereby confirms that the underlying assumptions are appropriate and the financial calculations are correct.

3.7.4 Barrier analysis (118)
This section is not applicable.

3.7.5 Common practice analysis (121)
BV validated that the common practice analysis was correctly applied following Annex 12 of EB 63 – Guidelines on Common Practice, version 01.0, the "Tool for the demonstration and assessment of additionality", version 05.2.1 and using verifiable sources /53/, /55/.

Step 4: Common Practice Analysis
Sub-step 4a: Analyze other activities similar to the proposed project activity
Following the stepwise approach from the *Guidelines on Common Practice (EB63 Annex 12)*, we have:

Step 1**:** Calculate applicable output (goods or services) range

The expected service of all CPAs under this PoA is the implementation of sanitary landfills in Brazil, where municipal solid waste can be safely deposited.

Outcome of step 1: The applicable service of any CPA is that of a controlled site where municipal solid waste can be safely deposited.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity. Note their number N_{all}.

The applicable geographical area is Brazil, covering the entire host country as a default. According to the report "Pesquisa Nacional de Saneamento Básico 2000-Brazil" -PNSB 2000 (Brazil's National Survey of Basic Sanitation 2000), which is the main official

source of information regarding solid urban waste in the country, in Brazil 228,413 tons of solid waste are produced daily, an average of 1.35 kg daily per capita. This situation is a bit alarming, since a significant fraction of the waste produced in the country is disposed in open dumps, which do not have any sort of infrastructure to avoid environmental hazards.

As mentioned in section A.2 of the PoA, according to the first National GHG Emissions inventory conducted by the Ministry of Science and Technology[*], Brazil has over 6,000 waste depositing sites, receiving over 60,000 tons of waste per day.

The most recent statistic on municipal solid waste (MSW), was published by Associação Brasileira de Empresas de Limpeza Pública e Resíduos Especiais-ABRELPE (Brazilian Association of Public Cleaning Companies and Special Residues). According to their most recent annual report "Panorama dos Resíduos Sólidos no Brasil – 2007" (Overview of Solid Waste in Brazil), final disposal of MSW data obtained from 220 cities in Brazil (with population >200,000) showed that only 38.6% of the cities sampled uses sanitary landfills as the final destination of their MSW. Overall, 61.4% of Brazilian cities do not dispose their MSW in a proper facility.

As for the percentage of cities that do use sanitary landfills, as per the Brazil Country Profile published by Methane to Markets, very few have gas recovery systems, and much less, energy generation or distribution to consumers through a natural gas distribution network; the ones that do have gas recovery and energy generation are projects under the CDM. This can also be corroborated by analyzing the Diagnóstico do Manejo de Resíduos Sólidos Urbanos (Diagnostic of Urban Solid Waste Management) elaborated by the Brazilian Ministry of the Cities in 2007[†].

According to this report, which considers a sample of the major municipalities of the country, we have that:
- Only 37.1% (corresponding to 99 landfill sites) of the final waste disposal units in the sample corresponded to sanitary landfills (Diagnóstico do Manejo de Resíduos Sólidos Urbanos (Diagnostic of Urban Solid Waste Management), table 6.14, page 130.

Following the Guidelines on Common Practice (EB63 Annex 12), we have that from the representative sample included in the above mentioned report, and disregarding those sites that within this sample indicated to use the gas and are already CDM projects (adding up to 10), there are 89 sites that deliver the same service: sanitary landfills where municipal solid waste can be safely deposited.

Outcome of step 2: N_{all} is equal to 89; all sites produce the same service: sanitary landfill sites where municipal solid waste is safely deposited.

Step 3: Within plants identified in Step 2, identify those that apply technologies different than the technology applied in the proposed project activity. Note their number N_{diff}.

As per the definition of "different technologies" in the Guidelines, we have that:

[*] Ministry of Science and Technology, First Brazilian Inventory of Anthropogenic Greenhouse Gas emissions, "Methane Emissions from waste treatment and disposal", 2002, page 15. Available at: http://www.bvsde.paho.org/bvsacd/cd25/methane.pdf

[†] Sistema Nacional de Informações sobre Saneamento: diagnóstico do manejo de resíduos sólidos urbanos – 2007. Brasília: MCIDADES.SNSA, 2009. Available at http://www.snis.gov.br/

Different technologies are technologies that deliver the same output (goods or services) and differ by at least one of the following:
(i) Energy source/fuel;
(ii) Feed stock;
(iii) Size of installation: Micro, Small or Large;
(iv) Investment climate in the date of the investment decision;
(v) Other features, inter alia: Unit cost of output (unit costs are considered different if they differ by at least 20 %).

As has been explained above, for all CPAs under this PoA, projects are considered "different technologies" due to the added feature of the gas collection system and gas alternative use. The gas collection and use system, as explained under point (v) "other features" is an added cost to the project activity that generates the same service as any other landfill project that simply vents gas into the atmosphere. As demonstrated by the evidence provided out of those 89 sites there are only 7 (2 of which are withdrawn CDM projects[*]) which say do have some use of the gas. Hence the number of sites with "different technologies" adds up to 82.

Outcome of step 3: $N_{diff} = 82$.

Step 4: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

In this case F=1-(82/89) = 0.0786, meaning there are only 7 sites with such service and gas collection system among 89 facilities.

As per the guidance, none of the proposed CPAs under the PoA are the common practice within the waste sector in Brazil because under the first condition the factor F is smaller than 0.2.

Therefore the outcome of the stepwise approach is that the CPAs under the PoA are not the common practice for landfill sites in Brazil.

Sub-step 4b: Discuss any similar Options that are occurring

There are no similar activities happening in Brazil outside the CDM[†] as there are no regulatory incentives and the sale of electricity alone does not cover the additional costs of a biogas capture, flaring, and electricity generation system. Those that are implemented have been installed due to incentives of the CDM.

[*] The two projects that were withdrawn from the CDM process are: Gramacho, and Natal

[†] As indicated in the *Brazil Country profile* by Methane to Markets, published in 2009 Page 1: "Despite this figure (number of landfill gas projects in Brazil), there is only one project generating electricity and another evaporating leachate. All other projects are only destroying or, in other words, collecting cleaning and burning (with a complex system of monitoring and certification) the methane contained in biogas without use the available energy" available at http://www.methanetomarkets.org/documents/landfills_cap_brazil.pdf

Hence this type of technology for gas collection and use is not widely spread in the host country and the landfills that operate this way represent only a very small portion of the total existing landfills (5 out of over 6,000 estimated waste depositing sites).

Moreover, the installation of a LFG capture and flaring system/or electricity generation, /or for supply to consumers, are very costly for the landfill operator and bring no financial compensation. Therefore, this kind of project is only possible with CDM revenues and is not to be considered as a business as usual activity.

As all the references that were provided have been reviewed and confirmed, the DOE hereby confirms that the proposed CDM project activity is not common practice.

3.8 Monitoring plan (124)

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below.

According to the PoA:
All relevant parameters included in the monitoring plan shall be recorded and monitored for each CPA under this PoA, being the responsibility of each CPA proponent with guidance set by Caixa. With this data recorded, Caixa will prepare a separate monitoring report for each CPA with verification and CER issuance purposes. Caixa will maintain a database for all CPAs and data will be kept for at least 2 years after the end of the crediting period.

Under this PoA, 100% of the CPAs will be monitored and verified, where the project implementers will be responsible for collecting and recording all the information and Monitoring Reports will be sent to Caixa. The monitoring reports will be made available to the DOE for verification, as Caixa will be the main interlocutor with the DOE, taking responsibility of quality assurance of monitored data and making Monitoring Reports available to the DOE.

Data Collection: The CPA proponents are required to submit a monthly Monitoring Report to Caixa through their local lending centers. The data will be checked for completeness and quality and placed in a central database located at the Caixa Head Quarters – Environmental Program and Management Department (EPMD) that includes all projects under the PoA. Hardcopies of the monthly reports will also be kept on file.

Field visits: Caixa will undertake bi-annual field visits, or as necessary depending on CPA evaluated needs. This will serve as an additional quality check of the monthly monitoring report, to view the operation of the installed monitoring devices to ensure they are working properly and a means of following up on any questions on the data and any monitoring issues.

Calculation of emission reductions: Caixa will use the aggregated data to calculate the emission reductions achieved based on the formulas for ex-post emission reduction

calculations outlined in ACM0001 version 11. This database will be updated monthly based on the reports received.

Training: Caixa will provide technical support/training to assist the landfill site operators establishing their system of monitoring and reporting with the proper quality controls, troubleshooting on monitoring issues, and in undertaking calibration by identifying service providers.

For the CPA-1

CPA-1 Santa Rosa will develop an operational plan that defines a standard against which the project performance will be measured in terms of its emission reductions and compliance with all standards and criteria under the PoA. Monitoring will be the responsibility of SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. Staff operating the landfill. The monitoring plan has the following purposes:

- Establish and maintain a reliable and accurate monitoring system
- Provide guidance for the participants on the implementation of necessary measurement and record management procedures;
- Provide guidance for properly transmit monitoring reports to Caixa;
- Guidance for meeting or exceeding CDM requirements for verification and certification purposes

The monitoring plan covers:

1) Monitoring team members' duties and routine reminders;
2) Monitoring schedules;
3) QA/QC procedures;
4) Service forms for data reporting;
5) Corrective action and maintenance plans;

The monitoring methodology is based on direct measurement of the amount of landfill gas captured and destroyed at the flare platforms, the natural gas pipelines and the electricity generating units to determine the amount of LFG destroyed. The monitoring plan provides for continuous measurement of the quantity of LFG used and quality of LFG flared.

Flow meters and gas analyzers will be recording continuously the amount of LFG destroyed/used in the CPA-1 CTR Santa Rosa. This equipment is very sensitive, so rigid QA/QC procedures for equipment maintenance and calibration will be developed and performed by SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A. staff[*], who also will ensure that proper monitoring procedures are performed and monitoring information is sent on a regular basis to Caixa.

[*] Regular calibration of the monitoring devices will be undertaken by those responsible for the measurements, as per manufacturer specifications. Archiving of calibration report will be done both in hard copies and in soft copies.

Section B.6.2. of the CPA-1-DD, Data and parameters monitored, lists all the monitored parameters, the description of measurement methods and procedures to be applied, and the QA/QC procedures to be applied.

The DOE hereby confirms that the project participants are able to implement the monitoring plan.

3.9 Sustainable development (127)

The final decision from the DNA will be available only after its first ordinary meeting, after the receiving of all the required documents necessary for evaluation, including this validation report, according to Article 3º of the Resolution nº 9 of CIMGC – Comissão Interministerial de Mudança Global do Clima. Refer to item 3.1 of this report.

3.10 Local stakeholder consultation (130)

The steps taken to assess the adequacy of the local stakeholder consultation are described below.

Local stakeholder consultation process is done at CPA level.

As required by the Resolution #9 of the Interministerial Commission on Global Climate Change (CIMGC), the Brazilian DNA – Designated National Authority, invitations must be sent for comments to local stakeholders as part of the procedures for analyzing CDM projects and issuing letters of approval. Letters and the Executive Summary of the project were sent to the following local stakeholders:

- Brazil DNA, Secretaria Executiva da Comissão Interministerial de Mudança Global do Clima
- Prefeitura Municipal de Seropédica - RJ / Municipal Administration of Seropédica – RJ.
- Secretaria Municipal de Meio Ambiente de Seropédica - RJ / Municipal Secretariat of Environment of Seropédica – RJ.
- Câmara dos Vereadores de Seropédica - RJ / Municipal Legislation Chamber of Seropédica – RJ.
- INEA – Instituto Estadual do Ambiente – Rio de Janeiro / Rio de Janeiro Environmental Institute.
- Ministério Público do Estado do Rio de Janeiro / Public Ministry of Rio de Janeiro State.
- Fórum Brasileiro de ONG's e Movimentos Sociais para o Meio Ambiente e Desenvolvimento (FBMOS) / Brazilian NGOs Forum.
- ABES – Rio – Associação Brasileira de Engenharia Sanitária e Ambiental / Brazilian Association of Sanitary and Environment Engineering.
- Ministério Público Federal no Rio de Janeiro / Federal Public Ministry of Rio de Janeiro.

The DOE hereby confirms that the process of local stakeholder consultation is observed to be adequate.

3.11 Environmental impacts (133)

Environmental Analysis is done at CPA level.

All environmental impacts were raised at the Environmental Study Assessment prepared for the Landfill Process of Environmental Licensing, and submitted to INEA – Instituto Estadual do Meio Ambiente (Rio de Janeiro State's environmental authority). According with the study, no transboundary impacts for the gas project are expected and the impacts raised are positive, once the project involves activities that will improve the baseline scenario and the environmental quality of the CTR Santa Rosa, including the LFG collection system, leachate treatment improvement, final closure and capping of the landfill and monitoring of environmental parameters (groundwater quality leachate treatment facility monitoring).

INEA, issued on April 08, 2010, the Installation License #LI-IN001633 for the landfill activities, and the PP will request the Installation License for the gas extraction, power generation and treatment in appropriated moment.

INEA issued on April 19, 2011, the Operation License #LO-IN016380 for the landfill activities, valid until April 19, 2016.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

In the period of 22/09/2010 and 21/10/2010, PoA-DD, version 1, typical CPA-DD, version 1, and the first specific CPA-DD (CPA 01), version 1.1 were webhosted in the UNFCCC site. They were considering the utilization of two methodologies for the project: ACM0001 and AM0053.
Due to the decision of the CME, Caixa Econômica Federal, to modify the project to utilize only the methodology ACM0001, in the period of 09/11/2011 to 08/12/2011, new versions of the documents were webhosted, which were: PoA-DD, version 3, typical CPA-DD, version 2, and the first specific CPA-DD (CPA 01), version 3.

No comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the CDM-PoA-DD Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, the typical CDM-CPA-DD and the specific real case CDM-CPA-DD - CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa in Brazil. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.
The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up

interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment to determine that the project activity itself is not the baseline scenario.

By undertaking a voluntary, coordinated action for the construction of landfill gas (LFG) collection and use systems (by means of flaring and/or electricity generation and/or LFG upgrade and distribution through a natural gas network), Caixa Econômica Federal will act as a financial and technical intermediary in the Programme of Activities (PoA), providing assistance for the installation of LFG collection systems, taking the role of the coordinating and managing entity (CME) in charge of validation and verification activities under the CDM, the project is likely to result in reductions of GHG emissions partially. An analysis of the investment barrier demonstrates that the proposed project activity 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. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation CDM-PoA-DD Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, version 6, the typical CDM-CPA-DD, version 5 and the specific real case CDM-CPA-DD - CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, version 6 and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of CDM-PoA-DD Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, the typical CDM-CPA-DD and the specific real case CDM-CPA-DD - CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, as CDM project activity.

6 REFERENCES

Category 1 Documents:
Documents provided by Caixa Econômica Federal and World Bank that relate directly to the GHG components of the project.

/1/ CDM-PoA-DD dated 17 August 2010 version 1.
/2/ CDM-PoA-DD dated 20 May 2011 version 2
/3/ CDM-PoA-DD dated 19 October 2011 version 3
/4/ CDM-PoA-DD dated 27 December 2011 version 4
/5/ CDM-PoA-DD dated 09 January 2011 version 5

/6/ CDM-PoA-DD dated 18 January 2011 version 6
/7/ CDM-CPA-DD CPA-1 07 July 2010 version 1.1
/8/ CDM-CPA-DD CPA-1 20 July 2011 version 2
/9/ CDM-CPA-DD CPA-1 19 October 2011 version 3
/10/ CDM-CPA-DD CPA-1 27 December 2011 version 4
/11/ CDM-CPA-DD CPA-1 05 January 2012 version 5
/12/ CDM-CPA-DD CPA-1 18 January 2012 version 6
/13/ CDM-CPA-DD Generic 07 July 2010 version 1
/14/ CDM-CPA-DD Generic 19 October 2011 version 2
/15/ CDM-CPA-DD Generic 27 December 2011 version 3
/16/ CDM-CPA-DD Generic 05 January 2012 version 4
/17/ CDM-CPA-DD Generic 05 January 2012 version 5
/18/ Excel File WB BRCaixa-SantaRosaLFG ERCalc_110520
/19/ Excel File WB BRCaixa-SantaRosaLFG ERCalc_111227
/20/ Excel File Financial Analysis_CPA_1_Santa Rosa_110518.
/21/ Anexo A (Attachment A) Technical Specifications for Basic Projects.
/22/ Time Table COMLURB Contract.
/23/ Linde_Haztec Letter - Linde Process Plant for Gas purification.
/24/ Ciclus CTR Seropédica - Labor and Admistration Costs.
/25/ Haztec- Feasibility Analysis – Gas Purification Plant.
/26/ Linde - Estimated Costs for Landfill Gas Purification.
/27/ Verificação de ocorrência de dupla contagem – Inclusão no PoA Caixa (Verification of the ocurrence of double counting – Inclusion in the PoA Caixa).
/28/ Brazil 2009 report on landfills with gas use.
/29/ Concession Contract- Comlurb & Júlio Simões.
/30/ Inclusão em Programas de Atividades Caixa - CPA CTR Santa Rosa (Inclusion in Program of Activities Caixa - CPA CTR Santa Rosa)
/31/ Alvará para Licença de Construção - Prefeitura de Seropédica #0048/10 (Construction License – Seropédica Prefecture #0048/10)
/32/ Local stakeholders letters.
/33/ INEA's Installation License #LI-IN001633 for the landfill activities.
/34/ INEA's Operation License #LO-IN016380 for the landfill activities.
/35/ Estatuto Social SERB (Social Contract Statement SERB).
/36/ GE ENERGY JENBACHER - HAZTEC - Proposta Comercial.pdf
/37/ Project "CTR Candeias Landfill Gas Project" reference number 3958
/38/ Technical specifications of the Landfill Gas Enclosed Flare System.
/39/ Linde Haztec Letter of 21/04/2011 – Landfill Gas Purification Estimate for Haztec Tecnologia e Planejamento Ambiental S.A., Linde Process Plants, Inc. Est. No. 1034
/40/ Haztec Tecnologia e Planejamento Ambiental S.A.- Linde Process Plants including Estimate Nº 1034.
/41/ E-mail of GE Energy Sales – Jenbacher Gas Engines to Eduardo Gaiotto informing the Lifetime of Equipments.
/42/ John Zink's e-mail, from 20/01/2012, informing the lifetime of 20 years for the Flare (John Zink is the supplier of the Flare Equipment)
/43/ Letter: Flare Specification ZTOF JZ.pdf - Landfill Gas Enclosed Flare System
/44/ Project "Brazil Novagerar Landfill Gas to Energy Project" reference number

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/45/ e-mail address of Ultragaz, LPG supplier http://www.ultragaz.com.br/pt/Institucional/O_gas_LP/Vantagens_do_GasLP/Default.aspx
/46/ The latest Alternative Energy Auction in Brazil (sales price)
/47/ HAZTEC O&M technical and commercial proposal from September 2010.
/48/ Investment analysis spreadsheet and calculation – Total investment per total generated energy from "Financial Analysis_CPA_1_Santa Rosa_110518"
/49/ Investment analysis spreadsheet and calculation – Total O& M cost per total generated energy
/50/ Total energy calculation spreadsheet sheet Data sources line 24 column C from "WB BRCaixa-SantaRosaLFG ERCal_110520".
/51/ Ministry of Science and Technology, First Brazilian Inventory of Anthropogenic Greenhouse Gas emissions, "Methane Emissions from waste treatment and disposal", 2002, page 15. Available at: http://www.bvsde.paho.org/bvsacd/cd25/methane.pdf
/52/ Waste Management Research, International Solid Waste Association ISWA, "*Report: The current situation of sanitary landfills in Brazil and the importance of the application of economic models*" by R. Oliveira, C. Petter, 2009
/53/ "Urban Solid waste Management Diagnostic, 2007", published by the Cities Ministry, national Secretary of Environmental Sanitation. Also found online at http://www.snis.gov.br/PaginaCarrega.php?EWRErterterTERTer=16
/54/ Law 12.305, August 2, 2010, National Solid Waste Policy (*LEI No 12.305, DE 2 DE AGOSTO DE 2010, Política Nacional de Resíduos Sólidos*)
/55/ National Information System on Sanitation: Diagnoses of Urban Solid Waste Management (Sistema Nacional de Informações sobre Saneamento: diagnóstico do manejo de resíduos sólidos urbanos) – 2007. Brasília: MCIDADES.SNSA, 2009. Available at http://www.snis.gov.br/

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/A/ Validation and Verification manual, version 01.2, EB 55, dated 30/07/2010
/B/ Methodology ACM0001, version 11.
/C/ Tool to determine project emissions from flaring gases containing methane.
/D/ Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 05.1.0.
/E/ Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, version 02
/F/ Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01.
/G/ Guidelines on the assessment of investment analysis, version 05.
/H/ Tool for demonstration and assessment of additionality, version 05.2.1.
/I/ Tool to calculate the emission factor for an electricity system", version 02.2.1.
/J/ CDM-PoA-DD, CDM-CPA-DD forms.

/K/ Procedures for Registration of a Programme of Activities as a Single CDM Project Activity and Issuance of Certified Emission Reductions for a Programme of Activities, version 04.1.
/L/ 2006 IPCC Guidelines for National Greenhouse Gases Inventories.
/N/ Guidelines on Common Practice, version 01.0.

Persons interviewed:
List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ Denise Seabra – Caixa Econômica Federal
/2/ Heloisa Jorge – Caixa Econômica Federal
/3/ Adailton Ferreira – Caixa Econômica Federal
/4/ Eduardo Gaiotto – Haztec
/5/ Fernando José – Haztec
/6/ Brizza Nascimento – Haztec
/7/ Priscila Zaidan – SERB
/8/ Carlos Shidetaki – Haztec
/9/ Luzia Galdeano – Haztec
/10/ Manuel Luengo – World Bank
/11/ Claudia Barrera – World Bank

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7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Bureau Veritas Certification - Lead GHG Verifier
Antonio Daraya – is graduated in Chemical Engineering with a very large experience in Industrial and Environmental management in several industrial fields. He is ISO 9001:2000, ISO 14001:2004 and OHSAS 18001 Lead Auditor and has also experience in the implementation of Quality and Environmental Management Systems. Antonio is qualified as Lead Verifier GHG – Green House Gases.

Bureau Veritas Certification – Financial Specialist
Bernardo Aleksandravicius is graduated in Business Administration with a very expressive experience in valuation of new projects in the electrical and technology sectors; Equity analyst with focus on the consumer staples, consumer discretionary, technology and telecommunications sectors for many companies in Brazil.

Bureau Veritas Certification – Internal Technical Reviewer
Rubens da Silva Ferreira – Is graduated in Chemical Engineering with experience in Quality and Environmental management in glass industries. He is ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 Lead Auditor and has also experience in the implementation of Quality and Environmental Management Systems. Rubens is qualified as Verifier GHG – Green House Gases.

Bureau Veritas Certification –Technical Specialist
Ricardo R. da Costa is graduated in Environmental Engineering and Technology with experience in total waste management, public sanitation, construction and operation of wastewater treatment plants, sanitary landfills and biogas systems. He is also specialist in developing projects of methane and NO_2 reduction under the platform of CDM.

Bureau Veritas Certification - GHG Verifier
Diego Serrano - Is forest engineer graduated by the ESALQ / USP Superior School of Agriculture "Luiz de Queiroz." University of São Paulo, Diego has master degree in Energetic System Planning with forest residues in the State University of Campinas (UNICAMP). His abilities include coordination and elaboration of PDD's in the scopes 1, 4, 13 and 14. His most relevant professional abilities include technical coordination for rural projects under European Union Program in Mozambique, consultancy for Extractive Reserves in Amazon basin under the UNDP Program and participation on the Brazilian Biofuels National Programme. In the ambit of GHG projects, in private sector, he was technical coordinator of LULUCF PDD's, as afforestation, reforestation and REDD projects. He was also in charge of biodiversity and protected areas programs, as well as forestry management assessment and forest inventory in several projects in different biomes of South American continent. Also in private sector he was technical manager for more than seventy CDM and voluntary carbon projects (among them 8 LULUCF PDD). Now he works in the Bureau Veritas (BVC) as specialist for CDM and voluntary carbon projects and methodologies with focus in LULUCF/AFOLU.

Diego has completed the Lead Verifier Training Course GHG and the Environmental Management Systems Auditor/Lead Auditor Training Course (Based on ISO 14001:2004).

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APPENDIX A: CAIXA ECONÔMICA FEDERAL SOLID WASTE MANAGEMENT AND CARBON FINANCE PROJECT (BRAZIL) - POA VALIDATION PROTOCOL

Table 1 Validation requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			*COUNTRY A Brazil*	*COUNTRY B Kingdom of Spain*		
a. Have all Parties involved approved the project activity?	VVM	44	The final decision from the DNA will be available only after its first ordinary meeting, after the receiving of all the required documents necessary for evaluation, including this validation report, according to Article 3º of the Resolution nº 9 of CIMGC – Comissão Interministerial de Mudança Global do Clima.	**CL_AVD_01** – Please, inform the present situation of the Kingdom of Spain's approval of the project activity.	CL_AVD_01	OK
b. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participatn or directly from the DNA)	VVM	45	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
c. Does the letter of approval from DNA of each Party involved:	VVM	45	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
i. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
ii. confirm that participation is voluntary?	VVM	45.b	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
iii. confirm that, in the case of the host Party, the proposed CDM project activity contributes to	VVM	45.c	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
the sustainable development of the country?						
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
d. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
e. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
f. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
g. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
2. Participation						
a. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes.	Yes.	OK	OK
b. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
c. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	Yes.	Yes.	OK	OK
d. Is the information in section A.3 consistent with the contact details provided in annex 1 of the PDD?	VVM	52	Yes.	Yes.	OK	OK
e. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation? (Provide reference of the approval document for each of the project participants)	VVM	52	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
f. Are any entities other than those approved as	VVM	52	No.		OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
project participants included in these sections of the PDD?						
g. Has the approval of participation issued from the relevant DNA?	VVM	53	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
h. Is there doubt with respect to (g) above? I	VVM	53	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
i. If yes, was verified with the DNA that the approval of participation is valid for the proposed project participant?	VVM	53	Refer to item 1.a.	Refer to **CL_AVD_01**.	CL_AVD_01	OK
3. Project desing document						
a. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	Yes.		OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	**CAR_RRC_04** – In Section A.4.3.1. of the CPA -1 it is informed that Starting date of the crediting period 31/01/2011, when the project is expected to be operational. During the site visit, the landfill construction was delayed resulting on a different project date to be operational. Date must be reviewed. **CAR_AVD_17** – The period of 7 yeas on the table A.4.4 of the CPA -1 it is not correct. As the starting date of the crediting period is 31/01/2011, the end of the first crediting period should be 30/01/2018. **CAR_AVD_21** – In table TDL_y of the Section B.5.1 of the CPA – 1, the name and version of the "Tool to calculate project emissions from electricity consumption, version 2 " it is not correct. **CL_RRC_03** – The table containing input values (column G lines 4-5-7-8-9-10) of spreadsheet "Injection" from the file		CAR_RRC_04 CAR_AVD_17 CAR_AVD_21 CL_RRC_03 CL_RRC_04 CL_AVD_16 CL_AVD_17 CL_AVD_18 CL_AVD_20	OK OK OK OK OK OK OK OK OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			"ER_Calculations_Brazil_SantaRosa.xls" does not state references. References must be presented. Concerning to the Plant Load Factor, please refer to Annex 11 of EB 48. **CL_RRC_04** – The table containing input values (column G lines 4-6-7-8-9-10) of spreadsheet "Electricity" from the file "ER_Calculations_Brazil_SantaRosa.xls" does not state references. References must be presented. Concerning to the Plant Load Factor, please refer to Annex 11 of EB 48. **CL_AVD_16** – Please, inform in Section A.4.6 of the CPA – 1 the meaning of CMe. **CL_AVD_17** – On Section B.2 of the CPA -1 it has not been available to the DOE evidence that the CPA proponent has signed a loan agreement with Caixa to be part of the PoA and of the confirmation that Santa Rosa Landfill site is neither registered as an individual CDM project nor included in another PoA and that the CPA is subscribed to this PoA. **CL_AVD_18** – Please, confirm the source of the information of Annex 3 of the CPA -1 referring to table 11, Domestic Waste to be deposited annually in CTR Santa Rosa. **CL_AVD_20** – In Section A.4.2 of the CPA -1 it is informed that the expected operational lifetime of the CPA is of 15 years, due to the contract signed between COMLURB and HAZTED/SERB, according to information on sub-step 2b of Section B.3 of CPA -1. In section A.4.3 it is informed that the project is considering a renewable crediting period and in Section A.4.3.2 it is informed that the		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			length of the first crediting period is of 7 years. Although that information, why the presented spreadsheet for ER calculations does not show the full 21-year period? What is it going to happen with the biogas generated by the project activity after the 15 years period of the contract?		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c. The completed CDM-POA-DD, the specific CDM-CPA-DD with generic information relevant to all CPAs and the completed CDM-CPA-DD wich is to be based on the application of the PoA to one real case are established in mutual accordance?	EB 55	Annex 38	No. There are some inconsistencies. Refer to **CAR_AVD_06**, **CAR_AVD_07**, **CAR_AVD_08** **CAR_AVD_11**, **CAR_AVD_12**, **CAR_AVD_13**, **CAR_AVD_18** and **CL_AVD_19**. **CAR_AVD_22** – The CDM-CPA-DD with generic information does not present in an explicit way the separately alternatives to use the captured LFG (Flare of the captured LFG to eliminate the landfill methane emissions and/or as a fuel to generate electricity and/or to use the captured gas to supply consumers through a natural gas distribution network). **CAR_AVD_23** –The title of the CDM-CPA-DD with generic information and the title of the completed CDM-CAP-DD (in the Section A.1) do not contain a reference to the CDM-PoA-DD title. **CAR_AVD_27** – The Section B.4 of the specific CDM-CPA-DD with generic information relevant to all CPAs and the Section B.4 of the completed CDM-CPA-DD (CPA – 1) do not include the table 2 of Section E.3 of CDM-PoA-DD referring to the methodology AM0053. **CAR_AVD_28** – In the Sections C.1 and D.1 of the specific CDM-CPA-DD with generic information relevant to all CPAs and in the Section C.1 and D.1 of the completed CDM-CPA-DD (CPA – 1) the justifications of the choice of level at which the environmental analysis is undertaken and stakeholders comments are invited are not provided.	CAR_AVD_06 CAR_AVD_07 CAR_AVD_08 CAR_AVD_11 CAR_AVD_12 CAR_AVD_13 CAR_AVD_18 CL_AVD_19	OK OK OK OK OK OK OK OK OK OK
d. OK Specific questions for PoA-DD			http://cdm.unfccc.int/Reference/PDDs_Forms/PoA/i		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			ndex.html		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. On the item A.1 from the CDM-PoA-DD is the title of the large-scale programme of activities provided?	PoA form	v1	Yes. Caixa Econômica Federal Solid Waste Management and Carbon Finance Project, Version 1, of 17/08/2010. **CL_AVD_15** – Revise the CDM-CPA-DD for the "CPA-1: Landfill gas recovery, energy generation and biogas distribution" in a way that the utilization of the names of CPA-1 and of the CTR Santa Rosa Landfill be the same throughout all the document.	CL_AVD_15	OK
ii. On the item A.2. from the CDM-PoA-DD, are the following information included:	PoA form	v1	**CAR_AVD_01** – On the item A.2 there is additional information, item 4. Contribution to sustainable development, which it is not foreseen in the CDM-PoA-DD form. **CAR_AVD_16** – The information on the CDM-CPA-DD that CTR Santa Rosa area = 222.6 hectares it is not the same as on the "Construction Permit of the Prefeitura Municipal de Seropédica", which informs that the area is = 1,699,512.97 m^2. Also, the location informed in Section A.4.1.2 (22º47'35.84"S and 43º45'34.97"O) it is not consistent with the one on the "Construction Permit of the Prefeitura Municipal de Seropédica", which informs 22º47'44.53"S and 43º45'38.01" and the Figure 6 of the same Section brings the wrong information that CTR Santa Rosa is located 8,000 km away from both Seropédica and Itaguaí municipalities.	CAR_AVD_01 CAR_AVD_16	OK OK
ii.1 General operating and implementing framework of PoA.	PoA form	v1	Yes.	OK	OK
ii.2 Policy/mesure or stated goal of the PoA.	PoA form	v1	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii.3 Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity.	PoA form	v1	Yes.	OK	OK
iii. On the item A.3 from the CDM-PoA-DD, are the following information included:	PoA form	v1			
iii.1 Coordinating or managing entity of the PoA as the entity which communicates with the Board.	PoA form	v1	**CAR_AVD_02** – It is not defined and or indicated on the table A.3, the Coordinating or Managing Entity which communicates with the Board.	CAR_AVD_02	OK
iii.2 Project participants being registered in relation to the PoA (Project participants may or may not be involved in one of the CPAs related to the PoA).	PoA form	v1	Yes.	OK	OK
iv. On the item A.4. from the CDM-PoA-DD is the Technical description of the large-scale programme of activities provided?	PoA form	v1	Yes.	OK	OK
v. On the item A.4.1 from the CDM-PoA-DD is the Location of the programme of activities provided?	PoA form	v1	Yes.	OK	OK
vi. On the item A.4.1.1 from the CDM-PoA-DD is the Host Party(ies) provided?	PoA form	v1	Yes.	OK	OK
vii. On the item A.4.1.2. from the CDM SSC-PoA-DD, is the definition of the boundary for the PoA in terms of a geographical area (e.g., municipality, region within a country, country or several countries) within which all large-scale CDM programme activities (CPAs) included in the PoA will be implemented, taking into consideration the requirement that all applicable national and/or sectoral policies and regulations of each host country within that chosen boundary included?	PoA form	v1	Yes.	OK	OK
viii. On the item A.4.2. from the CDM-PoA-DD is the Description of a typical large-scale CDM	PoA form	v1	Yes. **CL_AVD_02** – How will be defined the distribution	CL_AVD_02	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
programme activity (CPA) provided?			of the total quantity of LFG generated for the different applicable scenarios on the CPA's? **CL_AVD_03** – According to section A.2 of Annex 31 of EB 47 "When validating a PoA which seeks to apply a combination of methodologies, the DOE shall submit a request for approval of the application of multiple methodologies in accordance with this procedure prior to the submission of a request for registration. This procedure only relates to the combination of methodologies but not to the application of different scenarios in the PoA. How is this situation going to be faced? **CL_AVD_04** – According to the CDM-PoA-DD, when considering the export of the generated electricity to the grid, the national electricity grid will also be included in the CPA's boundary. Why, when considering the captured gas being used to supply consumers through a natural gas distribution network, this natural gas distribution network is not considered being included in the CPA's boundary?	CL_AVD_03 CL_AVD_04	OK OK
ix. On the item A.4.2.1. from the CDM-PoA-DD is the Technology or measures to be employed by the CPA provided?	PoA form	v1	Yes.	OK	OK
x. On the item A.4.2.2. from the CDM-PoA-DD is a description of criteria for enrolling the CPA described?	PoA form	v1	Yes.	OK	OK
xi. On the item A.4.3. from the CDM-PoA-DD are the following informations demonstrated?	PoA form	v1			
xi.1 The proposed PoA is a voluntary coordinated	PoA	v1	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
action.	form				
xi.2 If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA.	PoA form	v1	Yes.	OK	OK
xi.3 If the PoA is implementing a mandatory policy/regulation, this would/is not enforced.	PoA form	v1	No. The PoA it is not implementing a mandatory policy/regulation.	OK	OK
xi.4 If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.	PoA form	v1	**CAR_AVD_03** – According to the CDM-PoA-DD form, the information "If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation" should have been included on item A.4.3.	CAR_AVD_03	OK
xii. On the item A.4.4.1. from the CDM-PoA-DD is a description of the operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA, including:	PoA form	v1	Yes. **CAR_AVD_24** – The record keeping system for each CPA under the PoA is not described. The DOE needs to have access to the detailed control system that has been established/implemented by Caixa for the management of its CDM-PoA-DD. **CL_AVD_06** – Please, inform on item f), the meaning of "CPA PE"	CAR_AVD_24 CL_AVD_06	OK OK
xii.1 A record keeping system for each CPA under the Poa.	PoA form	v1	Yes. Refer to **CAR_AVD_24**.	CAR_AVD_24	OK
xii.2 A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA.	PoA form	v1	Yes.	OK	OK
xii.3 The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.	PoA form	v1	**CAR_AVD_25** – There are not provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.	CAR_AVD_25	OK
xiii. On the item A.4.4.2. are the following	PoA	v1			

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informations provided.	form				
xiii.1 Description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhousse gases achieved by CPAs under the PoA.	PoA form	v1	**CL_AVD_05** – Please specify which is the latest guidance is provided by the CDM Executive Board on statistically sound sampling methods/ procedures.	CL_AVD_05	OK
xiii.2 In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA (whether in groups or not, with different or identical verification periods) a transparent system is to be defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.	PoA form	v1	The system to prevent double counting is informed on the CDM-PoA-DD.	OK	OK
xiv. On the item A.4.5. from the CDM-PoA-DD are information about the public funding of the programme of actvities (PoA) provided?	PoA form	v1	**CAR_AVD_04** – The information on this item should only be whether “there is” or “there is not” public funding of the programme of activities.	CAR_AVD_04	OK
xv. On the item B.1. rom the CDM-PoA-DD was the starting date of the programme of activities provided?	PoA form	v1	Yes.	OK	OK
xvi. On the item B.2. rom the CDM-PoA-DD was the length of the programme of activities provided?	PoA form	v1	Yes.	OK	OK
xvii.1 On the item C.1. from the CDM-PoA-DD is indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken?	PoA form	v1	Yes, Environmental Analysis is done at the CPA level. **CL_AVD_21** – In Please, inform which are the Brazilian national as well as the State laws and regulations on which is based the phrase “Brazilian national as well as state laws and regulations require that an environmental analysis should be	CL_AVD_21	OK

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			performed for any kind of landfill".		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
xvii.2 Is the choice of level at which the environmental analysis is undertaken justified?	PoA form	v1	Yes.	OK	OK
xvii.3 If this environmental analysis is not undertaken for the PoA but is to be done at the CPA level, is this described and reflected in the CDM-PoA-DD and the CDM-CPA-DD?	PoA form	v1	Yes.	OK	OK
xviii. On the item C.2. from the CDM-PoA-DD is the documentation on the analysis of the environmental impacts, including transboundary impacts provided?	PoA form	v1	Yes.	OK	OK
xix. On the item C.3. from the CDM-PoA-DD is stated whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA) provided?	PoA form	v1	Yes.	OK	OK
xx.1 On the item D.1. from the CDM-PoA-DD is indicate the level at which local stakeholder comments are invited?	PoA form	v1	Yes, local stakeholder comments are invited at the CPA level.	OK	OK
xx.2 Is the choice of level at which local stakeholder comments are invited justified?	PoA form	v1	Yes.	OK	OK
xxi. On the item D.2. from the CDM-PoA-DD is a brief description of how comments by local stakeholders have been invited and compiled provided?	PoA form	v1	Yes.	OK	OK
xxii. On the item D.3. from the CDM-PoA-DD is a sumary of the comments received provided?	PoA form	v1	As the local stakeholder comments are to be received at the CPA's level, they will be included in the specific CPA-DD.	OK	OK
xxiii. On the item D.4. from the CDM-PoA-DD is a report on how due account was taken of any comments received provided?	PoA form	v1	Please, refer to item xvii.	OK	OK
xxiv. On the item E.1. from the CDM-PoA-DD is the Title and reference of the approved baseline and monitoring methodologiy applied to each CPA	PoA form	v1	Yes.	OK	OK

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included in the PoA?					
xxv. On the item E.2. from the CDM-PoA-DD is the justification of the choice of methodology and why it is applicable to each CPA provided?	PoA form	v1	Yes.	OK	OK
xxvi. On the item E.3. from the CDM-PoA-DD is the description of the sources and gases included in the CPA boundary provided?	PoA form	v1	**CAR_AVD_26** – In the table 1, Baseline, Emissions from electricity consumption, it is not following the methodology ACM0001, version 11, for CO_2 and in table 2, Project Activity, Methane contained in the effluent, it is not following the methodology AM0053, version 2, for CH_4.	CAR_AVD_26	OK
xxvii. On the item E.4. from the CDM-PoA-DD is the description of how the baseline scenario is identified and description of the identified baseline scenario provided?	PoA form	v1	Yes.	OK	OK
xxviii. On the item E.5. from the CDM-PoA-DD is the description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the CPA being included as registered PoA provided?	PoA form	v1	Yes.	OK	OK
xxix.1. On the item E.5.1. from the CDM-PoA-DD did the PPs demonstrate, using the procedure provided in the baseline and monitoring methodology applied, additionality of a typical CPA?	PoA form	v1	Yes.	OK	OK
xxix.2. On the item E.5.2. from the CDM-PoA-DD did the PPs provide the key criteria for assessing additionality of a CPA when proposed to be included in the registered PoA?	PoA form	v1	Yes.	OK	OK
xxix.3. On the item E.5.2. from the CDM-PoA-DD the criteria were based on additionality assessment undertaken in E.5.1.?	PoA form	v1	Yes.	OK	OK
xxix.4. On the item E.5.2. from the CDM-PoA-DD the PPs justified the choice of criteria based on	PoA form	v1	Yes.	OK	OK

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analysis provided in E.5.1.?					
xxix.5. On the item E.5.2. from the CDM-PoA-DD was demonstrated how these criteria would be applied to the additionality of a typical CPA at the time of inclusion?	PoA form	v1	Yes.	OK	OK
xxix.6. Was the information provided on the item E.5.2. from the CDM-PoA-DD incorporated into the CDM-CPA-DD that has been specified for this PoA?	PoA form	v1	Yes.	OK	OK
xxx. On the item E.6.1. from the CDM-PoA-DD was the explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical CPA ?	PoA form	v1	Yes.	OK	OK
xxxi. On the item E.6.2. from the CDM-PoA-DD were the equations, including fixed parametric values, to be used for calculation of emission reductions of a CPA provided?	PoA form	v1	Yes.	OK	OK
xxxii. On the item E.6.3 . from the CDM-PoA-DD are the data and parameters reported adequately?	PoA form	v1	Refer to **CAR_AVD_09.** **CL_AVD_19** – On item E.6.3 of CDM-PoA-DD, please inform: - Why the source of Data/Parameters of Regulatory requirements relating to landfill gas it is not indicated in the CDM-PoA-DD and why in item B.5.1 of CDM-CPA-DD generic and in CPA – 1 the source of information is the DNA. - The parameters OX should have been defined on the table of CPA – 1. - The value applied for $W_{j,x}$ and DOC_j should have been informed on the table for CPA – 1. - Inform the origin of the value of E_{PS} = 50%. - The value of TDL_y is not indicated on the table for CAP generic. On the table of PoA, TDL_y is informed	CAR_AVD_09 CAR_AVD_18 CL_AVD_19	OK OK OK

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			twice, one referring to the version 01 and the other to the version 02 of the Tool to calculate project emissions from electricity consumption. **CAR_AVD_18** – The Parameters $NCV_{i,y}$, $EF_{CO2,I,y}$ and ηugf are not informed on both CDM-CPA-DD, the generic and the CPA – 1. The Parameter $P_{n,j,y}$ is not informed on CDM-PoA-DD.		

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xxxiii. On the item D.7.1. from the CDM-PoA-DD are the data and parameters reported adequately?	PoA form	v1	Yes.	OK	OK
xxxiv. On the item E.7.2. from the CDM-PoA-DD was the description of the monitoring plan for a CPA provided?	PoA form	v1	Yes.	OK	OK
xxxv. On the item E.8. from the CDM-PoA-DD was the date of completion of the applicarrtion of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies) provided?	PoA form	v1	Yes.	OK	OK
4. Project description					
a. Does the PDD contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	VVM	58	Yes.	OK	OK
b. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59			
i. sufficiently covering all relevant elements?	VVM	59	Yes.	OK	OK
ii. acurate?	VVM	59	Yes.	OK	OK
iii. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Yes.	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	VVM	59	No.	OK	OK
c. Is the proposed CDM project activity in existing facilities or or utilizing existing equipments?	VVM	60	No.	OK	OK
d. Is the CDM project activity one of the following types:	VVM	60			
i. Large scale?	VVM	60	Yes.	OK	OK
ii. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	No.	OK	OK

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iii. Bundled small scale projects, each with emission reductions not exceeding 15,000 tonnes?	VVM	60	No.	OK	OK
e. If yes to (c) and (d) above, was a physical site inspection conducted to confirm that the description in the PDD reflects the proposed CDM project activity, unless other means are specified in the methodology?	VVM	60	Yes. A physical site inspection has been conducted on October 21, 2010.	OK	OK
f. If yes to (d.iii) above, was the number of physical site visits base on samping?	VVM	60	N.A.	-	-
g. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	N.A.	-	-
h. For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	61	N.A.	-	-
i. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, and for other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	62	N.A.	-	-
j. If no, was it appropriately justified?	VVM	62	N.A.	-	-
k. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	No.	OK	OK
l. If yes, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM	63	N.A.	-	-
5. Baseline and monitoring methodology					
a. General requirement					

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a. Do the the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	Yes. According to section E.1 of the CDM-PoA-DD, the Caixa PoA applies: - ACM0001 – "Consolidated baseline and monitoring for landfill gas project activities", version 11, - AM0053. – "Biogenic methane injection to a natural gas distribution grid", version 02, - Methodological Tool to determine project emissions from flaring gases containing methane, version 01, - "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01. - "Tool to calculate the emission factor for an electricity system", version 02, - "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", version 02, - "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05, - "Tool for the demonstration and assessment of additionality", version 05.2.	OK	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (5.b.a) below	-	-
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b.d) below	-	-
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	-	-
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	-	-
f. Had the selected methodology been correctly applied with respect to Algorithms and/or formulae used to determine emission reductions?	VVM	67	Refer to (5.e) below	-	-
g. Had the selected methodology been correctly	VVM	67			

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applied with respect to additionality?					
i. Has the latest version of the "Tool for the demonstration and assessment of additionality" been used ? ii. If the "Combined tool to identify the baseline scenario and demonstrate additionality" is used for the selection of the most plausible baseline scenario, has this same tool been used for the demonstration of additionality ?	ACM	0001	Yes, the latest version (5.2) of the "Tool for the demonstration and assessment of additionality" has been used. The "Combined tool to identify the baseline scenario and demonstrate additionality" has not been used.	OK	OK
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67			
i. Is the monitoring methodology based on direct measurement of the amount of landfill gas captured and destroyed at the flare platform(s), the natural gas pipelines and the electricity generating/thermal energy unit(s) to determine the quantities as shown in Figure 1 of the methodology ?	ACM	0001	Yes, the measurement of the amount of landfill gas captured is monitored at each of the platforms based on direct measurement according to the figure 01.	OK	OK

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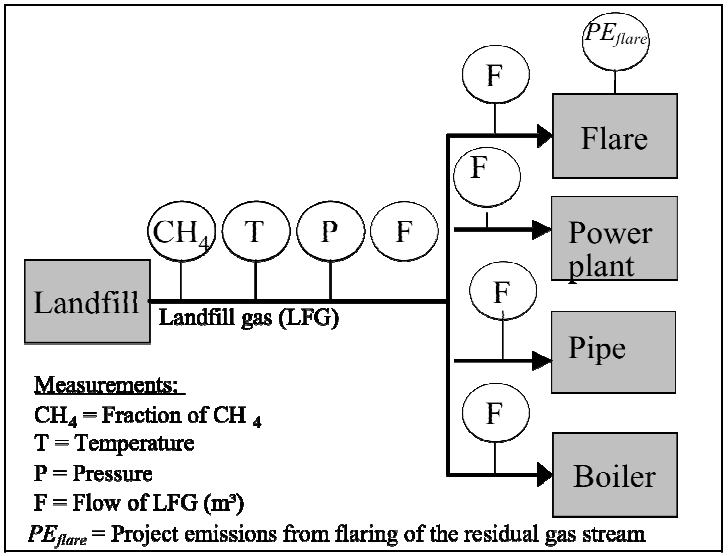
i.  **Figure 1: Monitoring Plan**					
iii. Does the biogas flow meter employed measures flow, pressure and temperature and displays/outputs normalised flow of biogas? Otherwise a separate monitoring of pressure and temperature of the biogas is necessary.	AMS III.D V16	26	N.A.	-	-
b. Applicability of the selected methodology to the project activity					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity? Is the used version valid?	VVM	68	Approved consolidated baseline methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities, version 11.	OK	OK
i. Is the project activity landfill gas capture, where	ACM	0001	Yes, the baseline scenario consists in the partial or	OK	OK

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the baseline scenario is the partial or total atmospheric release of the gas?			total release of the LFG to the atmosphere		
b. Has the DOE applied specific guidance provided by the CDM Executive Board in respect to the applicable approved methodology?	VVM	69	Yes.	OK	OK
c. Is the methodology correctly quoted?	VVM	70	Yes.	OK	OK
d. Are the applicability conditions of the methodology met?	VVM	71			
i. Does the project activity include situations such as :	ACM	0001			
ii. The captured gas is flared; and/or	ACM	0001	Yes, the captured gas shall be flared	OK	OK
iii. The captured gas is used to produce energy (e.g. electricity/thermal energy). Emission reductions can be claimed for thermal energy generation, only if the LFG displaces use of fossil fuel either in a boiler or in an air heater. For claiming emission reductions for other thermal energy equipment (e.g. kiln), project proponents may submit a revision to this methodology	ACM	0001	Yes, the captured gas shall be used to produce electricity, but thermal energy is not considered.	OK	OK
iv. The captured gas is used to supply consumers through natural gas distribution network. If emissions reductions are claimed for displacing natural gas, project activities may use approved methodology AM0053 ?	ACM	0001	Yes, the captured gas shall be used to supply consumers through natural gas distribution network.	OK	OK
e. Is the proeject activity expected to result in emissions other than those allowed by the methodology?	VVM	71	No.	OK	OK
f. Is the choice of the methodology justified?	VVM	71	Yes.	OK	OK
g. Have the project participants shown that the project activity meets each of the applicability conditions or the approved methodology?	VVM	71	Refer to (5.b.d) above	-	-

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h. Have the project participants shown that the project activity meets each of the applicability conditions of any tool or other methodology component referred to the methodology?	VVM	71			
i. For the "Tool to determine project emissions from flaring gases containing methane":	EB28	Anx 13			
a. The residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen	EB28	Anx 13	**CAR_RRC_01** - PP does not demonstrate residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen.	CAR_RRC_01	OK
b. The residual gas stream to be flared shall be obtained from decomposition of organic material (through landfills, bio-digesters or anaerobic lagoons, among others) or from gases vented in coal mines (coal mine methane and coal bed methane)?	EB28	Anx 13	Yes, the project is to be landfill gas to be flared and/or used to produce electricity or to be injected in a natural pipeline gas.	OK	OK
ii. For the ""Tool to calculate baseline, project and/or leakage emissions from electricity consumption"	EB39	Anx 7			
a. This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of leakage, Is this the case of the project activity?	EB32	Anx 10	The baseline scenario is to release landfill gas to atmosphere.	OK	OK
iii. For the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion":	EB41	Anx 11			
a. Are CO2 emissions from fossil fuel	EB4	Anx	Yes, fossil fuel combustion is calculated based on	OK	OK

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combustion calculated based on the quantity of fuel combusted and its properties?	1	11	the quantity of fuel combusted and its properties used on the project as described in the PoA.		
iv. For the "Combined tool to identify the baseline scenario and demonstrate additionality":	EB28	Anx 14			
a. Are all potential alternative scenarios to the proposed project activity available options to project participants?	EB28	Anx 14	Yes, potential alternative scenarios are demonstrated.	OK	OK
v. For the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site":	EB35	Anx 10			
a. Can the solid waste disposal site where the waste would be dumped be clearly identified ?	EB35	Anx 10	Yes, it is clearly identified and demonstrated in the PoA.	OK	OK
b. Is the project not a stockpile, as the tool is not applicable to stockpiles?	EB35	Anx 10	The project is not a stockpile	OK	OK
c. Is the project not including hazardous waste, as the tool is not applicable to hazardous waste?	EB35	Anx 10	The project does not include hazardous waste	OK	OK
vi. For the "Tool to calculate the emission factor for an electricity system":	EB50	Anx 14			
a. Does the project activity substitute grid electricity?	EB50	Anx 14	The project shall produce electricity to substitute grid electricity.	OK	OK
b. In the case of off-grid power plants, are the conditions specified in Annex 2 of the tool - Procedures related to off-grid power generation met? Namely, are the total capacity of off-grid power plants (in MW) at least 10% of the total capacity of grid power plants in the electricity system; or is the total power generation by off-grid	EB50	Anx 14	No. the amount of electricity is smaller than 10% of the power grid and will not affect grid stability.	OK	OK

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power plants (in MWh) at least 10% of the total power generation by grid power plants in the electricity system; and are that factors which negatively affect the reliability and stability of the grid primarily due to constraints in generation and not to other aspects such as transmission capacity?					
c. Is the DOE, based on local and sectoral knowledge, aware that comparable information is available from sources other than that used in the PDD?	VVM	71	Yes.	OK	OK
d. If yes, was the PDD cross checked against the other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these choices)	VVM	71	Some of the other sources used to cross check against the PDD to confirm that the project activity meets the applicability conditions were: UNFCCC website, catalogues and other information from the main equipments' suppliers, physical site inspection. The UNFCCC site information were: Methodology ACM0001, version 11, Methodology AM0053, version 02, Tool for the Demonstration and Assessment of additionality, version 05.2, Tool to calculate the emission factor for an electricity system, version 02, Methodological Tool to determine project emissions from flaring gases containing methane, version 01, Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01, Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02, Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 05,	OK	OK
e. Can a determination regarding the	VVM	72	Yes.	OK	OK

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applicability of the selected methodology to the proposed CDM project activity be made?					
f. If no, clarification of the methodoloy was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	N.A.	OK	OK
g. If answer to (5.b.d) above is "no", revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	73	N.A.	OK	OK
h. If yes to (5.b.l) and (5.b.m) above, a request for registration was submited before the CDM Executive Board has approved the proposed deviation or revision?	VVM	74	N.A.	OK	OK
c. Project boundary					
a. Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?	VVM	78			
i. Is the project boundary the site of the project activity where the gas is captured and destroyed/used ?	ACM	0001	Yes, the project boundary is the landfill site where the gas is captured and flared.	OK	OK
ii. If the electricity for project activity is sourced from grid or electricity generated by the LFG captured would have been generated by power generation sources connected to the grid, does the project boundary include all the power generation sources connected to the grid to which the project activity is connected ?	ACM	0001	Yes, in the CDM-PoA-DD the project boundary includes all the power sources connected to the grid. Refer to **CL_AVD_04**. **CAR_AVD_05** – In the CDM-CPA-DD the project boundary has not included all the power sources connected to the grid.	CL_AVD_04 CAR_AVD_05	OK OK
iii. If the electricity for project activity is from a captive generation source or electricity	ACM	0001	The electricity generated by the captured LFG would not have been produced by a captive plant.	OK	OK

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generated by the captured LFG would have been generated by a captive power plant, is the captive power plant included in the project boundary?			So there is not a captive plant included in the project boundary.		
b. Is the delineation in the PDD of the project boundary correct and include identification of all locations, processes and equipment including secondary equipment and associated processes such as logistics etc.?Is the delineation in the PDD of the project boundary correct?	VVM	79	Yes.	OK	OK
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	79	Yes.	OK	OK
d. Have changes been made to the project boundary in comparison to the webhosted PDD. If yes please comment on the reason for the changes.	VVM	79	No.	OK	OK
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	Yes.	OK	OK
f. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary?	VVM	79	No.	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	N.A.	-	-
h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	N.A.	-	-
d. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the	VVM	81	Yes.	OK	OK

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anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity?					
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82			
i. Was the baseline identified through option b of the CDM modalities and procedures, ie chosing emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment?	ACM	0001	Yes, baseline was identified by demonstrating the project implementation would be only attractive because of CDM.	OK	OK
c. Does the selected methodology require use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario?	VVM	82	Yes. It has been used the Tool for the demonstration and assessment of additionality, version 05.2.	OK	OK
d. If yes, was the methodology consulted on the application of thes tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	82	Yes.	OK	OK
i. **Step 1** : While using the "Tool for the demonstration and assessment of additionality » to identify all realistic and credible baseline alternatives, have project participants taken into account :	ACM	0001		OK	OK
a. Local policies promoting productive use of landfill gas such as those for the production of renewable energy, or those that promote the processing of organic waste	ACM	0001	Yes, Brazilian laws do not enforce the landfill biogas collection, destruction or use for energy purposes	OK	OK
b. Local economic and technological circumstances?	ACM	0001	Yes, local economics and technologies are indentified and demonstrated properly.	OK	OK

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ii. Have national and/or sectoral policies and circumstances been taken into account in the following ways :	ACM	0001			
a. In Sub-step 1b of the "Tool for the demonstration and assessment of additionality", the project developer must show that the project activity is not the only alternative that is in compliance with all regulations (e.g. because it is required by law) ?	ACM	0001	Yes, Brazilian laws do not enforce the landfill biogas collection, destruction or use for energy purposes and the landfill biogas most common practice is to release it to atmosphere.	OK	OK
b. Via the adjustment factor AF in the baseline emissions project participants must take into account that some of the methane generated in the baseline may be captured and destroyed to comply with regulations or contractual requirements ?	ACM	0001	Yes, in Brazil there is neither contractual requirement nor local or national mandatory regulations that are applicable for the destruction of determined amounts of methane from landfills, therefore AF is zero.	OK	OK
c. The project participants must monitor all relevant policies and circumstances at the beginning of each crediting period and adjust the baseline accordingly ?	ACM	0001	Yes, project participants must monitor all relevant policies and circumstances and shall adjust baseline whenever is needed.	OK	OK
iii. Do alternatives for the disposal/treatment of the waste in the absence of the project activity, i.e. the scenario relevant for estimating baseline methane emissions, to be analysed include, inter alia: a. LFG1 : The project activity (i.e.capture of landfill gas and its flaring and/or its use) undertaken without being registered as a CDM project activity ? b. LFG2 : Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or	ACM	0001	Yes, both alternatives LFG1 and LFG2 are analysed and demonstrated.	OK	OK

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contractual requirements, or to address safety and odour concerns ?					
iv. If LFG is used for generation of electric or heat energy for export to a grid and/or to a nearby industry or used on-site, were realistic and credible alternatives also separately determined for : a. Power generation in the absence of the project activity ? b. Heat generation in the absence of the project activity ?	ACM	0001	The PoA is for Brazil and includes landfill projects where the biogas is flared or used to produce electricity. Heat generation is not included in this PoA.	OK	OK
v. For power generation, the realistic and credible alternative(s) may include, inter alia : a. P1: Power generated from landfill gas undertaken without being registered as CDM project activity ? b. P2: Existing or construction of a new on-site or off-site fossil fuel fired cogeneration plant ? c. P3: Existing or construction of a new on-site or off-site renewable based cogeneration plant ? d. P4: Existing or construction of a new on-site or off-site fossil fuel fired captive power plant ? e. P5: Existing or construction of a new on-site or off-site renewable based captive power plant ? F. P6: Existing and/or new grid-connected power plants ?	ACM	0001	This PoA only includes realistic and credible alternative P1: Power generated from landfill gas undertaken without being registered as CDM project activity, and P6: Existing and/or new grid-connected power plants.	OK	OK
vi. For heat generation, the realistic and credible alternative(s) may include, inter alia :	ACM	0001	Not applicable	-	-

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a. H1: Heat generated from landfill gas undertaken without being registered as CDM project activity ? b. H2: Existing or construction of a new on-site or off-site fossil fuel fired cogeneration plant ? c. H3: Existing or construction of a new on-site or off-site renewable based cogeneration plant ? d. H4: Existing or new construction of on-site or off-site fossil fuel based boilers, air heaters or other heat generating equipment (e.g. kilns)? e. H5: Existing or new construction of on-site or off-site renewable energy based boilers, air heaters or other heat generating equipment (e.g. kilns)? f. H6: Any other source such as district heat; and? g. H7: Other heat generation technologies (e.g. heat pumps or solar energy).?					
vii. **Step 2** : Has the fuel for the baseline choice of energy source ben identfied, taking into account the national and/or sectoral policies as applicable :	ACM	0001	Not applicable	-	-
a. Is it demonstrated that the identified baseline fuel is available in abundance in the host country and that there is no supply constraints ?	ACM	0001	Not applicable to the proposed project activity, since the baseline is the continuation of open dumps where there is no fossil fuel consumption	-	-
b. In case of partial supply constraints (seasonal supply), have the project participants used the possibility to consider an alternative fuel	ACM	0001	Not applicable	-	-

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that result in lowest baseline emissions during the period of partial supply ?					
viii. Have steps 3 and 4 of the methodology below been applied for each component of the baseline, i.e. baseline for waste treatment, electricity generation and heat generation ?	ACM	0001	Only step 3 of the methodology has been used.	OK	OK
ix. **Step 3** : Have Step 2 and/or Step 3 of the latest approved version of the "Tool for demonstration and assessment of additionality" been used to assess which of these alternatives should be excluded from further consideration (e.g. alternatives facing prohibitive barriers or those clearly economically unattractive)	ACM	0001	Only the step 2, Investment Analysis, of the Tool for demonstration and assessment of additionality has been used.	OK	OK
x. **Step 4** : Where more than one credible and plausible alternative remains, have project participants, as a conservative assumption, used the alternative baseline scenario that results in the lowest baseline emissions as the most likely baseline scenario ? If yes :	ACM	0001	Not applicable.	-	-
a. Was the least emission alternative identified for each component of the baseline scenario ?	ACM	0001	Not applicable.	-	-
b. In assessing these scenarios, were any regulatory or contractual requirements taken into consideration ?	ACM	0001	Not applicable.	-	-
xi. Is the resulting most plausible baseline scenario applicable to the methodology :	ACM	0001			
a. Is the most plausible baseline scenario for the landfill gas identified as either the atmospheric release of landfill gas or landfill gas is partially captured and subsequently flared (LFG2) ?	ACM	0001	Yes, the business as usual in Brazil is to release the landfill gas to atmosphere as there are no regulations which enforce the biogas destruction or use.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
b. Is the most plausible baseline scenario for the energy component of the baseline scenario one of the following scenarios described below ? i. Scenario : 1 ii. Baseline for landfill gas : LFG2 iii. Baseline for electricity : P4 or P6 iv. Baseline for heat : H4 v. Description of situation : The atmospheric release of landfill gas or landfill gas is partially captured and subsequently flared. The electricity is obtained from an existing/new fossil based captive power plant or from the grid and heat from an existing/new fossil fuel based boiler, air heater or other heat generating equipment	ACM	0001	Yes. Baseline scenario for landfill gas: LFG2. Baseline scenario for electricity: P6.	OK	OK
xii. If the project participants have rather used the "Combined tool to identify the baseline scenario and demonstrate additionality", was the same additional guidance as provided above used ?	ACM	0001	Not applicable.	-	-
b. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	Yes.	OK	OK
c. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in the context of the	VVM	83	Yes.	OK	OK

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proposed CDM project activity?					
d. Has any reasonable alternative scenario been excluded?	VVM	83	No.	OK	OK
e. Is the baseline scenario identified reasonably supported by:	VVM	84			
a. Assumptions?	VVM	84	Yes.	OK	OK
b. Calculations?	VVM	84	Yes.	OK	OK
c. Rationales?	VVM	84	Yes.	OK	OK
f. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	Yes.	OK	OK
g. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (idendify the sources)	VVM	84	Yes. The information provided in the PDD has been checked with local expert opinion, such as consultants in the area of landfills.	OK	OK
h. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	Yes.	OK	OK
i. Have all relevatn policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	Yes.	OK	OK
j. Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM	86	Yes.	OK	OK
e. Algorithms and/or formulae used to determine emission reductions					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions,	VVM	89	Yes.	OK	OK

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leakage and emission reductions comply with the requirements of the selected baseline and monitoring?					
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90			
i. Were baseline emissions calculated as follows : $BE_y = (MD_{project,y} - MD_{BL,y}) * GWP_{CH4} + EL_{LFG,y} \cdot CEF_{elec,BL,y} + ET_{LFG,y} * CEF_{ther,BL,y}$ Where : • BE_y = Baseline emissions in year y (tCO_{2e}) • $MD_{project,y}$ = The amount of methane that would have been destroyed/combusted during the year, in tonnes of methane (tCH_4) in project scenario • $MD_{BL,y}$ = The amount of methane that would have been destroyed/combusted during the year in the absence of the project due to regulatory and/or contractual requirement, in tonnes of methane (tCH_4) • GWP_{CH4} = Global Warming Potential value for methane for the first commitment period is 21 tCO_{2e}/tCH_4 • $EL_{LFG,y}$ = Net quantity of electricity produced using LFG, which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation, during year y, in megawatt hours (MWh) • $CEF_{elecy,BL,y}$ = CO_2 emissions intensity of the baseline source of electricity displaced, in tCO2e/MWh This is estimated as per equation (9)	ACM	0001	Yes, the baseline calculation is demonstrated on E.6.2 of CDM-PoA-DD and on B.5.2 of CDM-CPA-DD.	OK	OK

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below • $ET_{LFG,y}$ = The quantity of thermal energy produced utilizing the landfill gas, which in the absence of the project activity would have been produced from onsite/offsite fossil fuel fired boiler/air heater, during the year y in TJ • $CEF_{ther,BL,y}$ = CO_2 emissions intensity of the fuel used by boiler/air heater to generate thermal energy which is displaced by LFG based thermal energy generation, in tCO_{2e}/TJ. This is estimated as per equation (10) below					
ii. In the case when the $MD_{BL,y}$ is given/defined in the regulation and/or contract as a quantity, was that quantity used ?	ACM	0001	Not applicable.	-	-
iii. In situations where in the baseline LFG is captured and destroyed, for reasons other than regulation and/or contract, were historic data on actual amount captured used as $MD_{BL,y}$?	ACM	0001	Not applicable.	-	-
iv. In the case when the $MD_{BL,y}$ is given/defined in the regulation and/or contract as a quantity, was that quantity used ?	ACM	0001	Not applicable.	-	-
v. In cases where regulatory or contractual requirements do not specify $MD_{BL,y}$, or no historic data exists for LFG captured and destroyed, was an "Adjustment Factor" (AF) e used and justified, taking into account the project context, using the guidance below . $MD_{BL,y} = MD_{project,y} * AF$ (2)	ACM	0001	Yes, AF is demonstrated in a proper manner.	OK	OK
vi. In cases where a specific system for collection and destruction of methane is mandated by	ACM	0001	Not applicable	-	-

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regulatory or contractual requirements or is undertaken for other reasons, was the ratio of the destruction efficiency of the baseline system to the destruction efficiency of the system used in the project activity used ? The following procedure for AF should be followed :					
vii. In the cases above, were the following 3-step procedure for AF followed ?	ACM	0001	Not applicable	-	-
viii. Was step 1, estimation of the destruction efficiency of the system, followed ?	ACM	0001	Not applicable	-	-
a. In situations where the baseline specific system for collection and destruction of methane installed and operating prior to implementation of the project activity and measurements of the amount of methane that is destroyed are available, was the following equation used ? $\varepsilon_{BL} = MD_{Hist} / MG_{Hist}$ (3) Where : • ε_B = Destruction efficiency of the baseline system (fraction) • MD_{His} = Amount of methane destroyed historically measured for the previous year before the start of project activity (tCH_4) • MG_{Hist} = Amount of methane generated historically for the previous year before the start of project activity, estimated using the actual amount of waste disposed in the landfill as per the latest version of the "Tool to determine methane emissions avoided from disposal of	ACM	0001	Not applicable	-	-

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waste at a solid waste disposal site"tCH_4)					
i. While estimating ex ante methane emissions that are generated in the landfill with latest version of the approved "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", was the following guidance taken into account :	ACM	0001			
1. In the tool, x will refer to the year since the landfill started receiving wastes [x runs from the first year of landfill operation (x=1) to the year for which emissions are calculated (x=y)]?	ACM	0001	Yes, the PoA demonstrate that x=y	OK	OK
2. Sampling to determine the different waste types is not necessary. The waste composition can be obtained from previous studies?	ACM	0001	Yes, waste composition is obtained form previous studies	OK	OK

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b. In cases, where the baseline system for collection and destruction of methane is not installed prior to project implementation and/or measurements of the amount of methane that is destroyed are not available then was the destruction efficiency of the system mandated by regulatory or contractual requirements (ε_{BL}) assumed to be equal to the theoretical efficiency of the specific system for collection and destruction of methane that is defined in the regulation or contract? In other cases :	ACM	0001	Not applicable.	-	-
i. Was a procedure for estimating the amount of landfill gas that would be captured in absence of the project activity provided in the CDM-PDD validated by the DOE ?	ACM	0001	Not applicable. The amount of landfill gas be captured in absence of the project activity is zero.	-	-
ii. Was this procedure used to estimate the MD_{Hist} in equation 3 above to estimate the baseline destruction efficiency ?	ACM	0001	Not applicable.	-	-
c. In cases, where a specific percentage of the "generated" amount of methane to be collected and destroyed is specified in the contract or mandated by regulations, the efficiency of the baseline system (ε_{BL}) is equal to the defined specific percentage:	ACM	0001	Not applicable.	-	-
ix. Was step 2, estimation of the destruction efficiency of the system used in the project activity, followed and used one of the 2 options below?	ACM	0001	Not applicable.	-	-
a. Was option 1 used, where the destruction	ACM	0001	Not applicable.	-	-

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efficiency of the system used in the project activity is estimated once and remains fixed for the whole crediting period ?					
b. If option 1 was used, was the destruction efficiency of the system estimated as follows ? $\varepsilon_{PR} = MD_{project,1} / MG_{PR,1}$ (4) Where : • ε_{PR} = Destruction efficiency of the system used in the project activity that will remain fixed for the whole crediting period (fraction) • $MD_{project,1}$ = Amount of methane destroyed by the project activity during the first year of the project activity (tCH_4) • $MG_{PR,1}$ = Amount of methane generated during the first year of the project activity estimated using the actual amount of waste disposed in the landfill as per the latest version of the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", see guidance in Step 1 (tCH_4)	ACM	0001	Not applicable.	-	-
c. Was option 2 used, where the destruction efficiency of the system used in the project activity is estimated every year ?	ACM	0001	The methane destruction efficiency of the envisioned system is estimated in 90%.	OK	OK
d. If option 2 was used, was the destruction	ACM	0001	Not applicable.	-	-

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efficiency of the system estimated as follows ? $\varepsilon_{PR,y} = MD_{project,y} / MG_{PR,y}$ (5) Where : • $\varepsilon_{PR,y}$ = Destruction efficiency of the system used in the project activity for year y (fraction) • $MD_{project,y}$ = Amount of methane destroyed by the project activity during the year y of the project activity (tCH_4) • $MG_{PR,y}$ = Amount of methane generated during year y of the project activity estimated using the actual amount of waste disposed in the landfill as per the latest version of the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", see guidance in Step 1 (tCH_4)					
x. Was step 3, estimation of the adjustment factor (AF), followed and used one of the 2 options below?	ACM	0001	Not applicable.	-	-
a. If option 1 was used in step 2 above, was the adjustment factor estimated as follows ? $AF = \varepsilon_{BL} / \varepsilon_{PR}$ (6)	ACM	0001	Not applicable.	-	-
b. If option 2 was used in step 2 above, was the adjustment factor estimated as follows?	ACM	0001	Not applicable.	-	-

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$AF_y = \varepsilon_{BL} / \varepsilon_{PR,y}$ (7) Where : • AF_y = Adjustment factor for year y, this factor will be used in equation 2 in place of AF)					
xi. Did project proponents provide an ex ante estimate of emissions reductions, by projecting the future GHG emissions of the landfill as specified below?	ACM	0001	Yes, project proponent has provided and spreadsheet "ER_Calculations_Brazil_SantaRosa.xls", which demonstrates the future GHG emissions.	OK	OK
a. Will $MD_{project,y}$ be determined *ex post* by metering the actual quantity of methane captured and destroyed once the project activity is operational ?	ACM	0001	Yes, parameters to determine methane captured, destroyed and/or used to generate electricity and/or distributed to a natural gas pipeline by the project are to be measured and recorded according to monitoring plan.	OK	OK
b. Is the methane destroyed by the project activity ($MD_{project,y}$) during a year be determined by monitoring the quantity of methane actually flared and gas used to generate electricity and/or produce thermal energy and/or supply to end users via natural gas distribution pipeline, if applicable, and the total quantity of methane captured?	ACM	0001	Yes, parameters to determine methane captured, destroyed and/or used to generate electricity and/or distributed to a natural gas pipeline by the project are to be measured and recorded according to monitoring plan.	OK	OK
c. Is the sum of the quantities fed to the flare(s), to the power plant(s), to the boiler(s)/air heater(s)/heat generating equipment(s) and to the natural gas distribution network (estimated using equation 3) compared annually with the total quantity of methane generated and the lowest value of the two adopted as	ACM	0001	Yes, the lowest value of the two adopted is demonstrated.	OK	OK

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$MD_{project,y}$.?					
d. Is the following procedure applied when the total quantity of methane generated is the highest?	ACM	0001	Yes.	OK	OK
i. Are working hours of the energy plant(s) and the boiler(s)/air heater(s)/heat generating equipment(s) monitored and no emission reduction claimed for methane destruction in the energy plant or the boiler/air heater/heat generating equipment during non-operational hours?	ACM	0001	Yes, non-working hours is to be monitored and registered by methane flow meter.	OK	OK
e. Is $MD_{project,y}$ determined as follows ? $$MD_{project,y} = MD_{flared,y} + MD_{electricity,y} + MD_{thermal,y} + MD_{PL,y} \quad (8)$$ Where : • $MD_{flared,y}$ = Quantity of methane destroyed by flaring (tCH_4) • $MD_{electricity,y}$ = Quantity of methane destroyed by generation of electricity (tCH_4) • $MD_{thermal,y}$ = Quantity of methane destroyed for the generation of thermal energy (tCH_4) • $MD_{PL,y}$ = Quantity of methane sent to the pipeline for feeding to the natural gas distribution network (tCH_4)	ACM	0001	Yes, methane destruction is determined accordingly.	OK	OK

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f. Is the right hand side of the equation (8) the sum over all the points of captured methane use in case the methane is flared in more than one flare, and/or used in more than one electricity generation source, and/or more than one thermal energy generator. The supply to each point of methane destruction, through flaring or use for energy generation, shall be measured separately?	ACM	0001	Yes. **CAR_RRC_02** - The PoA states on page 31 the right hand side of equation "*(7)*" but the correct equation is number "*(9)*" in the text.	CAR_RRC_02	OK
g. Is the supply to each point of methane destruction, through flaring or use for energy generation, measured separately?	ACM	0001	Yes, the methane flow is to be measured separately and recorded by flow meters and records.	OK	OK
h. Is $MD_{flared,y}$ determined as follows ? $MD_{flared,y} = \{LFG_{flare,y} * w_{CH4,y} * D_{CH4}) - (PE_{flare,y} / \mathrm{GWP}_{CH4})$ (9) Where : • $LFG_{flare,y}$= Quantity of landfill gas fed to the flare(s) during the year measured in cubic meters (m^3) • $w_{CH4,y}$= Average methane fraction of the landfill gas as measured during the year and expressed as a fraction (in m^3 CH_4/m^3 LFG) • D_{CH4}= Methane density expressed in tonnes of methane per cubic meter of methane (tCH_4/m^3CH_4) (note : At standard temperature and pressure (0 degree Celsius and 1,013 bar) the	ACM	0001	Yes, the flared methane is determined according to the equation and it is demonstrated in a proper manner.	OK	OK

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density of methane is 0.0007168 tCH_4/m^3CH_4.) • $PE_{flare,y}$= Project emissions from flaring of the residual gas stream in year y ($tCO2_e$) determined following the procedure described in the "Tool to determine project emissions from flaring gases containing methane".					

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i. For $w_{CH4,y}$ above, are methane fraction of the landfill gas and LFG flow measured on same basis (either wet or dry) ? In case the "Tool to determine project emissions from flaring gases containing methane" is used, follow the standard approaches to convert the flow on wet basis to dry basis.?	ACM	0001	Yes, the methane fraction is measured in wet basis and it is converted to dry basis.	OK	OK
ii. In case the "Tool to determine project emissions from flaring gases containing methane" is used, are the standard approaches to convert the flow on wet basis to dry basis followed. (for example, the procedures provided in the book "Fundamentals of Classical Thermodynamics"; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4o Edition, 1994, John Wiley & Sons, Inc).?	ACM	0001	Yes, the conversion procedure used is in the book "Fundamentals of Classical Thermodynamics"; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4o Edition, 1994, John Wiley & Sons, Inc.	OK	OK
iii. For $PE_{flare,y}$ above, if methane is flared through more than one flare, is $PE_{flare,y}$ determined for each flare using the tool ?	ACM	0001	Yes, when methane is flared through more than one flare, project emissions from flaring shall be determined for each flare	OK	OK
i. Is $MD_{electricity,y}$ determined as follows ? $MD_{electricity,y} = LFG_{electricity,y} * w_{CH4,y} * D_{CH4}$ (10) Where :	ACM	0001	Yes, the methane destruction by electricity production is determined and demonstrated according to the equation 10 of the methodology. **CAR_AVD_06** – The formula for the calculation of $MD_{electricity,y}$, included in the CDM-PoA-DD, has not	CAR_AVD_06	OK

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• $MD_{electricity,y}$= Quantity of methane destroyed by generation of electricity • $LFG_{electricity,y}$= Quantity of landfill gas fed into electricity generator			been indicated in the CDM-CPA-DD.		

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j. Is $MD_{thermal,y}$ determined as follows ? $MD_{thermal,y} = LFG_{thermal,y} * w_{CH4,y} * D_{CH4}$ (11) Where : • $MD_{thermal,y}$ = Quantity of methane destroyed for the generation of thermal energy • $LFG_{thermal,y}$ = Quantity of landfill gas fed into the boiler/air heater/heat generatin equipement	ACM	0001	Not applicable	-	-
k. Is $MD_{PL,y}$ determined as follows ? $MD_{PL,y} = LFG_{PL,y} * w_{CH4,y} * D_{CH4}$ (12) Where : • $MD_{thermal,y}$ = Quantity of methane destroyed for the generation of thermal energy • $LFG_{PL,y}$ = Quantity of landfill gas sent to pipeline for feeding to the natural gas distribution network	ACM	0001	Yes, the methane destruction by pipeline distribution is determined and demonstrated according to the equation 12 of the methodology. **CAR_AVD_07** – The formula for the calculation of $MD_{PL,y}$, included in the CDM-PoA-DD, has not been indicated in the CDM-CPA-DD.	CAR_AVD_07	OK
l. Was the ex ante estimation of the the amount of methane that would have been destroyed/combusted during the year, in tonnes of methane ($MD_{project,y}$) done with the latest version of the approved ""Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" ?	ACM	0001	Yes, Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, version 5 is used.	OK	OK

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m. In doing so, was the following additional equation considered? $MD_{project,y} = BE_{CH4,SWDS,y}/GWP_{CH4}$ (13) Where : • $BE_{CH4,SWDS,y}$ = Methane generation from the landfill in the absence of the project activity at year y (tCO2e), calculated as per the ""Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" ". The tool estimates methane generation adjusted for, using adjustment factor (f) any landfill gas in the baseline that would have been captured and destroyed to comply with relevant regulations or contractual requirements, or to address safety and odor concerns. As this is already accounted for in equation 2, ""f" " in the tool shall be assigned a value 0	ACM	0001	Yes, the equation (13) of the methodology is used and demonstrated.	OK	OK
n. The tool above estimates methane generation adjusted for, using adjustment factor (f) any landfill gas in the baseline that would have been captured and destroyed to comply with relevant regulations or contractual requirements, or to address safety and odor concerns As this is already accounted for in	ACM	0001	Yes, *f* is considered to be "0".	OK	OK

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equation 2, was " "f " " in the tool assigned a value 0 ?					
o. In the tool above, does x refer to the year since the landfill started receiving wastes [x runs from the first year of landfill operation (x=1) to the year for which emissions are calculated (x=y)] ?	ACM	0001	Yes, "x" refers to the year since the landfill started receiving wastes.	OK	OK
p. In the tool above, sampling to determine the different waste types is not necessary, the waste composition can be obtained from previous studies	ACM	0001	Yes, waste composition is obtained from previous studies. **CL_AVD_07** – Since the wastes are going to be received from Gramacho Landfill, from Seropedica Landfill and from Itaguai Landfill, why the sampling to determine the different waste types has only been made in Gramacho Landfill?	CL_AVD_07	OK
q. Was the efficiency of the degassing system which will be installed in the project activity taken into account while estimating the ex ante estimation ?	ACM	0001	Yes, the degassing efficiency is accounted to be 0.5.	OK	OK
r. Was the efficiency of the degassing system which will be installed in the project activity taken into account while estimating the ex ante estimation ?	ACM	0001	Yes, the degassing efficiency is accounted to be 0.5.	OK	OK
xii. Was $CEF_{elec,BL,y}$ determined as specified below?	ACM	0001	No, the ACM0001 v11 states that in case the baseline is electricity generated by plants connected to the grid the emission factor should be calculated according to "Tool to calculate the emission factor for an electricity system", version 02. It has been applied in the CDM-PoA-DD and in the CDM-CPA-DD for the calculation of the emission factor. **CAR_RRC_03** – The reference given, on page 27 of the CPA Santa Rosa, (9) for the equation to	CAR_RRC_03 CAR_AVD_08 CAR_AVD_09	OK OK OK

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			calculate the $CEF_{elec,BL,y}$ it is not correct. **CAR_AVD_08** – The Tool, the steps and the formula for the calculation of the $EF_{grid,CM,y}$ are not indicated in the CDM-CPA-DD for the Santa Rosa Landfill. **CAR_AVD_09** – In Brazil there is only one grid and the information of $EF_{grid,BM,y}$ and of $EF_{grid,OM,y}$, necessary for the calculation of the $EF_{grid,CM,y}$ is supplied by the DNA. The DNA utilizes for the calculation of the $EF_{grid,OM,y}$ the method (c) Dispatch data analysis OM. For the dispatch data analysis it is mandatory to use the year in which the project activity displaces grid energy and the emission factor must be updated annually during monitoring. For the calculation of the $EF_{grid,BM,y}$ there are 2 options and in one of them, only for the first crediting period the $EF_{grid,BM,y}$ can be calculated ex-ante. Additionally, it is not correct to include the $EF_{grid,CM,y}$ in CDM-PoA-DD's section E.6.3 Data and parameters that are to be reported in CDM-CPA-DD (Section B.5.1), but to be included in the CDM-PoA-DD's section E.7.1 Data and parameters to be monitored by each CPA (Section B.6.1 of the CDM-PoA-DD).		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a. In case the baseline is electricity generated by an on-site/off-site fossil fuel fired captive power plant in the baseline, have project proponents used a default value of 0.8 tCO2/MWh ?	ACM	0001	Not applicable.	-	-
b. or estimated the emission factor as follows ? $CEF_{elec,BL,y} = \frac{EF_{fucl,BL}}{\varepsilon_{gen,BL}.NCV_{fuel,BL}} * 3.6$ (14) Where : • $EF_{fuel,BL}$ = Emission factor of baseline fossil fuel used, as identified in the baseline scenario identification procedure, expressed in tCO_2/mass of volume unit • $NCV_{fuel,BL}$ = Net calorific value of fuel, as identified through the baseline identification procedure, in GJ per unit of volume or mass • $\varepsilon_{gen,BL}$ = Efficiency of baseline power generation plant • 3.6 = Equivalent of GJ energy in MWh of electricity	ACM	0001	Not applicable.	-	-
c. To estimate electricity generation efficiency, have project participants used the possibility to choose the highest value among the following values as a conservative approach?	ACM	0001	**CL_RRC_01** - It is not clear which method is used to estimate electricity generation efficiency.	CL_RRC_01	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i. Measured efficiency prior to project implementation?	ACM	0001	Refer to **CL_RRC_01.**	CL_RRC_01	OK
ii. Measured efficiency during monitoring?	ACM	0001	Refer to **CL_RRC_01.**	CL_RRC_01	OK
iii. Data from manufacturer for efficiency at full load?	ACM	0001	Refer to **CL_RRC_01.**	CL_RRC_01	OK
iv. Default efficiency of 60% ?	ACM	0001	Refer to **CL_RRC_01.**	CL_RRC_01	OK
d. In case the baseline is electricity generated by plants connected to the grid, is the emission factor calculated according to " Tool to calculate the emission factor for an electricity system" ?	ACM	0001	Yes, the emission factor calculated according to the latest tool to calculate the emission factor for an electricity system is demonstrated.	OK	OK
xiii. Was $CEF_{therm,BL,y}$ determined as specified below? $$CEF_{therm,BL,y} = \frac{EF_{fuel,BL}}{\varepsilon_{boiler/airheater} \cdot NCV_{fuel,BL}} \quad (15)$$ Where : • $\varepsilon_{gen,BL}$ = The energy efficiency of the boiler/air heater used in the absence of the project activity to generate the thermal energy • $NCV_{fuel,BL}$ = Net calorific value of fuel, as identified through the baseline identification procedure, used in the boiler/air heater to generate the thermal energy in the absence of the project activity in TJ per unit of volume	ACM	0001	Not applicable	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
or mass • $EF_{fuel,BL}$ = Emission factor of the fuel, as identified through the baseline identification procedure, used in the boiler/air heater to generate the thermal energy in the absence of the project activity in tCO2 / unit of volume or mass of the fuel					
a. To estimate boiler efficiency, have project participants choosen between the following two options:?	ACM	0001	Not applicable	-	-
i. If option A , has the highest value among the following three values been used as a conservative approach ?	ACM	0001	Not applicable	-	-
1. Measured efficiency prior to project implementation ?	ACM	0001	Not applicable	-	-
2. Measured efficiency during monitoring ?	ACM	0001	Not applicable	-	-
3. Manufacturer' 's information on the boiler efficiency ?	ACM	0001	Not applicable	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. If option B , is a boiler efficiency of 100% assumed based on the net calorific values as a conservative approach ?	ACM	0001	Not applicable	-	-
b. To estimate air heater efficiency, have project participants assumed an air heater efficiency of 100% based on the net calorific value of the fuel used as a conservative approach ?	ACM	0001	Not applicable	-	-
c. In determining the CO_2 emission factors (EF_{fuel}) of fuels, have reliable local or national data been used, if available?	ACM	0001	Not applicable	-	-
d. Where such data is not available, were IPCC default emission factors chosen in a conservative manner?	ACM	0001	Not applicable	-	-
xiv. Was PE_y determined as follows? $$PE_y = PE_{EC,y} + PE_{FC,j,y} \quad (16)$$ Where : • $PE_{EC,y}$ = Emissions from consumption of electricity in the project case. • $PE_{FCj,y}$ = Emissions from consumption of heat in the project case. If in the baseline part of the LFG was captured then the heat quantity used in calculation is fossil fuel used in project activity net of that consumed in the baseline.	ACM	0001	Yes, the equation is demonstrated and used to calculate project emissions.	OK	OK
a. Were the project emissions from electricity consumption ($PE_{EC,y}$) above calculated following the latest version of	ACM	0001	Yes, project emissions from electricity consumption (PEEC,y) is calculated using the latest version of "Tool to calculate baseline, project and/or leakage	CAR_AVD_10	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
" "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" "?			emissions from electricity consumption". **CAR_AVD_10** – The lines of table 9 of the CDM-CPA-DD for CPA-1, are not correctly positioned.		
b. If in the baseline a part of LFG was captured then is the electricity quantity used in calculation electricity used in project activity net of that consumed in the baseline ?	ACM	0001	Not applicable. LG in baseline is to be released to atmosphere.	-	-
c. Were the project emissions from fossil fuel combustion ($PE_{FC,j,y}$) calculated following the latest version of " "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" " ?	ACM	0001	Yes, for this project, liquefied petroleum gas is used for the ignition of the flare system, thus these emissions are demonstrated and calculated accordingly. **CAR_AVD_11** – Relating to $PE_{FC,j,y}$ there is an inconsistency between the CDM-PoA-DD and the CDM-CPA-DD: - While in the CDM-PoA-DD informs that, for this project, LPG-Liquified Petroleum Gas is used for the ignition of the flare system, $PE_{FC,j,y}$ is calculated using the formula $PE_{FC,j,y} = FC_{,j,y} * COEF_{,j,y}$ (the formula is not correctly expressed in the CDM-PoA-DD), in the CDM-CPA-DD it is being informed that $PE_{FC,j,y} = 0$.	CAR_AVD_11	OK
d. For this purpose, do the processes j in the tool correspond to all fossil fuel combustion in the landfill, as well as any other on-site fuel combustion for the purposes of the project activity?	ACM	0001	Yes, liquefied petroleum gas is the only fossil fuel used in this project.	OK	OK
e. If in the baseline part of the LFG was captured, was the heat quantity used in calculation the fossil fuel used in project activity net of that consumed in the baseline?	ACM	0001	Not applicable	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
xv. Were emission reductions calculated as follows? $ER_y = BE_y - PE_y$ (17) Where : • ER_y = Emission reductions in year y (tCO_{2e}/yr) • BE_y= Baseline emissions in year y (tCO_{2e}/yr) • PE_y = Project emissions in year y (tCO_2/yr)	ACM	0001	**CAR_AVD_12** – there is an inconsistency between the CDM-PoA-DD and the CDM-CPA-DD because the formula $ER_y = BE_y - PE_y$ it is only informed in the CDM-PoA-DD.	CAR_AVD_12	OK
xvi. Are the following data and parameters not monitored (refer to the calculations above for more details)?	ACM	0001	**CL_AVD_08** – Please, explain why MD_{HIST} and MG_{HIST}, included in the methodology ACM0001, version 11, as Data and Parameters not monitored, are not included nor explained the reasons for their not inclusion in both, CDM-PoA-DD and CDM-CPA-DD	CL_AVD_08	OK
a. Regulatory requirements relating to landfill gas	ACM	0001	Yes, regulations related to landfill gas shall be monitored and the PoA be revised on the renewal of the crediting period. **CAR_AVD_13** – According to the methodology ACM0001, version 11, the information "Regulatory requirements relating to landfill gas" should have been included in the section E.6.3 of the CDM-PoA-DD.	CAR_AVD_13	OK
b. GWP_{CH4}	ACM	0001	Not monitored	-	-
c. D_{CH4}	ACM	0001	Not monitored	-	-
d. $BE_{CH4,SWDS,y}$	ACM	0001	Not monitored	-	-
e. MD_{Hist}	ACM	0001	Not monitored	-	-
f. MG_{Hist}	ACM	0001	Not monitored	-	-

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c. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	Yes.	OK	OK
d. If yes, has adequate justification been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided)?	VVM	90	Yes.	OK	OK
e. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	90	Refer to (5.e.b) above	-	-
f. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	Yes.	OK	OK
g. If no, and these data and parameters will remain fixed throughout the crediting period, are all data sources and assumptions:	VVM	91	N.A.	-	-
i. Appropriate and correct?	VVM	91	N.A.	-	-
ii. Applicable to the proposed CDM project activity?	VVM	91	N.A.	-	-
iii. Resulting in a conservative estimate of the emission reductions?	VVM	91	N.A.	-	-
h. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	No.	OK	OK
i. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	N.A.	-	-
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM projet activity is additional?	VVM	94	No, refer to **CAR_AVD_14**.	CAR_AVD_14	OK
b. Does the CDM-PDD state the latest version of the additionality tool being used?	VVM	94	The CDM-PDD states that the "Tool for the demonstration and assessment of additionality", version 05.2, is being used.	OK	OK

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c. Were the following steps of the tool to assess additionality used:	EB 39	Ann 10			
i. Identification of alternatives to the project activity?	EB 39	Ann 10	Yes,	OK	OK
ii. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible?	EB 39	Ann 10	Yes.	OK	OK
iii. Barriers analysis?	EB 39	Ann 10	No.	OK	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes.	OK	OK
d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	Yes.	OK	OK
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann 10	Yes.	OK	OK
e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10			
k. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes.	OK	OK
l. (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 39	Ann 10	Yes.	OK	OK
m. (c) If applicable, continuation of the current situation (no project activity or other	EB 39	Ann 10	Yes.	OK	OK

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alternatives undertaken).					
f. Has the project participant included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region?	EB 39	Ann 10	No.	OK	OK
g. Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	EB 39	Ann 10	Yes.	OK	OK
h. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 39	Ann 10	Yes.	OK	OK
i. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?	EB 39	Ann 10	N.A.	-	-
j. Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and	EB 39	Ann 10	All the alternatives identified in step 1b are consistent with Brazilian laws and regulations.	OK	OK

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regulations done correctly? Please state the outcome.					
k. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	The PP selected Step 2 Investment Analysis.	OK	OK
l. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Yes.	OK	OK
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	No.	OK	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	No.	OK	OK
iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Yes.	OK	OK
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Yes.	OK	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Yes.	OK	OK
m. In sub-step 2a has the determination of appropraite method of analysis done as per the guidance as below?	EB 39	Ann 10			
i. Simple cost analysis if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	EB 39	Ann 10	No.	OK	OK
ii. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 39	Ann 10	Benchmark analysis. Investment analysis was done comparing the IRR of the project without the CERs revenues, against Brazil Federal Treasury Bonds. It was done through a 15 year period, according to the contract signed between COMLURB and HAZTEC/SERB. The investments and costs of	CL_AV D_09	OK

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			other activities, such as leachate plant, were included in the Investment Analysis, as they are part of the concession contract signed by HAZTEC/SERB. **CL_AVD_09** – The DOE did not have access to the concession contract signed between COMLURB and HAZTED/SERB.		

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n. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.	EB 39	Ann 10	N.A.	-	-
o. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 39	Ann 10	N.A.	-	-
p. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 39	Ann 10			
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 39	Ann 10	Yes. IRR has been defined as the financial/economic indicator.	OK	OK
ii. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.	EB 39	Ann 10			
iii. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect	EB 39	Ann 10			

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private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.					
q. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 39	Ann 10			
i. Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations	EB 39	Ann 10			

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and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country.					
ii. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 39	Ann 10	**CAR_AVD_14** – The investment analysis of CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, version 1.1, has not been accepted because it has not been presented on an understandable manner. There is a lack of sufficient information, including evidences to confirm the input parameters utilized.	CAR_AVD_14	OK
iii. Justify and/or cite assumptions.	EB 39	Ann 10			
iv. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 39	Ann 10			
v. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 39	Ann 10			
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity.Please specify details for above.	EB 39	Ann 10			
r. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)? Include a sensitivity analysis that shows whether the conclusion regarding the	EB 39	Ann 10			

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financial/economic attractiveness is robust to reasonable variations in the critical assumptions.					
s. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10			
t. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 39	Ann 10	N.A.	-	-
i. Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity;	EB 39	Ann 10			
ii. Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity).	EB 39	Ann 10			
u. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project?	EB 39	Ann 10	N.A.	-	-
i. (a) Investment barriers: For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.	EB 39	Ann 10			
ii. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably	EB 39	Ann 10			

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high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and logistics for maintenance of the technology, Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region.					
iii. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 39	Ann 10			
iv. (d) Other barriers, preferably specified in the underlying methodology as examples.	EB 39	Ann 10			
v. Has the outcome from Step 3a clearly mentioned in PDD?	EB 39	Ann 10	N.A.	-	-
w. Has the below guideline followed for Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	EB 39	Ann 10	N.A.	-	-
i. If the identified barriers also affect other alternatives, explain how they are affected less strongly than they affect the proposed CDM project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be	EB 39	Ann 10			

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prevented by the barriers identified in Sub-step 3a is not a viable alternative, and shall be eliminated from consideration.					
ii. Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	EB 39	Ann 10			
iii. The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc; (c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.	EB 39	Ann 10			
x. Has the outcome from Step 3 clearly mentioned in PDD?	EB 39	Ann 10	N.A.	-	-
y. In step 4: Common practise analysis have all the sub-steps as below followed?	EB 39	Ann 10			
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Yes. **CL_AVD_10** – Please, revise the format of CDM13. It should have been CDM[13].	CL_AVD_10	OK

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ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Yes.	OK	OK
z. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	EB 39	Ann 10	**CL_AVD_13** – Please, provide the source of the information "Disregarding the CDM projects from the sample of this research, only 3% of the landfills use/flare the gas but are not CDM projects".	CL_AVD_13	OK
aa. - Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of	EB 39	Ann 10	Yes.	OK	OK

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data/information.					
bb. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	Yes,	OK	OK
cc. Has it been proved that the porject is additional?	EB 39	Ann 10	No. Refer to **CAR_AVD_14**.	CAR_AVD_14	OK
dd. Has the PP demonstrated additionality by explaining Investment barrier, Access-to-finance barrier, Technological barrier, Barrier due to prevailing practice or other barriers?	EB 35	Ann 34	N.A.	-	-
ee. If Investment barrier has been explained, is it demonstraed that financilly more viable alternative to the project activity would have led to higher emissions? Please explain.	EB 35	Ann 34	N.A.	-	-
ff. If Access-to-finance has been explained, is it demonstraed that the project activity could not access appropriate capital without consideration of the CDM revenues? Please explain.	EB 35	Ann 34	N.A.	-	-
gg. If Technological barrier has been explained, is it demonstraed that a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertinity or low market share of the new technology adopted for the project activity and so would have led to higher emissions? Please explain.	EB 35	Ann 34	N.A.	-	-
hh. If prevailing practise barrier has been explained, is it demonstrated that the prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions? Please explain.	EB 35	Ann 34	N.A.	-	-
ii. If other barrier has been explained, is it demonstrated that Other barriers such as	EB 35	Ann 34	N.A.	-	-

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institutional barriers or limited information, managerial resources, organizational capacity, or capacity to absorb new technologies would prevent the project activity any way?					
jj. Have the project participants identifed the most relevant barrier?	EB 35	Ann 34	N.A.	-	-
kk. Have the project participants provided transparent and documented third party evidence such as national/international statistics, national/provincial policy and legislation, studies/surveys by independent agencies etc. to demonstrate the most relevant barrier? Please explain.	EB 35	Ann 34	N.A.	-	-

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a. Prior consideration of the clean development mechanism					
a. Is the project ativity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	No, the starting date of the project is after the date of publication of the CDM-PoA-DD and of the CDM-CPA-DD for stakeholder comments.	OK	OK
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	N.A.	-	-
c. Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."?	VVM	99	**CAR_AVD_15** – It has not been provided evidences to demonstrate that the Section B.1 of the CDM-PoA-DD and the Section A.4.2.1 of the CPA – 1 are in compliance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."	CAR_AVD_15	OK
d. Does the project activity require construction, retrofit or other modifications?	VVM	99	Yes, it requires construction.	OK	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	The date of commissioning is not being considered as the project activity start date.	OK	OK
f. Is it a new project activity (a project activity with a start date on or after 02 August 2008) or an existing project activity (a project activity with a start date before 02 August 2008)?	VVM	100	It is a new project.	OK	OK
g. For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, had the PP informed the Host Party DNA and/or the UNFCCC secretariat in writing of the	VVM	101	N.A.	-	-

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commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from host Party DNA and/or UNFCCC secretariat).					
h. For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are the following evidences provided:	VVM	102	N.A.	-	-
i. evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	102			
a. minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?	VVM	102			
ii. reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	102	N.A.	-	-
a. contract with consultants for CDM/PDD/methodology services?	VVM	102			
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	102			
c. evidence of agreements or negotiations	VVM	102			

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with a DOE for validation services?					
d. submission of a new methodology to the CDM Executive Board?	VVM	102			
e. publication in newspaper?	VVM	102			
f. interviews with DNA?	VVM	102			
g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102			
h. Has the chronology of events including time lines been appropriately captured and explained/detailed in the PDD?	VVM	102			
b. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	105	No.	OK	OK
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	Yes.	OK	OK
c. Does the list of alternatives given in the PDD esure that:	VVM	106			
i. the list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity?	VVM	106	Yes.	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?	VVM	106	Yes.	OK	OK
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	Yes.	OK	OK

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c. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	108	Yes. Refer to **CAR AVD 14**. **CAR AVD 14** – The investment analysis of CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, version 1.1, has not been accepted because it has not been presented on an understandable manner. There is a lack of sufficient information, including evidences to confirm the input parameters utilized.	CAR AVD 14	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108			
i. the most economically or financially attractive alternative?	VVM	108			
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108			
c. Was this shown by one of the following approaches?	VVM	109			
i. The proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity.	VVM	109			
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109			
iii. The financial returns of the proposed CDM	VVM	109			

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project activity would be insufficient to justify the required investment.					
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 51	Ann 58			
e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58			
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment?	EB 51	Ann 58			
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period?	EB 51	Ann 58			
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58			
i. Has the fair value been calculated in accordance with local accounting regulations where available, or international best practice?	EB 51	Ann 58			
j. Does the fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 51	Ann 58			
k. Was depreciation, and other non-cash items related to the project activity, which have been	EB 51	Ann 58			

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deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?					
l. Has taxation been included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons?	EB 51	Ann 58			
m. Are the input values used in all investment analysis valid and applicable at the time of the investment decision taken by the project participant?	EB 51	Ann 58			
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 51	Ann 58			
o. Are all the listed input values been consistently applied in all calculations?	EB 51	Ann 58			
p. Does the investment analysis reflect the economic decision making context at point of the decision to recomence the project in the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM?	EB 51	Ann 58			
q. Have project participants supplied the spreadsheet versions of all investment analysis?	EB 51	Ann 58			
r. Are all formulas used in this analysis readable and all relevant cells be viewable and unprotected?	EB 51	Ann 58			
s. In cases where the project participant does not wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	EB 51	Ann 58			

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t. In case the PP wishes to black-out certain elements of the publicly available version, is it justifiable?	EB 51	Ann 58			
u. Was the cost of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?	EB 51	Ann 58			
v. In the calculation of equity IRR, has only the portion of investment costs which is financed by equity been considered as the net cash outflow?	EB 51	Ann 58			
w. Has the portion of the investment costs which is financed by debt been considered a cash outflow in the calcualtion of equity IRR? (this is not allowed)	EB 51	Ann 58			
x. Was a pre-tax benchmark be applied?	EB 51	Ann 58			
y. In cases where a post-tax benchmark is applied, is actual interest payable taken into account in the calculation of income tax?	EB 51	Ann 58			
z. In such situations, was interest calculated according to the prevailing commercial interest rates in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years?	EB 51	Ann 58			
aa. In cases where a benchmark approach is used is the applied benchmark appropriate to the type of IRR calculated?	EB 51	Ann 58			
bb. Has local commercial lending rates or weighted average costs of capital (WACC) selected as appropriate benchmarks for a project IRR?	EB 51	Ann 58			
cc. Has required/expected returns on equity selected	EB	Ann			

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as appropriate benchmark for an equity IRR?	51	58			
dd. In case benchmarks supplied by relevant national authorities selected is it applicable to the project activity and the type of IRR calculation presented?	EB 51	Ann 58			
ee. In the cases of projects which could be developed by an entity other than the project participant is the benchmark applied based on publicly available data sources which can be clearly validated?	EB 51	Ann 58			
ff. Have internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) been applied in cases where there is only one possible project developer?	EB 51	Ann 58			
gg. In such cases, have these values been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	EB 51	Ann 58			
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders been provided to the effect as above?	EB 51	Ann 58			
ii. Has a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects been conduted?	EB 51	Ann 58			
jj. Does the risk premiums applied in the determination of required returns on equity	EB 51	Ann 58			

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reflect the risk profile of the project activity being assessed, established according to national/international accounting principles? (It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.)					
kk. Has an investment comparison analysis and not a benchmark analysis used when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services?	EB 51	Ann 58			
ll. Have variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues been subjected to reasonable variation (positive and negative) and the results of this variation been presented in the PDD and be reproducible in the associated spreadsheets?	EB 51	Ann 58			
mm. Have a corrective action been raised for a variable to be included in the sensitivity analysis which constitute less than 20% and have a material impact on the analysis ?	EB 51	Ann 58			
nn. Is the range of variations selected is reasonable in the project context?	EB 51	Ann 58			
oo. Dos the variations in the sensitivity analysis at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances?	EB 51	Ann 58			
pp. In cases where a scenario will result in the project activity passing the benchmark or	EB 51	Ann 58			

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becoming the most financially attractive alternative, is an assessment done of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity?					
qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 51	Ann 58			
i. The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval?	EB 51	Ann 58			
ii. The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)?	EB 51	Ann 58			
rr. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?	VVM	111			
ss. Were the parameters cross-checked agains third-party or publicly available sources, such as invoices or price indices?	VVM	111			
tt. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	111			

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
uu. Was the correctnes of computations carried out and documented by the project participants assessed?	VVM	111			
vv. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	111			
ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112			
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112			
yy. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:					
iii. assessing previous investment decisions by the project participants involved?	VVM	112			
iv. determining whether the same benchmark has been applied?	VVM	112			
v. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	112			
zz. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	VVM	113			
xx. If yes:	VVM	113			
i. has the FSR been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between	VVM	113			

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the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?					
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113			
iii. If not, was the appropriateness of the values validated?	VVM	113			
iv. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	113			
d. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	115	No.	OK	OK
b. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that:	VVM	115	N.A.	-	-
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115			
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115			
c. Are there any issues that have a clear direct impact on the financial returns of the project activity, other than: risk related barriers, for example risk of technical failure, that could have negative effects on the financial performance; or	VVM	116	N.A.	-	-

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barriers related to the unavailability of sources of finance for the project activity? {If yes, these issues cannot be considered barriers and shall be assessed by investment analysis. [Refer to (6.c) above]}					
d. Were the barriers determined as real by:	VVM	117	N.A.	-	-
i. asssing the available evidence and/or undertaking interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist?	VVM	117			
ii. ensuring that existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	VVM	117			
iii. Is existence of a barrier substantiated only by the opinions of the project participants? (If yes, this barrier cannot be considered as adequately substantiated)	VVM	117			
e. Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible alternatives by applying local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of *at least one of* the possible alternatives, in particular the identified baseline scenario?	VVM	117	N.A.	-	-
e. Common practice analysis					

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a. Is this a proposed large-scale, or first-of-its kind small-scale project activity?	VVM	119	It is a large-scale CDM-PoA-DD.	OK	OK
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	119	Yes.	OK	OK
c. Was it assessed whether the geograpphical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type? (For certain technologis the relevatn region for assessment will be local and for others it may be transnational/global.	VVM	120	It was not necessary. The geographical scope is the entire country of Brazil.	OK	OK
d. Was a region other than the entire host country chosen?	VVM	120	No.	OK	OK
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	N.A.	-	-
f. Using official sources and local and industry expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	VVM	120	Yes.	OK	OK
g. Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region?	VVM	120	No.	OK	OK
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	N.A.	-	-
7. Monitoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	Yes.	OK	OK

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b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes.	OK	OK
c. Were the list of parameters required by the the selected methodology identified?	VVM	123	**CAR_AVD_19** – The monitoring frequency of the number of operational hours of the energy plant, and of $FC_{i,j,y}$,, $P_{n,j,x}$, CE_{FNG}, have not been defined in PoA, CPA generic and CPA – 1. **CAR_AVD_20** – The monitoring of W_x is not following the Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal, version 05 and the parameters z, $fv_{i,h}$, $FV_{RG,h}$, $t_{O2,h}$, $fv_{CH4,RG,h}$, w_{CH4}, are not being considered as monitored variables.	CAR_AVD_19 CAR_AVD_20	OK OK
d. Does the monitoring plan contains all necessary parameters?	VVM	123	Refer to **CAR_AVD_19** and to **CAR_AVD_20**. Refer to **CAR_AVD_19** and to **CAR_AVD_20**.	CAR_AVD_19 CAR_AVD_20	OK OK
e. Are the parameters clearly described?	VVM	123	Refer to **CAR_AVD_19** and to **CAR_AVD_20**. Refer to **CAR_AVD_19** and to **CAR_AVD_20**.	CAR_AVD_19 CAR_AVD_20	OK OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	Yes.	OK	OK
i. Are the amount of landfill gas generated (in m^3, using a continuous flow meter), where the total quantity ($LFG_{total,y}$) as well as the quantities fed to the flare(s) ($LFG_{flare,y}$), to the power plant(s) ($LFG_{electricity,y}$), sent to pipeline for feeding to the natural gas distribution network ($LFG_{PL,y}$), and to the boiler(s)/air heater(s)/heat generating equipment(s) ($LFG_{thermal,y}$) measured	ACM	0001	Yes, the amount of landfill gas generated, where the total quantity ($LFG_{total,y}$) as well as the quantities fed to the flare(s) ($LFG_{flare,y}$), to the power plant(s) ($LFG_{electricity,y}$), sent to pipeline for feeding to the natural gas distribution network ($LFG_{PL,y}$) are to be monitored and are demonstrated in the monitoring plan.	OK	OK

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continuously?					
ii. In the case where LFG is just flared, and if one flow meter for each flare is used, are those meters calibrated periodically by an officially accredited entity ?	ACM	0001	Yes, flow meters will be subject to a regular maintenance and testing regime to ensure accuracy	OK	OK
iii. Is the fraction of methane in the landfill gas ($w_{CH4,y}$) measured with a continuous analyzer ?	ACM	0001	Yes, the fraction of methane in the landfill gas (wCH4,y) shall be measured with a continuous analyzer are demonstrated in the monitoring plan.	OK	OK
iv. In all cases, are methane fraction of the landfill gas and LFG flow measured on same basis (either wet or dry) ?	ACM	0001	Yes, the methane fraction is measured in wet basis and it is converted to dry basis.	OK	OK
v. In case the " "Tool to determine project emissions from flaring gases containing methane " " is used, are the standard approaches to convert the flow on wet basis to dry basis followed (such as the procedures provided in the book " "Fundamentals of Classical Thermodynamics" "; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4o Edition, 1994, John Wiley & Sons, Inc) ?	ACM	0001	Yes, the conversion procedure used is in the book "Fundamentals of Classical Thermodynamics"; Gordon J. Van Wylen, Richard E. Sonntag and Claus Borgnakke; 4o Edition, 1994, John Wiley & Sons, Inc.	OK	OK
vi. Are the parameters used for determining the project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) monitored as per the ""Tool to determine project emissions from flaring gases containing methane" ?	ACM	0001	Yes, the parameters used for determining the project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) is to be monitored according to the "Tool to determine project emissions from flaring gases containing methane" is described on monitoring plan.	OK	OK
vii. Are temperature (T) and pressure (p) of the landfill gas measured to determine the density of methane in the landfill gas?	ACM	0001	Yes, temperature and pressure are to be measured to determine the density of methane and are described on monitoring plan.	OK	OK
viii. Are the quantities of fossil fuels required to	ACM	0001	Yes, quantities of fossil fuels are to be measured	OK	OK

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operate the landfill gas project, including the pumping equipment for the collection system and energy required to transport heat monitored ?			and are described on monitoring plan.		
ix. In projects where LFG gas is captured in the baseline to either meet the regulation or for safety reason, is fossil fuel used in the baseline recorded too ?	ACM	0001	Not applicable.	-	-
x. Is the quantity of electricity imported, in the baseline and the project situation, to meet the requirements of the project activity, if any, monitored?	ACM	0001	Yes, electricity consumption measured continuously by an electricity meter is described and demonstrated to be monitored according to monitoring plan.	OK	OK
xi. Is the quantity of electricity exported out of the project boundary, generated from landfill gas, if any, monitored?	ACM	0001	Yes, electricity produced measured continuously by an electricity meter is described and demonstrated to be monitored according to monitoring plan.	OK	OK
xii. Will relevant regulations for LFG project activities be monitored and updated at renewal of each credit period?	ACM	0001	**CL_RRC_02** - It is not clear how the project participant is going to monitor the relevant regulations.	CL_RRC_02	OK
a. Will changes to regulation be converted to the amount of methane that would have been destroyed/combusted during the year in the absence of the project activity ($MD_{BL,y}$).?	ACM	0001	Refer to **CL_RRC_02**.	CL_RRC_02	OK
b. Have project participants explained how regulations are translated into that amount of gas ?	ACM	0001	Refer to **CL_RRC_02**.	CL_RRC_02	OK
xiii. Will the operating hours of the energy plant(s) and the boiler(s)/air heater(s)/heat generating equipment(s) be monitored ?	ACM	0001	Yes, operating hours of the energy plant are described to be monitored in monitoring plan.	OK	OK
xiv. As the measurement equipment for gas quality (humidity, particulate, etc.) is sensitive, is a sufficiently strong QA/QC procedure for the	ACM	0001	Yes, calibration of equipments is defined to be done as per manufactures' advice.	OK	OK

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calibration of this equipment defined ?					
xv. Is there a continuous monitoring system for methane fraction of the landfill gas and LFG flow, defined as follows?	ACM	0001	Yes, a landfill gas analyzer is to be connected to the system in order to continuously acquire data from the process in order to process it and deliver the required information (methane fraction of the landfill gas and LFG flow) as an average value in a time interval not greater than an hour.	OK	OK
a. Does the continuous monitoring system continuously acquire data from the process (continuous sampling) in order to process it and deliver the required information (methane fraction of the landfill gas and LFG flow) as an average value in a time interval not greater than an hour. Paired values of the methane fraction of the landfill gas and LFG flow which are averaged for the same time interval should be used in the calculation of emission reductions (i.e. methane fraction of landfill gas averaged at hour x should be used with LFG flow which is averaged at the same hour x)?	ACM	0001	See xv. above.	OK	OK
b. Are paired values of the methane fraction of the landfill gas and LFG flow averaged for the same time interval (i.e. methane fraction of landfill gas averaged at hour x should be used with LFG flow which is averaged at the same hour x)?	ACM	0001	See xv. above.	OK	OK
c. Are paired values of the methane fraction of the landfill gas and LFG flow used in the calculation of emission reductions ?	ACM	0001	See xv. above.	OK	OK
xvi. Will the data and parameters required by the methodology be monitored adequately ?	ACM	0001			

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a. Will $LFG_{total,y}$, total amount of landfill gas captured at Normal Temperature and Pressure be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in m^3 ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. WIll it be measured by a flow meter?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Will data be aggregated monthly and yearly for each boiler/air heater/heat generating equipment?	ACM	0001	Not applicable.	-	-
4. Will the monitoring be continuous (average value in a time interval not greater than an hour shall be used in the calculations of emission reductions)?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
5. Will flow meters be subject to a regular maintenance and testing regime to ensure accuracy ?	ACM	0001	Yes regular maintenance and testing is described in the PoA and in the CPA.	OK	OK
b. Will $PE_{flare,y}$, project emissions from flaring of the residual gas stream in year y be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in tCO_{2e} ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will data sources be as per the «Tool to determine project emissions from flaring gases containing methane » ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Are measurement procedures as per the «Tool to determine project emissions from flaring gases containing methane » ?	ACM	0001	It is described in monitoring plan that the Tool to determine project emissions from flaring gases containing methane is going to be applied.	OK	OK
4. Is monitoring frequency as per the «Tool	ACM	0001	It is described in monitoring plan that the Tool to	OK	OK

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to determine project emissions from flaring gases containing methane » ?			determine project emissions from flaring gases containing methane is going to be applied.		
5. Are QA/QC procedures as per the «Tool to determine project emissions from flaring gases containing methane »?	ACM	0001	It is described in monitoring plan that the Tool to determine project emissions from flaring gases containing methane is going to be applied.	OK	OK
c. Will w_{CH4} , methane fraction in the landfill gas be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in m^3 CH_4/m^3 LFG ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will it be measured by project participants using a certified gas quality analyser?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Can the measuring equipement directly measure methane content in the landfill gas, as estimation of methane content of landfill gas based on measurement of other constituents of the landfill gas such as CO_2 is not permitted ?	ACM	0001	The equipment can measure other gases but it is not permitted to relate other landfill gas constituents to methane fraction;	OK	OK
4. Will the monitoring be continuous (average value in a time interval not greater than an hour shall be used in the calculations of emission reductions) ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
5. Will the gas analyser be subject to a regular maintenance and testing regime to ensure accuracy ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
d. Will T, temperature of the landfill gas be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in °C ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will it be measured by project	ACM	0001	Yes. It is described in monitoring plan	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
participants, in order to determine the density of methane D_{CH4} (no separate monitoring of temperature is necessary when using flow meters that automatically measure temperature and pressure, expressing LFG volumes in normalized cubic meters) ?					
3. Will the monitoring be continuous ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
4. Will measuring instruments be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
e. Will P, pressure of the landfill gas be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in Pa ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will it be measured by project participants, in order to determine the density of methane D_{CH4} (no separate monitoring of temperature is necessary when using flow meters that automatically measure temperature and pressure, expressing LFG volumes in normalized cubic meters) ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Will the monitoring be continuous ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
4. Will measuring instruments be subject to a regular maintenance and testing regime in accordance to appropriate national/international standards ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
f. Will EL_{LPG}, net amount of electricity generated using LFG be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in MWh ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will it be measured by project participants, in order to estimate the emission reductions from electricity generation from LFG, if credits are claimed ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Will the monitoring be continuous ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
4. Will the electricity meter be subject to regular (in accordance with stipulation of the meter supplier) maintenance and testing to ensure accuracy ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
g. Will ET_{LPG}, total amount of thermal energy generated using LFG be monitored, according to the following ?	ACM	0001	Not applicable	-	-
1. Is the unit in TJ ?	ACM	0001	Not applicable	-	-
2. Will it be measured by project participants, in order to estimate the emission reductions from thermal energy generation from LFG, if credits are claimed ?	ACM	0001	Not applicable	-	-
3. In case of steam meter, will the enthalpy of steam and feed water be determined at measured temperature and pressure and the enthalpy difference multiplied with quantity measured by steam meter?	ACM	0001	Not applicable	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
4. In case of hot air: will the temperature, pressure and mass flow rate be measured ?	ACM	0001	Not applicable	-	-
5. In case of monitoring of steam, will the meter be calibrated for pressure and temperature of steam at regular intervals ? The meter shall be subject to regular maintenance and testing to ensure accuracy?	ACM	0001	Not applicable	-	-
6. Will the meter be subject to regular maintenance and testing to ensure accuracy ?	ACM	0001	Not applicable	-	-
h. Will $CEF_{elecy,BL,y}$, carbon emission factor of electricity be monitored, according to the following ?	ACM	0001			
1. Is the unit in tCO2/MWh ?	ACM	0001	Yes. It is described in PoA	OK	OK
2. Do project participants use the option to apply a default of 0.8 if electricity in the baseline would have been produced using captive power plant ?	ACM	0001	No, PP calculated it using the "*Tool to Calculate the Emission Factor for an Electricity System" (version 2)*	OK	OK
3. Else, is equation 8 used to provide the estimation equation?	ACM	0001	No, PP calculated it using the "*Tool to Calculate the Emission Factor for an Electricity System" (version 2)*	OK	OK
4. In case the baseline source would have been grid, is the emission factor estimated as described in ""Tool to calculate the emission factor for an electricity system" ?	ACM	0001	Yes, emission factor is calculated as per "*Tool to Calculate the Emission Factor for an Electricity System" (version 2).* Refer to **CAR_AVD_09**.	CAR_AVD_09	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
5. WIll it be estimated annually ?	ACM	0001	Yes. The emission factor will be calculated annually, according to the Tool to calculate the emission factor for an electricity system.	OK	OK
i. Will $EF_{fuel,BL}$, CO_2 emission factor of fossil fuel (that would have been used in the baseline captive power plant or thermal energy generation) be monitored, according to the following ?	ACM	0001	Not applicable.	-	-
1. Is the unit in tCO_2/MWh ?	ACM	0001	Not applicable.	-	-
2. Is the source of data the following, in order of preference:	ACM	0001	Not applicable.	-	-
a. project specific data ?	ACM	0001	Not applicable.	-	-
b. country specific data?	ACM	0001	Not applicable.	-	-
c. IPCC default values, to be used only when country or project specific data are not available or difficult to obtain?	ACM	0001	Not applicable.	-	-
3. WIll it be reviewed annually ?	ACM	0001	Not applicable.	-	-
j. Will $NCV_{fuel,BL}$, net calorific value of fossil fuel (that would have been used in the baseline captive power plant or thermal energy generation) be monitored, according to the following ?	ACM	0001	Not applicable.	-	-
1. Is the unit in GJ/mass or volume units of fuel ?	ACM	0001	Not applicable.	-	-
2. Is the source of data the following, in order of preference:	ACM	0001	Not applicable.	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a. project specific data ?	ACM	0001	Not applicable.	-	-
b. country specific data?	ACM	0001	Not applicable.	-	-
c. IPCC default values, to be used only when country or project specific data are not available or difficult to obtain?	ACM	0001	Not applicable.	-	-
3. WIll it be reviewed annually ?	ACM	0001	Not applicable.	-	-
k. Will $\varepsilon_{gen,BL}$, efficiency of the baseline captive power plant be monitored, according to the following ?	ACM	0001	Not applicable.	-	-
1. Is the unit dimensionless ?	ACM	0001	Not applicable.	-	-
2. To estimate electricity generation efficiency, do project participants use the highest value among the following three values as a conservative approach:	ACM	0001	Not applicable.	-	-
a. Measured efficiency prior to project implementation?	ACM	0001	Not applicable.	-	-
b. Measured efficiency during monitoring?	ACM	0001	Not applicable.	-	-
c. Data from manufacturer for efficiency at full load	ACM	0001	Not applicable.	-	-
d. Default efficiency of 60%. ?	ACM	0001	Not applicable.	-	-
3. WIll it be reviewed annually ?	ACM	0001	Not applicable.	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
l. Will $\varepsilon_{boiler/air\ heater}$, efficiency of the baseline boiler/air heater for producing thermal energy be monitored, according to the following ?	ACM	0001	Not applicable.	-	-
1. Is the unit dimensionless ?	ACM	0001	Not applicable.	-	-
2. To estimate boiler efficiency, do project participants use one of the following two options ?	ACM	0001	Not applicable.	-	-
3. Is option A used, where the highest value among the following three values is applied as a conservative approach?	ACM	0001	Not applicable.	-	-
a. Measured efficiency prior to project implementation?	ACM	0001	Not applicable.	-	-
b. Measured efficiency during monitoring?	ACM	0001	Not applicable.	-	-
c. Manufacturer' 's information on the boiler efficiency ?	ACM	0001	Not applicable.	-	-
4. Is option B used, where a boiler efficiency of 100% is assumed, based on the net calorific values as a conservative approach?	ACM	0001	Not applicable.	-	-
5. WIll it be reviewed annually ?	ACM	0001	Not applicable.	-	-
m. Will the hours of operation of energy plant be monitored, according to the following ?	ACM	0001			
1. Is the unit in hours ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will they be monitored by project	ACM	0001	Yes. It is described in monitoring plan	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
participants, in order to ensure methane destruction is claimed for methane used in electricity plant when it is operational					
3. WIll it be monitored annually ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
n. Will the hours of operation of the boiler/heater/heat generating equipment be monitored, according to the following ?	ACM	0001	Not applicable.	-	-
1. Is the unit in hours ?	ACM	0001	Not applicable.	-	-
2. Will they be monitored by project participants, in order to ensure methane destruction is claimed for methane used in boiler/heater/heat generating equipment when it is operational ?	ACM	0001	Not applicable.	-	-
3. WIll it be monitored annually ?	ACM	0001	Not applicable.	-	-
o. Will $PE_{EC,y}$, project emissions from electricity consumption by the project activity during the year y be monitored, according to the following ?	ACM	0001			
1. Is the unit in tCO2e ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will data sources be as per the «Tool to calculate baseline, project and/or leakage emissions from electricity consumption» ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Are measurement procedures as per the « Tool to calculate baseline, project and/or leakage emissions from electricity consumption » ?	ACM	0001	It is described in monitoring plan that the Tool to calculate baseline, project and/or leakage emissions from electricity consumption is going to be aplied	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
4. Is monitoring frequency as per the « Tool to calculate baseline, project and/or leakage emissions from electricity consumption »?	ACM	0001	It is described in monitoring plan that the Tool to calculate baseline, project and/or leakage emissions from electricity consumption is going to be aplied	OK	OK
5. Are QA/QC procedures as per the « Tool to calculate baseline, project and/or leakage emissions from electricity consumption »?	ACM	0001	It is described in monitoring plan that the Tool to calculate baseline, project and/or leakage emissions from electricity consumption is going to be aplied	OK	OK
p. Will $PE_{FC,j,y}$, project emissions from fossil fuel combustion in process j during the year y be monitored, according to the following ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
1. Is the unit in tCO2e ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
2. Will data sources be as per the «Tool to calculate project or leakage CO2 emissions from fossil fuel combustion» ?	ACM	0001	Yes. It is described in monitoring plan	OK	OK
3. Are measurement procedures as per the « Tool to calculate project or leakage CO2 emissions from fossil fuel combustion » ?	ACM	0001	It is described in monitoring plan that the Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is going to be applied	OK	OK
4. Is monitoring frequency as per the « Tool to calculate project or leakage CO2 emissions from fossil fuel combustion »?	ACM	0001	It is described in monitoring plan that the Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is going to be applied	OK	OK
5. Are QA/QC procedures as per the Tool to calculate project or leakage CO2 emissions from fossil fuel combustion »?	ACM	0001	It is described in monitoring plan that the Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is going to be applied	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
q. Will $MG_{PR,y}$, amount of methane generated during year y of the project activity be monitored, according to the following ?	ACM	0001		OK	OK
1. Is the unit in tCH_4 ?	ACM	0001	Yes. It is described in monitoring plan.	OK	OK
2. Is it estimated using the actual amount of waste in the landfill as per the latest version of the « Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site» ?	ACM	0001	Yes. It is described in monitoring plan.	OK	OK
3. WIll it be estimated annually ?	ACM	0001	Yes. It is described in monitoring plan.	OK	OK
4. Are QA/QC procedures as per the « Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site?	ACM	0001	It is described in monitoring plan that the Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion is going to be applied.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
g. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes.	OK	OK
h. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified:	VVM	123			
i. data management procedures?	VVM	123	Refer to **CAR_AVD_24.**	CAR_AVD_24	OK
ii. quality assurance procedures?	VVM	123	Refer to **CAR_AVD_24.**	CAR_AVD_24	OK
iii. quality control procedures?	VVM	123	Refer to **CAR_AVD_24.**	CAR_AVD_24	OK
8. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	Yes.	OK	OK
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	126	The final decision from the DNA will be available only after its first ordinary meeting, after the receiving of all the required documents necessary for evaluation, including this validation report, according to Article 6 of the Resolution nº 1 of CIMGC – Comissão Interministerial de Mudança Global do Clima.	OK	OK
9. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project	VVM	128	As required by the Resolution nº 9, of 20/03/2009, of the Interministerial Commission on Global Climate Change (CIMGC), the Brazilian DNA – Designated National Authority, invitations have been sent for comments to local stakeholders as part of the procedures for analyzing CDM projects	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity prior to the publication of the PDD on the UNFCCC website?			and issuing letters of approval. Letters and the Executive Summary of the project have been sent to them.		
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	The letters must be sent 15 days before the project up-loading to the UNFCCC site, for Global stakeholder's comments. The project has been up-loaded in the period of 22/09 to 21/10/2010. The letters have been sent in the period of 10 to 23/08/2010. The DOE confirmed, based on the Mail's Receipts, that all the letters have been received until 24/08/2010. The following local stakeholders have been invited for comments: - Brazil DNA, Secretaria Executiva da Comissão Interministerial de Mudança Global do Clima, - Prefeitura Municipal de Seropédica - RJ / Municipal Administration of Seropédica – RJ, - Secretaria Municipal de Meio Ambiente de Seropédica - RJ / Municipal Secretariat of Environment of Seropédica – RJ, - Câmara dos Vereadores de Seropédica - RJ / Municipal Legislation Chamber of Seropédica – RJ, - INEA – Instituto Estadual do Ambiental – Rio de Janeiro / Rio de Janeiro Environmental Institute, - Ministério Público do Estado do Rio de Janeiro / Public Ministry of Rio de Janeiro State, - Fórum Brasileiro de Movimentos e Organizacões Sociais (FBMOS) / Brazilian NGO Fórum,	CL_AVD_11	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			- ABES – Rio – Associação Brasileira de Engenharia Sanitária e Ambiental / Brazilian Association of Sanitary and Environment Engineering, - Ministério Público Federal no Rio de Janeiro / Federal Public Ministry of Rio de Janeiro. **CL_AVD_11** – The Resolution nº 9, of 20/03/2009, of the Interministerial Commission on Global Climate Change (CIMGC), has a list of 4 (four) local stakeholders that must be consulted. Please inform how have been defined the other 5 (five) local stakeholders that have been asked for comments. Ate there any Union or local residents that have not been consulted? Why the Municipal Administration of Itaguai and of Rio de Janeiro have not been invited? Also explain why three of the four local stakeholders listed in the Resolution nº 9 appear in a different way: 1. Fórum Brasileiro de ONG's e Movimentos Sociais para o meio Ambiente e Desenvolvimento – http://www.fboms.org.br (Resolution #9 of the GIMGC) versus Fórum Brasileiro de Movimentos e Organizacões Sociais (FBMOS) / Brazilian NGO Fórum (CPA_DD_1 – Section D.2.); 2. There are no relevant national entities listed in the CPA_DD_1 – Section D.2.; 3. Explain if the correct is Federal Public Ministry of Rio de Janeiro or Federal Public Ministry in Rio de Janeiro. Also the correct is Instituto Estadual do Ambiente and not Instituto Estadual do Ambiental.		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	No comments have been received.	OK	OK
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	N.A.	-	-
10. Environmental impacts					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	Yes.	OK	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	The PP has submitted to the DOE an environmental impact assessment that has been undertaken in view to the request to be made to the INEA – Instituto Estadual do Ambiente (Rio de Janeiro State's environmental authority) of the Environmental License for the CTR Santa Rosa. According to the study, no transboundary impacts for the gas project are expected and the impacts raised are positive, once the project involves activities that will improve the baseline scenario and the environmental quality of the CTR Santa Rosa Landfill, including the LFG collection system, leachate treatment improvement, final closure and capping of the landfill and monitoring of environmental parameters (groundwater quality leachate treatment facility monitoring). INEA issued on April 08, 2010, the Installation License LI-IN001633 for the landfill activities, and the PP will request the Installation License for the gas extraction, power generation and treatment at the appropriated moment. **CL_AVD_12** – Please, inform the present compliance situation of the "Specific Validation	CL_AVD_12 CL_AVD_14	OK OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Conditions" of the Installation License LI-IN001633 of the CTR Santa Rosa Landfill and whether it has been developed a Monitoring Plan to control those conditions. **CL_AVD_14** – The INEA's LP Nº IN000941, of 03/11/2009 is on the name of S.A. Paulista de Construções e Comércio, while INEA's Installation License LI-IN001633, of 08/04/2010, is on the name of SERB – Saneamento e Energia Renovável do Brasil S/A. The evidence of property's transference has not been available to the DOE.		
c. Does the host Party require an environmental impact assessment?	VVM	132	Yes.	OK	OK
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Yes. Please, refer to 10.b.	OK	OK

Table 2 Baseline and Monitoring Methodology: AM0053 Version2

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology				
1.1. Applicability				
1.1.1. Does the project activities process and upgrade biogas to the quality of natural gas and distributes it as energy via natural gas distribution grid, considering the source of biogas: generated by an anaerobic decomposition of organic matter, landfills, liquid waste treatment, animal waste management systems, etc?	AM0053 pg 01	Yes, according to the scenario 3 foreseen in the PoA-DD v.1: "**Scenario 3 – LFG distribution**: consists of a LFG collecting system, pre-treatment system and a pipe system to transport the LFG to a natural gas distribution network. First, the landfill gas will be collected, and then through transportation pipes, the landfill gas will reach pre-treatment system, in which the moisture and impurity of landfill gas will be removed. After that, the LFG will be fed into gas distribution network… If emissions reductions are claimed for displacing natural gas, CPAs as indicated per methodology ACM0001 will use approved methodology AM0053" And the CPA-DD v.1.1 *"The objective of the CPA-1 Santa Rosa landfill is to capture and burn/use the methane generated by the decay of organic waste from the CTR Santa Rosa Sanitary Landfill. The project also intends to generate electricity from the combustion of methane and upgrade the LFG and distribute it via a natural gas grid"*	OK	OK
1.1.2. Does the biogas used in the project activity	AM0053	According to the PoA-DD v.1:	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
was either vented or flared prior to implementation of the project activity and would continue to be either vented or flared in the absence of the project activity?	pg 01	"*The biogas used in the project activity was either vented or flared prior to implementation of the project activity and would continue to be either vented or flared in the absence of the project activity. The project participants shall demonstrate this through documented evidence of venting or flaring prior to implementation of the project activity*". While according to the CPA-DD: *"In the Santa Rosa CPA, the baseline scenario consists in the complete release of the LFG to the atmosphere, since there are no laws, nor regulatory incentives to enforce the capture or flaring of methane on landfill sites apart from rare cases where rudimentary and inefficient systems are installed so as to reduce the risk of explosion".*		

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
a. did the project participants demonstrate this through documented evidence of venting or flaring prior to implementation of the project activity;	AM0053 pg 01	**CAR_DMC_01:** No evidences were provided to support the assumption that the biogas is vented or flared prior to implementation of the project activity, as required by the AM0053.	**CAR_ DMC_ 01**	OK
1.1.3. Is the geographical extent of the natural gas distribution grid within the host country boundaries?	AM0053 pg 02	In the PoA-DD the PP list the applicability conditions of AM0053, which includes the bullet: "The geographical extent of the natural gas distribution grid is within the host country boundaries" However, **CAR_DMC_02**: It was not possible to indentify in the CPA-DD v1.1, what is the geographical extent of the natural gas distribution grid. Also during the site visit the PP was not able to define exactly the natural gas distribution grid where the biogas is supposed to be sold when the project starts to operate.	**CAR_ DMC_ 02**	OK
1.1.4. Are some of the following technologies used to upgrade biogas to natural gas quality: Pressure Swing Adsorption; or Absorption with/without water circulation; or Absorption with Water, with or without water recirculation?	AM0053 pg 02	The PoA foreseen the using of some of these 3 technologies as follow: "*The following technologies are used to upgrade biogas to natural gas quality:* ○ *Pressure Swing Adsorption; or* ○ *Absorption with/without water circulation;* ○ *Absorption with Water, with or without water recirculation*"; While the CPA-DD in section A.4 states the "*Pressure Swing Adsorption System*"	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
		as the system to be used in the LFG upgrading station		

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.1.5. If the source of biogas is another registered CDM project activity, are the details of the registered CDM project activity provided in the CDM-PDD?	AM0053 pg 02	The CPA-DD refers to the landfill Santa Rosa (also included in this CPA-DD, but under the ACM0001), as the source of biogas.	OK	OK
1.1.6. If this methodology is used in conjunction with approved methodologies for capture and destruction/use of biomethane, such as ACM0001, AM0025, ACM0014, etc. were the baseline scenario identification procedure and additionality assessment undertaken for the combination of the two components of the project activity, i.e., biomethane emission avoidance and displacement of natural gas?	AM0053 pg 02	This approach is considered in the PoA-DD, as follow: "*As recommended by the latest version of **AM0053** (version 2), when this methodology is used in conjunction with **ACM0001**, the baseline scenario identification procedure and additionality assessment shall be undertaken for the combination of the two components of the project activity, i.e., methane avoidance and displacement of natural gas*" The CPA-DD states: "*In the Santa Rosa CPA, the baseline scenario consists in the complete release of the LFG to the atmosphere*" However, **CAR_DMC_03**: It is not clear in the CPA-DD if the baseline scenario for the displacement of natural gas (AM0053) was considered together with the landfill avoidance methane, as required by the AM0053.	**CAR_ DMC_ 03**	OK
1.2. Project boundary				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.2.1. Does The project boundary encompass the following?	AM0053 pg 02	-	-	-
a. The biogas upgrading facility?	AM0053 pg 02	Yes, as stated item "*LFG upgrading station*" in section A.4 of the CPA-DD v1.1	OK	OK
b. The pipeline supplying biogas from the source (a landfill, a liquid waste treatment facility, etc.) to the upgrading facility?	AM0053 pg 02	Yes, as presented in figure 7 (*Simplified schematic representation of the CPA project boundary*), section B.4 of the CPA-DD.	OK	OK
c. The source facility where the gas is generated?	AM0053 pg 02	Yes, please refer to item 1.2.1.b, above	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
d. The natural gas distribution grid, i.e., the system of pipelines that distribute gas without significant transmission constraints, and all the facilities and devices connected directly to it?	AM0053 pg 02	According to the PoA-DD: *"For those CPAs where methodology AM0053 will be applied, the project boundary encompasses the following:* • *The biogas upgrading facility;* • *The pipeline supplying biogas from the source (a landfill, a liquid waste treatment facility, etc.), to the upgrading facility;* • *The source facility where the gas is generated;* • *The natural gas distribution grid, i.e., the system of pipelines that distribute gas without significant transmission constraints, and all the facilities and devices connected directly to it".* Notwithstanding, **CAR_DMC_04:** The natural gas distribution grid is not considered within the project boundary as per figure 8, in section B.4 of the CPA-DD v.1.1. Also according to the PP by the time of the site visit (21st October 2010), the natural gas distribution grid, where the project biogas is supposed to be injected was not defined yet.	**CAR_DMC_04**	OK
1.2.2 Regarding the baseline emission was the CO2 emission from the Natural gas distribution	AM0053 pg 03	The PoA-DD v.1, provides the description of the sources and gases included in the	**CAR_D**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
Grid, considered?		CPA (AM0053), but this is not provided in the CPA-DD v.1.1 **CAR_DMC_05**: It was not possible to find in the CPA-DD v.1, references for sources and gases included in the boundary, under the AM0053. The section B.4 of the CPA-DD just provides the sources and gases included in the CPA under ACM0001.	**MC_05**	
1.2.3 Regarding the project activity, was the CO2 emission from energy consumption of: the gas transport from source to the upgrading facility; upgrading process; and transport to the natural gas grid injection point, considered?	AM0053 pg 03	Please refer to item 1.2.2, above	**CAR_DMC_05**	OK
1.2.3 Regarding the project activity, was the CH4 emission from flaring of vent gas, considered?	AM0053 pg 03	Please refer to item 1.2.2, above	**CAR_DMC_05**	OK
1.2.4 Regarding the project activity, was Methane contained in the effluent, considered?	AM0053 pg 03	Please refer to item 1.2.2, above	**CAR_DMC_05**	OK
1.2.5 Once the methodology is only applicable if the identified baseline scenario is venting or flaring of biogas at the site where it is captured, is this applied to the project baseline scenario?	AM0053 pg 03	Please refer to item 1.1.2.a, above	**CAR_DMC_01**	OK
1.3 Procedure for the identification of the most plausible baseline scenario				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.3.1 According to the step 1 (*Identify all realistic and credible alternative scenarios to the proposed project activity and eliminate alternatives that do not comply with legal or regulatory requirements)*, did the PP consider the following?	AM0053 pg 03	-	-	-
a. Provide an overview of other practices for use of biogas that have been implemented previously or are currently underway in the relevant geographical area?	AM0053 pg 04	The PP state as the baseline scenario the following: "*In the Santa Rosa CPA, the baseline scenario consists in the complete release of the LFG to the atmosphere*..." Notwithstanding, **CAR_DMC_06**: It was not possible to indentify neither in the PoA-DD nor in the CPA-DD, the application of the three steps required by the AM0053 for baseline determination.	**CAR_ DMC_ 06**	OK
b. in the case where the relevant geographical area is not the host country, does the framework conditions vary significantly within the country?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
c. .In the case where the relevant geographical area is not the host country does the relevant geographical area includes preferably ten facilities (or projects) that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
d. If less than ten facilities (or projects) that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity are found in the region/host country, did the PP expand the geographical area to an area that covers if possible, ten such facilities (or projects)?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
e. In cases where the above described definition of geographical area is not suitable, did the project proponents provide an alternative definition of geographical area, not including other CDM projects?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
f. if the case above (e) is applicable did the PP provide relevant documentation to support the results of the analysis?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
g. Are the alternatives to the project activity in compliance with all applicable legal and regulatory requirements even if these laws and regulations have objectives other than GHG reductions, e.g., to mitigate local air pollution?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
h. If an alternative does not comply with all applicable legislation and regulations, was this eliminated, unless it is demonstrated, based on an examination of current practice in the country or region in which the law or regulation applies, that applicable legal or regulatory	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
requirements are systematically not enforced and that non-compliance is widespread?				
1.3.2 According to the Step 2 (Eliminate alternatives that face prohibitive barriers) are the following provided?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
a. were the scenarios that face prohibitive barriers eliminated by applying Step 2 - Barrier analysis of the latest version of the "Combined tool to identify the baseline scenario and demonstrate additionality"?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
b. in the case where the only alternative scenario that is not prevented by any barrier, and if this alternative is not the proposed project activity undertaken without being registered as a CDM project activity, did the PP state this as the baseline scenario?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
c. If there are still several alternative scenarios remaining, did the project participants proceed to step 3 - investment analysis (Option 1), or state the alternative with the lowest emissions (i.e. the most conservative) as the baseline scenario?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
1.3.3 According to the Step 3 (*Conduct an investment analysis*) are the following provided?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
a. Did the PP compare the economic attractiveness without revenues from CERs for alternatives that are remaining by applying the Step 3 - Investment analysis. of the latest version of the Combined tool to identify the baseline scenario and demonstrate additionality?	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
b. in the case stated above (a), if the sensitivity analysis is not conclusive, did the PP identify the	AM0053 pg 04	Please refer to item 1.3.1.a, above	**CAR_ DMC_**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
alternative with the lowest emissions (i.e. the most conservative);			**06**	
c. in the case stated above (a), If the sensitivity analysis confirms the result of the investment comparison analysis, did the PP considered the most economically or financially attractive alternative scenario as the baseline scenario?	AM0053 pg 05	Please refer to item 1.3.1.a, above	**CAR_ DMC_ 06**	OK
1.4 additionality				
1.4.1 Is the additionality of the project activity demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality"?	AM0053 pg 05	According to the PoA-DD: *"The following steps from the Tool for the demonstration and assessment of additionality are taken to demonstrate the additionality of the CPA, as per requirements of both ACM0001 and AM0053"* What was confirmed in the CPA-DD assessment: *"additionality assessment will be performed according to the Tool for demonstration and assessment of additionality"*	OK	OK
1.5 Baseline emissions				
a. Are the baseline emissions estimated following the equation 1 to 4 of the AM0053 v.2?	AM0053 pg 05	Yes, as stated in the section E.6.2 of the PoA-DD v.1 and the section B.5.2 of the CPA-DD v.1.1	OK	OK
1.6 Project emissions				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.6.1 Are the project emissions estimated following the equation 5 of the AM0053 v.2? $PE_y = PE_{ugf,elec,y} + PE_{ugf,fuel,y} + PE_{flare,y} + P_{Event,y} + P_{Eww,y}$	AM0053 pg 06	According to the PoA-DD: *"There are no ex-post project emissions additional to the ones mentioned before, because project emissions from electricity consumption, fossil fuel consumption and flare of gases containing methane have already been taken into account as per the previous section. The other two sources of project emissions from the methodology AM0053 are not applicable to the PoA since vent gases will always be flared, and no CPA under this PoA will use water absorption technology".* However: **CL_DMC_09**: based in the statement "no CPA under this PoA will use water absorption technology" presented in the item "Ex-post estimations of project emissions" of section E.6.2 of the PoA-DD version 1. It is not clear why this technology is listed in section E.6, pg 26 and section E.2, pg 17 of the PoA-DD v1.	**CL_DMC_09**	OK
1.6.2 in the case where The electricity and fossil fuel use (other than the biogas) for pumping the biogas from source site to the upgrading facility and upgrading facility to the point of injection into the natural gas distribution is used, is this included in the estimation of project emissions?	AM0053 pg 06	Please refer to item 1.6.1, above.	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.6.3 Are the Emissions due to electricity consumption calculated using the latest approved version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption"?	AM0053 pg 06	According to the PoA-DD: *"Project emissions from electricity consumption ($PE_{EC,y}$) are calculated following the latest version of "Tool to calculate baseline, project and/or leakage emissions from electricity consumption"; please also refer to item* 1.6.1, above.	OK	OK
1.6.4 are the Emissions due to fossil fuel(s) consumption calculated using the latest approved version of the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", where the process *j* in the tool corresponds to the combustion of fossil fuels in the project activity for operating the biogas upgrading activity and transportation of the biogas?	AM0053 pg 06	According to the PoA-DD: "Project e missions from fossil fuel combustion ($PE_{FC,j,y}$) are calculated following the latest version of "*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*". **CL_DMC_01**: it is not clear in the CPA-DD if the Emissions due to fossil fuel(s) consumption have been considered.	**CL_DMC_01**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.6.5 In the cases where vent gases are flared are the methane emissions due to the incomplete or inefficient combustion of the gases from the desorption column calculated using the latest version of the methodological "Tool to determine project emissions from flaring gases containing methane"?	AM0053 pg 06	According to the PoA-DD: *"Project emissions from flaring have not been shown in this section* (project emission) *since they are already taken into account in the* $MD_{project}$ *parameter"* and, *"Project emissions from flaring of the residual gas stream in year y (tCO2e) determined following the procedure described in the "Tool to determine project emissions from flaring gases containing methane".* **CAR_DMC_07**: The CPA-DD does not address in section B.5.2 - Project emission, the calculation procedure for project emission due to the incomplete or inefficient combustion of the gases.	**CAR_DMC_07**	OK
1.6.6 in the cases where the upgrading facility uses water absorption technology. Is it assumed that all the methane contained in the wastewater is emitted to the atmosphere and than calculated as per equation 10 of the AM0053 v.2?	AM0053 pg 07	N/A. As stated in the CPA-DD, the upgrading facility is based in Pressure Swing Adsorption System	OK	OK
1.6.7 for the Ex-ante estimations of project emissions, did the PP follow the methodological approaches as stated bellow?	AM0053 pg 08	-	-	-
a. is the Project emissions due to the consumption of energy estimated using the energy consumption estimates provided by the manufacturer?	AM0053 pg 08	In the "ER_Calculations_Brazil_SantaRosa" spreadsheet, the PP refers the "*Electricity used on site to supply electricity systems*" as 15% of total, according to Haztec. Notwithstanding,	**CL_DMC_02**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
		CL_DMC_02: It is not clear if the values used for ex-ante calculation (e.g.: energy consumption and flare efficiency) were provided by the equipment manufacturers, as required by the AM0053.		
b. Are the methane emissions from flaring of vent gas and from wastewater, estimated using the efficiency of the upgrading process, which equals to methane income divided by methane outcome in the upgrading facility?	AM0053 pg 08	According to the PoA-DD: *"Methane emissions from flaring of vent gas are estimated using the efficiency of the upgrading process, which equals to methane income divided by methane outcome in the upgrading facility. It is assumed that all the methane not injected to the natural gas distribution grid due to inefficiencies of the process will be flared"* However, **CL_DMC_03**: it is not clear, based in the "ER_Calculations_Brazil_ SantaRosa" spreadsheet neither in the CPA-DD, that the ex-ante methane emissions from flaring of vent gas, has taken due account the efficiency of the upgrading process, as required by the AM0053.	**CL_DMC_03**	OK
c. In the case when methane not injected in the natural gas distribution grid is flared, is the flare efficiency provided by the manufacturer, used?	AM0053 pg 08	Please refer to item 1.6.7.a, above	**CL_DMC_02**	OK
d. In the case when methane not injected in the natural gas distribution grid leaves the upgrading facility in wastewater, is it assumed that 100% of that methane will be emitted to the atmosphere?	AM0053 pg 08	According to the PoA-DD: *"In the case when methane not injected in the natural gas distribution grid leaves the upgrading facility in wastewater, it is*	**CL_DMC_04**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
		assumed that 100% of that methane will be emitted to the atmosphere" Notwithstanding. **CL_DMC_04**: it is not clear based in the "ER_Calculations_Brazil_ SantaRosa" spreadsheet neither in the CPA-DD if the methane not injected in the natural gas distribution grid leaves the upgrading facility in wastewater, has taken due account, as required by AM0053.		
1.7 Leakage				
No significant leakage is expected for this type of project activity under the applicability conditions stated, thus leakage can be ignored.	AM0053 pg 08	-	-	-
1.8 Emission reductions				
1.8.1 Are the emission reductions calculated according to the following equation? $ER_y = BL_y - PE_y$	AM0053 pg 08	Yes, as stated in the PoA-DD	OK	OK
1.9 Methodology tools applicability conditions				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
vii. For the "Tool to determine project emissions from flaring gases containing methane":	EB 28 Ann 13	-	-	-
c. The residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen	EB 28 Ann 13	**CL_DMC_05**: Although the residual gas comes from landfill as stated in the "Tool to determine project emissions from flaring gases containing methane" the PP does not clarify in the PoA-DD neither in the CPA-DD, whether the gas to be flared is free of any other combustible gas than methane, carbon monoxide and hydrogen.	**CL_DMC_05**	OK
d. The residual gas stream to be flared shall be obtained from decomposition of organic material (through landfills, bio-digesters or anaerobic lagoons, among others) or from gases vented in coal mines (coal mine methane and coal bed methane)?	EB 28 Ann 13	The gas stream to be flared considered in this PoA comes from landfills	OK	OK
viii. For the ""Tool to calculate baseline, project and/or leakage emissions from electricity consumption"	EB39 Ann 7	-	-	-
a. This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of leakage, Is this the case of the project activity?	EB39 Ann 7	This is not the case of this CPA	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
ix. For the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion":	EB41 Ann 11	.-	-	-
b. Are CO2 emissions from fossil fuel combustion calculated based on the quantity of fuel combusted and its properties?	EB41 Ann 11	According to the PoA-DD: "*Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" – Version 02* *"This tool provides procedures to calculate project and/or leakage CO_2 emissions from the combustion of fossil fuels. It can be used in cases where CO_2 emissions from fossil fuel combustion are calculated based on the quantity of fuel combusted and its properties. Therefore the tool is applicable to the CPAs which may use fossil fuel for the operation of the project activity*" This statement is confirmed by the equation 15 and 16 of the PoA-DD and in the FCf,y (Annual quantity of fuel type 'f' consumed in the project activity) In the other hand, in the CPA-DD the PP declares "*Since there is no generation of thermal energy… PEFC,j,y* (Project emissions from fossil fuel combustion in the flare system) *is zero*"	OK	OK
x. For the "Combined tool to identify the baseline scenario and demonstrate additionality":	EB 28 Ann 14	-	-	-
b. Are all potential alternative scenarios to the proposed project activity available options to project participants?	EB 28 Ann 14	In the substep 1a of the PoA-DD v.1 the PP define several potential alternative scenarios to the proposed project activity, what includes also the plausible alternative scenarios stated by the AM0053. however, **CL_DMC_06**: it is not clear whether and how the	**CL_DMC_06**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
		Alternative scenarios as per "Combined tool to identify the baseline scenario and demonstrate additionality", was considered as required by AM0053, once there is no reference to this specific tool neither in the PoA-DD nor in the CPA-DD.		
1.10 Changes required for methodology implementation in 2nd and 3rd crediting periods				
1.9.1 If the PP is requesting renewal of a crediting period is it demonstrated that changes in local/national laws and regulations and/or their enforcement occurred during the past crediting period do not affect the continued validity of the baseline?	AM0053 pg 08	N/A		OK
1.9.2 If the PP is requesting renewal of a crediting period, did the Project participants update emission factors for the fossil fuels combusted or for electricity used in the project activity?	AM0053 pg 08	N/A		OK
1.11 Data and parameters not monitored				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
1.10.1 For the data and parameters not monitored did the PP follow the list provided in the page 9 of the AM 0053 v.2?	AM0053 pg 09	Yes, as presented in section E.6.3 of the PoA-DD. **CAR_DMC_08**: In the CPA-DD, the parameter Nameplate efficiency of the upgrading facility (ηugf), which is supposed to be provided by the manufacturer, is not listed among the "Data and parameters that are available at validation", as required by the AM0053.	**CAR_ DMC_ 08**	OK
2. Monitoring Methodology				
2.1 Is the monitoring plan based on direct and continuous measurement of the input of energy from the project activity to the natural gas distribution grid?	AM0053 pg 09	As stated by the PoA-DD: "The monitoring methodology is based on direct measurement of the amount of landfill gas captured and destroyed at the flare platform(s), the natural gas pipelines and the electricity generating unit(s) to determine the amount of LFG destroyed. The monitoring plan provides for continuous measurement of the quantity of LFG used and quality of LFG flared".	OK	OK
2.2 If the technology chosen is Absorption with Water without recirculation, does the Monitoring plan foresees the continuous measurement of the volume of wastewater produced, as stated by the methodology?	AM0053 pg 09	N/A the project will use the "*Pressure Swing Adsorption System"*	OK	OK
2.3 Is the monitoring plan based on periodic measurements of the methane concentration in wastewater?	AM0053 pg 09	N/A, please refer to item 2.2, above.	OK	OK
2.4 is the consumption of energy by the upgrading Facility measured?	AM0053 pg 09	According to the PoA-DD: The $\mathbf{EC_{ugf,elec,y}}$ (Electricity used in the project activity in year y) will be *"measured continuously. Project participants should use electrical energy*	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
		meter or electricity bills". While according to the CPA-DD: *"Electricity consumption: Standard electricity meters will be used for monitoring electric consumption"* And, **$PE_{EC,y}$** (Project emissions from electricity consumption by the project activity during the year y) will be measured as per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".		
2.5 in the monitoring plan is the methane emissions in the vent gases measured?	AM0053 pg 09	**CL_DMC_07**: it is not clear in the PoA-DD and in the CPA-DD if the measurement of methane emissions in the vent gases was considered in the monitoring plan, as required by AM0053.	**CL_DMC_07**	OK
2.6 For monitoring project emissions from consumption of electricity is the guidance in the latest version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" applied?	AM0053 pg 09	Yes, please refer to item 2.4, above	OK	OK
2.7 For monitoring project emissions from combustion of fossil fuels in the project plant is the guidance in the latest approved version of the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", applied?	AM0053 pg 09	Yes, please refer to item 1.9.ix.b, above	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
2.8 For monitoring project emissions from flaring, is the guidance in the latest version of the "Tool to determine project emissions from flaring gases containing methane", regarding parameters to be monitored, used?	AM0053 pg 09	According to the PoA-DD: "Project emissions from flaring of the residual gas stream in year y (tCO2e) determined following the procedure described in the "*Tool to determine project emissions from flaring gases containing methane*". "The temperature in the exhaust gas will be measured continuously with a type N thermocouple and continuously monitored as described in the "Tool to determine project emissions from flaring gases containing methane" Version 01" And the Flare efficiency as presented in page 32 is also in accordance with the tool procedures. While in the CPA-DD, the same approach is applied for the same parameters listed above for the PoA-DD.	OK	OK
2.9 In order to assure that the gas-tightening condition is maintained during the operation of the upgrading plant, do the project participants foresee to introduce the following practices aiming to systematically identify leaks and undertake necessary repairs?	AM0053 pg 10	**CAR_DMC_09**: No information regarding tools, tests, procedures, survey records, equipment replacement schedule or practices aiming to assure the gas-tightening condition and the systematically identification of leaks, were presented, as required by AM0053.	**CAR_ DMC_ 09**	OK
a. Make use of advanced tools to detect leaks in the upgrading facility, such as Electronic Screening with hand-held gas detectors or sniffers, Organic Vapor Analyzers (OVAs) and Toxic Vapor Analyzers (TVA), or Acoustic Leak Detection using acoustic screening	AM0053 pg 10	Please refer to item 2.9,above	**CAR_ DMC_ 09**	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
devices?				

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
b. Test the gas-tightening condition at least once a month, and maintain a detailed record of every survey including the name of a person who performed the test, the device used for the survey, detailed description of the test performed and follow-up actions to be taken?	AM0053 pg 10	Please refer to item 2.9,above	**CAR_ DMC_ 09**	OK
c. Test covering the entire upgrading facility performed by trained personnel using certified devices?	AM0053 pg 10	Please refer to item 2.9,above	**CAR_ DMC_ 09**	OK
d. Tag and number every leak identified and to provide immediately repairing and if necessary equipment pieces replacement?	AM0053 pg 10	Please refer to item 2.9,above	**CAR_ DMC_ 09**	OK
e. Make available a detailed schedule of the replacement of equipment provided by the manufacturer, considering the replacement at least when required by the manufacturer?	AM0053 pg 10	Please refer to item 2.9,above	**CAR_ DMC_ 09**	OK
2.10 Regarding the periods when the upgrading facility is closed due to the scheduled maintenance, reparation of equipment, or other emergency, do the project participants have a plan to ensure that the captured biogas is flared at the site of its capture using the flare that was in operation prior to the start of the project activity?	AM0053 pg 10	According to the PoA-DD: *"...The system will also have a flare that will be used to combust LFG when any problems or maintenance occur with the transportation pipes or the LFG collected exceeds the capacity of gas distribution network..."* According to the CPA-DD: *"CPA-1 CTR Santa Rosa will have a flaring system in place, in order to flare any excess gas being produced and not used by the other systems, and also for those periods of maintenance when the engine may not be operational".*	OK	OK

CHECKLIST QUESTION	Ref.	COMMENTS	Draft Concl	Final Concl
2.11 Does the PDD describe an Appropriate monitoring procedure to be established to monitor emergency flare during the events described in the item above (2.10)?	AM0053 pg 11	**CAR_DMC_10**: No information regarding monitoring procedure to be established to monitor emergency flare during the periods when the upgrading facility is closed due to the scheduled maintenance, reparation of equipment, or other emergency, were presented, as required by AM0053.	**CAR_DMC_10**	OK
2.12 For the data and parameters monitored did the monitoring plan follow, as applicable, the list provided in page 11 to 14 of the AM 0053 v.2?	AM0053 pg 11-14	**CL_DMC_08**: It is not clear if the parameters $w_{CH4,y}$ (Methane fraction in the landfill gas) presented in the tables "*Data and parameters to be monitored*" of the PoA-DD and CPA-DD is the same parameter required by the AM0053: w_{CH4} (Concentration of methane in biogas in year *y),* that is supposed to be measured at the biogas generation facility	**CL_DMC_08**	OK

Table 3: Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
CAR_AVD_01 – On the item A.2 there is additional information, item 4. Contribution to sustainable development, which it is not foreseen in the CDM-PoA-DD form.	PoA Form v1	The information that had been included under point 4 of section A.2 has been deleted from this section and transferred to section A.4.3, under the more detailed explanation for the PoA and its objectives.	Item 4 has been removed in Version 2 of the CDM-PoA-DD. **CAR_AVD_01 was closed. OK**
CAR_AVD_02 – It is not defined and or indicated on the table A.3, the Coordinating or Managing Entity which communicates with the Board.'	PoA Form v1	The following statement has been added to section A.3: "Caixa Econômica Federal will be the Coordinating/managing entity of the PoA, entity which communicates with the Board. Project participants are listed in Table 1 below."	The required information has been included in Section A.3 of Version 2 of the CDM-PoA-DD. **CAR_AVD_02 was closed. OK**
CAR_AVD_03 – According to the CDM-PoA-DD form, the information "If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation" should have been included on item A.4.3.	PoA Form v1	The information has been included under the revised section A.4.3 of the PoA DD	The required information has been included in Section A.4.3 of Version 2 of the CDM-PoA-DD. **CAR_AVD_03 was closed. OK**
CAR_AVD_04 – The information in Section A.4.5 should be only whether "there is" or "there is not" public funding of the programme of activities.	PoA Form v1	The text has been modified to say: "There is no public funding from Annex I Parties of UNFCCC for Caixa Econômica Federal Solid Waste Management PoA."	The text has been modified in Section A.4.5 of Version 2 of the CDM-PoA-DD. **CAR_AVD_04 was closed. OK**

CAR_AVD_05 – In the CDM-CPA-DD the project boundary has not included all the power sources connected to the grid.	ACM0001 v11	Section B.4. of the CPA-DD has been updated	All the power sources connected to the grid have been included in the project boundary in Version 2 of the CDM-CPA-DD. **CAR_AVD_05 was closed.** **OK**
CAR_AVD_06 – The formula for the calculation of $MD_{electricity,y}$, included in the CDM-PoA-DD, has not been indicated in the CDM-CPA-DD.	ACM0001 v11	The formula for $MD_{electricity,y}$, has been included under section B.5.2 of the CPA-DD	The formula for the calculation of $MD_{electricity,y}$, has been included under section B.5.2 of the Version 2 of the CDM-CPA-DD. **CAR_AVD_06 was closed.** **OK**
CAR_AVD_07 – The formula for the calculation of $MD_{PL,y}$, included in the CDM-PoA-DD, has not been indicated in the CDM-CPA-DD.	ACM0001 v11	The formula for the calculation of $MD_{PL,y}$, has been included under section B.5.2 of the CPA- DD	The formula for the calculation of $MD_{PL,y}$, has been included under section B.5.2 of the Version 2 of the CDM-CPA-DD. **CAR_AVD_07 was closed.** **OK**
CAR_AVD_08 – The Tool, the steps and the formula for the calculation of the $EF_{grid,CM,y}$ are not indicated in the CDM-CPA-DD for the Santa Rosa Landfill.	ACM0001 v11	The Tool, the steps and the formula for the calculation of the $EF_{grid,CM,y}$ have been included in Annex 3 of the CDM-CPA-DD for the Santa Rosa Landfill.	The Tool, the steps and the formula for the calculation of the $EF_{grid,CM,y}$ have been included in Annex 3 of the version 2 of the CDM-CPA-DD for the Santa Rosa Landfill. **CAR_AVD_08 was closed.** **OK**

CAR_AVD_09 – In Brazil there is only one grid and the information of $EF_{grid,BM,y}$ and of $EF_{grid,OM,y}$, necessary for the calculation of the $EF_{grid,CM,y}$ is supplied by the DNA. The DNA utilizes for the calculation of the $EF_{grid,OM,y}$ the method (c) Dispatch data analysis OM. For the dispatch data analysis it is mandatory to use the year in which the project activity displaces grid energy and the emission factor must be updated annually during monitoring. For the calculation of the $EF_{grid,BM,y}$ there are 2 options and in one of them, only for the first crediting period the $EF_{grid,BM,y}$ can be calculated ex-ante. Additionally, it is not correct to include the $EF_{grid,CM,y}$ in CDM-PoA-DD's section E.6.3 Data and parameters that are to be reported in CDM-CPA-DD (Section B.5.1), but to be included in the CDM-PoA-DD's section E.7.1 Data and parameters to be monitored by each CPA (Section B.6.2 of the CDM-PoA-DD).	ACM0001 v11	For ex-ante calculations, 2010 data published by Brazilian DNA has been used to calculate the grid emission factor, as this was the information available at the time when the project started the validation process. It has been included in the parameters to be monitored ex-post both in the PoA DD (E.7.1) and CPA DD (B.6.2). ER calculation spreadsheet and Santa Rosa CDM-CPA-DD have been updated accordingly in the following tables: Table 6, Table 8, Table 9, Table 11, section B.5.3, section B.6.2 parameters: $EF_{grid, CM,y}$ $EF_{grid, BM,y}$ $EF_{grid,OM,y}$ $PE_{EC,y}$ and Annex 3. The name of the parameter for Brazilian grid emission factor has been left as $EF_{grid, CM,y}$ and the equivalency with parameters $CEF_{elecy,BL,y}$ and $EF_{EL,j,y}$ has been indicated in the comments box, in order to be clear about the equivalency with the names of the same parameter under methodology ACM0001v11 and the *Tool to calculate baseline, project and/or leakage emissions from electricity consumption.* The parameters of $EF_{grid, BM,y}$ and $EF_{grid,OM,y}$ have been included in Section B.6.2 of the new versions of the CPA-DD Generic, CPA-DD-1, and section E.7.1 of the PoA-DD	The information has been included in Section B.6.2 of CDM-CPA-DD and in Section E.7.1 of CDM-PoA-DD, but the representation of the Emission Factors in Section E.7.1 and in Section B.6.2, $CEFelecy,BL,y = EF_{grid, CM,y} = EF_{EL,j,y}$ it is not correct. According to the "Tool to calculate the emission factor for an electricity system" version 02, they should be represented as $EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and $EF_{grid,CM,y}$. Also, $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ should be monitored separately to calculate $EF_{grid,CM,y}$. **CAR AVD 09 was not closed.** **23/12/2011** 1 – Since 29/11/2011, Annex 19 of EB 63, there is a new version, 02.2.1, of the "Tool to calculate the emission factor for an electricity system, available in the UNFCCC site. 2 – Information of $EF_{grid,BM,y}$ and $EF_{grid,OM,y}$ for the year 2010 is already available in the site of the Ministry of Science and Technology. This information must be updated in the table B.6.2 and in Annex 3 of CDM-CPA-DD specific for CTR Santa Rosa. As a consequence,

		Since, the method used for the calculation of the Operating Margin under step 4 continues to be that of Dispatch data, under option C of the "*Tool to calculate the emission factor for an electricity system*", the latest editorial changes that have been made to the tool have had no effect on the actual calculation. Hence the version of the tool has been updated to its latest version 02.2.1 for all documents. The name of parameter $EF_{grid, CM,y}$ has been corrected to say "Combined Margin CO_2 emission factor for the project electricity system in year y" in the PoA-DD, Generic CPA-DD and Santa Rosa CPA-DD. Annex 3 of both generic CPA-DD and Santa Rosa CPA-DD have been corrected to indicate the 6 steps. The only change was the elimination of step 5 of the previous version, hence there is no impact on the actual calculations.	$EF_{grid,CM,y}$ must also be updated. 3- In the last paragraph of your 2nd answer, please correct section B.7.1 by E.7.1 of the PoA-DD. **CAR AVD 09 was not closed.** **05/01/2012** 1 - In Section B.6.2 of CDM-CPA-DD specific for CTR Santa Rosa and of CDM-CPA-DD generic, and also in Section E.7.1 of CDM-PoA-DD, the description of $EF_{grid, CM,y}$ should be Combined Margin CO_2 emission factor for the project electricity system in year y, instead of Carbon emission factor of electricity. 2 - In Annex 3 of CDM-CPA-DD specific for CTR Santa Rosa and of CDM-CPA-DD generic, Section Baseline Information, Brazilian Grid Emission Factor, $EF_{grid,CM,y}$, the "Tool to calculate the emission factor for an electricity system" version 02.2.1 has only 6 Steps instead of 7, as in the previous version of the Tool. **CAR AVD 09 was not closed.**

			06/01/2012 The required corrections have been made and accepted. **CAR_AVD_09 was closed.** **OK**
CAR_AVD_10 – The lines of table 9 of the CDM-CPA-DD for CPA-1 are not correctly positioned.	ACM0001 v11	The table on the CPA-DD has been corrected	The table 9 has been corrected. **CAR_AVD_10 was closed.** **OK**

CAR_AVD_11 – Relating to $PE_{FC,j,y}$ there is an inconsistency between the CDM-PoA-DD and the CDM-CPA-DD: - While in the CDM-PoA-DD informs that, for this project, LPG-Liquefied Petroleum Gas is used for the ignition of the flare system, $PE_{FC,j,y}$ is calculated using the formula $PE_{FC,j,y} = FC_{,j,y} * COEF_{,j,y}$ (the formula is not correctly expressed in the CDM-PoA-DD), in the CDM-CPA-DD it is being informed that $PE_{FC,j,y} = 0$.	ACM0001 v11	The PoA DD has been corrected by including the generic version of the equations as per the *Tool to calculate project emissions from fossil fuel consumption*, while the consumption of LPG for the ignition has been corrected on the CPA-DD and corresponding ER spreadsheet. Parameters have also been corrected on section (E.7.1) to include those parameters that need to be monitored for fossil fuel consumption. The value 0.00000206829 m^3/year has been included in the explanations in section B.5.2. and in page 43 (Section B.6.2) of the CPA-DD-1, clarifying that such data has been chosen considering monitored data for a similar project. The same approach has been included in the CPA-DD-Generic. In Section B.6.2, the value of $PE_{FC,j,y}$ = 12.6 tCO2/year was a typing error, as well as the value 1.01E-07tCO2. The average value for the first crediting period has been considered to be $PE_{FC,j,y}$ =1.44E-08 tCO2, as indicated in Table 10 within the CPA-DD. For further details please refer to sheet “Summary” of the ER Calculation Spreadsheet.	The information that the quantity of fossil fuel LPG utilized in process j during the year, which has been utilized for the calculation of $PE_{FC,j,y}$ should be informed in Section B.6.2 of the CDM-CPA-DD. Also, it should be informed that this information was from monitored data of similar project. Also, please inform the origin of the information, in Section B.6.2, $PE_{FC,j,y}$ = 12.6 tCO_2/year. **CAR AVD 11 was not closed.** **23/12/2011** The explanations have been accepted but, according to **CAR09**, which has not been closed, the Emission Factor of the grid must be updated to the year 2010. In Section B.6.2, concerning to $PE_{FC,j,y}$ =1.01E-07 tCO2, according to Table 10 Project emissions due to fuel consumed on site, the value it is not correct. It should be =1.44 E-07 tCO2 **CAR AVD 11 was not closed.**

		Page 31 of the Santa Rosa CPA-DD has been corrected with 0.3095 tCO2e/MWh as per the updated calculation. The word “tis” has also been corrected on both CDM-CPA-DD specific for CTR Santa Rosa and the CDM-CPA-DD generic	**05/01/2012** The answer has been accepted, but it is necessary to up-date, in page 31 of the CDM-CPA-DD specific for CTR Santa Rosa, the value of the Emission Factor which is = 0.3095 tCO2e/MWh and not = 0.1635 tCO2e/MWh. In the Excel File WB BRCaixa_SantaRosaLFG ERCalc _111227, cell 89 C of the table Inputs & Calculations, the information is correct. Please, correct also the word tis in the phrase “Annex 3 to tis document” in both, the CDM-CPA-DD specific for CTR Santa Rosa and the CDM-CPA-DD generic. **CAR AVD 11 was not closed.** **06/01/2012** The required corrections have been made and accepted. **CAR AVD 11 was closed.** **OK**

CAR_AVD_12 – there is an inconsistency between the CDM-PoA-DD and the CDM-CPA-DD because the formula $ER_y = BE_y – PE_y$ it is only informed in the CDM-PoA-DD.	ACM0001 v11	The formula has been included under section B.5.2 of the CPA-DD	The CDM-CPA-DD version 2 was checked. The formula was included. **CAR_AVD_12 was closed. OK**
CAR_AVD_13 – According to the methodology ACM0001, version 11, the information "Regulatory requirements relating to landfill gas" should have been included in the section E.6.3 of the CDM-PoA-DD.	ACM0001 v11	The parameter has been included under section E.6.3 of the PoA-DD	The CDM-POA-DD version 2 was checked. The information has been included. **CAR_AVD_13 was closed. OK**
CAR_AVD_14 – The investment analysis of CPA-1: Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, version 1.1, has not been accepted because it has not been presented on an understandable manner. There is a lack of sufficient information, including evidences to confirm the input parameters utilized.	EB 39 Annex 10	A new version of the Financial Analysis, clearly identifying the supporting documentation has been provided to the DOE	The Excel File Financial Analysis_CPA_1_Santa Rosa – 110518 has been provided. **CAR_AVD_14 was closed. OK**

CAR_AVD_15 – It has not been provided evidences to demonstrate that the Section B.1 of the CDM-PoA-DD and the Section A.4.2.1 of the CPA – 1 are in compliance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."	VVM 99	Section B.1 of the PoA-DD and Section A.4.2.1 of the CPA-1 have been updated Regarding the PoA-DD: The comment after the start date has been updated to say "date in which the CDM-PoA-DD has been uploaded for GSC – Global Stakeholders Comments." Regarding the CPA-DD: The starting date of the CPA-DD-1, as per the glossary of terms version 5 is the "earliest date at which either the implementation or construction or real action of a programme activity begins" For this project activity, which is the installation and operation of the landfill gas collection system, no real action has taken place. Therefore the starting date of the CPA has been modified to say "31/12/2011, when the implementation of the gas collection system is expected to begin".	The answer has not been accepted. - Concerning to the Section B.1 of the CDM-PoA-DD, the starting date should be: 22/09/2010, date in which the CDM-PoA-DD has been uploaded for GSC – Global Stakeholders Comments. - Concerning to the Section A.4.2.1 of the CDM-CPA-DD-1, according to the Glossary of CDM Terms,version 5: The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins. **CAR AVD 15 was not closed.** **23/12/2011** The answers have been accepted. **CAR AVD 15 was closed.** **OK**

CAR_AVD_16 – The information on the CDM-CPA-DD that CTR Santa Rosa area = 222.6 hectares it is not the same as on the "Construction Permit of the Prefeitura Municipal de Seropédica", which informs that the area is = 1,699,512.97 m^2. Also, the location informed in Section A.4.1.2 (22º47'35.84"S and 43º45'34.97"O) it is not consistent with the one on the "Construction Permit of the Prefeitura Municipal de Seropédica", which informs 22º47'44.53"S and 43º45'38.01" and the Figure 6 of the same Section brings the wrong information that CTR Santa Rosa is located 8,000 km away from both Seropédica and Itaguaí municipalities.	PoA Form v1	The correct area is the one that appears on the "Construction Permit of the Prefeitura Municipal de Seropedica" and as such has been corrected in the CPA-DD-1 for the value 1,699,512.97 m2. The correct geographic coordinates of the project included in the CPA-DD-1, have been changed in accordance with the document "Construction Permit of the Prefeitura Municipal de Seropédica", The coordinates 22º47'44.53"S and 43º45'38.01" W have been updated. CTR Santa Rosa is located 8km away from both Seropedica and Itaguaí municipalities and not 8,000km. The CPA-PDD has been corrected	- In Section A.2 of the CDM-CPA-DD-1, the area of 222.6 hectares has not been corrected. - In Section A.4.1.2, why it has not been used the same coordinates system which was used in the "Construction Permit of the Prefeitura Municipal de Seropédica"? - The wrong distance from Santa Rosa to Seropédica and Itaguaí municipalities in figure 6 has been corrected in the version 2 of CDM-CPA-DD-1. **CAR AVD 16 was not closed.** **23/12/2011** The answers have been accepted but, it is necessary to correct in the CDM-CPA-DD-1 the coordinate 43º45'38.01" O to 43º45'38.01" W **CAR AVD 16 was not closed.** **05/01/2012** The answer has been accepted. **CAR AVD 16 was closed.** **OK**

CAR_AVD_17 – The period of 7 years on the table A.4.4 of the CPA -1 it is not correct. As the starting date of the crediting period is 31/01/2011, the end of the first crediting period should be 30/01/2018.	VVM 56	The table has been corrected as per the expected registration date to match the information on the ER calculation spreadsheet.	The table A.4.4 of the version 2 of CDM-CPA-DD-1 has been corrected. **CAR_AVD_17 was closed.** **OK**
CAR_AVD_18 – The Parameters $NCV_{i,y}$, $EF_{CO2,I,y}$ and ηugf are not informed on both CDM-CPA-DD, the generic and the CPA – 1. The Parameter $P_{n,j,y}$ is not informed on CDM-PoA-DD.	CDM-PoA-DD CDM-CPA-DD generic CDM-CPA-DD for CPA - 1	The parameters $NCV_{i,y}$ and $EF_{CO2,I,y}$ have been included in the CPA-1 and generic CPA-DD. The parameter $P_{n,j,y}$ has been informed in section E.6.3 of the PoA-DD. The parameter ηugf has not been included because the AM0053 has been excluded from the PoA. Generic version of the CPA-DD has been updated and sent to the DOE with the mentioned changes.	- Version 2 of the CDM-CPA-DD has not been sent to the DOE. - Version 2 of the CDM-CPA-DD-1 has included parameters $NCV_{i,y}$ and $EF_{CO2,I,y}$. - Version 2 of the CDM-PoA-DD has included parameter $P_{n,j,x}$. - Parameter ηugf has not been informed in Version 2 of the CDM-PoA-DD because the AM0053 has been excluded from the PoA. **CAR_AVD_18 was not closed.** **23/12/2011** The only pending issue, Version 2 of the generic CDM-CPA-DD has been sent to the DOE. **CAR_AVD_18 was closed.** **OK**

CAR_AVD_19 – The monitoring frequency of the number of operational hours of the energy plant, and of $FC_{i,j,y}$,, $P_{n,j,x}$, CE_{FNG}, have not been defined in PoA, CPA generic and CPA – 1.	VVM 123	The monitoring frequency of the number of operational hours of the energy plant, and of $FC_{i,j,y}$ have now been defined in the PoA, CPA generic and CPA – 1. $P_{n,j,x}$, will not be monitored, as it has been defined under section B.5.1 of the CPA-DD by a waste characterization done by the prefecture of Rio. The parameter CEF_{NG} has not been included because the AM0053 has been excluded from the PoA Generic version of the CPA-DD has been updated and submitted . Prefeitura was not correctly translated with the term “prefecture”. The correct translation is “authorities” and has been updated as such in the CPA-DD-1.	- Number of operational hours, $FC_{i,j,x}$ and $P_{n,j,x}$, = OK in PoA, CPA-1, but couldn’t be checked in CPA, version 2, generic, because it has not been received by the DOE. - In $P_{n,j,x}$,, the word “prefecture” (Prefeitura) it is not correct. - CEF_{NG} – not included in CPA-1, but should have been included in PoA and in CPA generic. **CAR AVD 19 was not closed.** **23/12/2011** The answers have been accepted. **CAR AVD 19 was closed. OK**

CAR_AVD_20 – The monitoring of W_x is not following the Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal, version 05 and the parameters z, $fv_{CH4,h}$, $FV_{RG,h}$, $t_{O2,h}$, $fv_{CH4,FG,h}$, $w_{CH4,y}$ are not being considered as monitored variables.	VVM 123	W_x is now in accordance with the tool, and the parameters z, $fv_{CH4,h}$, $FV_{RG,h}$, $t_{O2,h}$, $fv_{CH4,FG,h}$, $w_{CH4,y}$, have been included as part of the parameters to be monitored, both under the PoA DD and CPA DD. - W_x has been deleted from section B.5.1 and changed to B.6.2 in both CPA-DD and CPA-DD-1. - Generic version of the CPA-DD has been updated and submitted - Z has been moved to section E.7.1 of the PoA, and B.6.2 to the CPA-1 and CPA generic. - PoA-DD updated to change WCH4 to WCH4,y	- W_x has been included in PoA, version 2, but has not been included in CPA-1 and couldn't be checked in CPA generic, version 2. - z should be a monitored variable, included in Section B.6.2 of CPA-1 and CPA generic, and in Section E.7.1 of PoA. - In PoA, w_{CH4} should be $w_{CH4,y.}$ - z, $fv_{CH4,h}$, $FV_{RG,h}$, $t_{O2,h}$, $fv_{CH4,FG,h}$, $w_{CH4,y}$ couldn't be checked in CPA generic, version 2. **CAR_AVD_20 was not closed.** **23/12/2011** All the required modifications have been made to PoA DD, CPA DD and CPA DD generic. **CAR_AVD_20 was closed. OK**

CAR_AVD_21 – In table TDL_y of the Section B.5.1 of the CPA – 1, the name and version of the "Tool to calculate project emissions from electricity consumption, version 2 it is not correct.	VVM 56	The parameter TDLy has been moved to section B.6.2 and the name reference of the tool in CPA-DD-1, has been changed to "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 01 Moreover, it has been updated in the CPA-DD-Generic.	The version is now correct but the name of the Tool is still not correct in CPA-1. **CAR_AVD_21 was not closed.** **23/12/2011** The name of the Tool is now correct. **CAR_AVD_21 was closed.** **OK**
CAR_AVD_22 – The CDM-CPA-DD with generic information does not present in an explicit way the separately alternatives to use the captured LFG (Flare of the captured LFG to eliminate the landfill methane emissions and/or as a fuel to generate electricity and/or to use the captured gas to supply consumers through a natural gas distribution network).	EB 55 Annex 38	Generic version of the CPA-DD has been submitted and updated accordantly presenting in an explicit way the separately alternatives.	As there is no answer and the CPA generic is not available, **CAR_AVD_22 was not closed.** **23/12/2011** The generic version 2 of the CPA-DD has been submitted and updated accordingly, presenting in an explicit way the separately alternatives to use the captured LFG **CAR_AVD_22 was closed.** **OK**

CAR_AVD_23 –The title of the CDM-CPA-DD with generic information and the title of the completed CDM-CAP-DD (in the Section A.1) do not contain a reference to the CDM-PoA-DD title.	EB 55 Annex 38	The reference to the CDM PoA DD title has been included in section A.1. Generic version of the CPA-DD has been submitted and updated accordantly with the title of the completed CDM-CPA-DD (in the Section A.1)	The reference to the CDM-PoA-DD has been included in CPA-1, but as the CPA generic is not available, **CAR_AVD_23 was not closed.** **23/12/2011** The generic version 2 of the CPA-DD has been submitted and the reference to the CDM PoA DD title has been included in section A.1. **CAR_AVD_23 was closed. OK**

CAR_AVD_24 – The record keeping system for each CPA under the PoA is not described. The DOE needs to have access to the detailed control system that has been established/implemented by Caixa for the management of its CDM-PoA-DD.	PoA Form v1	Item pending on visit of DOE	Caixa will keep records of the monitoring reports for each CPA; for quality assurance, monitoring reports will be cross-checked with raw data upon site visits conducted by Caixa. As accorded with Caixa Econômica Federal Management and World Bank Representatives, during the meeting held with them and the DOE during the site visit to the project in CTR Santa Rosa, on October 22, 2010, to close this CAR it is necessary to visit Caixa Econômica Federal Offices to see the record keeping system of the PoA. **CAR AVD 24 was not closed.** **23/12/2011** On December 06th, 2011, the DOE made a visit to the Corporate Office of Caixa Econômica Federal, em Brasília. A presentation of the PoA Control System for the CPAs which will be project participants has been made by Mrs. Denise M. De Souza Seabra, Business and Customers Manager, who is in charge of the PoA.

			The Control Systems is very complete and capable to fill all the necessary requirements. In Section A.4.4.1 of the CDM-PoA-DD version 3, there is a description of the Control System. Mr. Manuel Luengo, Carbon Finance Specialist, Carbon Finance Unit, of World Bank has also been present to the meeting. **CAR_AVD_24 was closed.** **OK**
CAR_AVD_25 – There are not provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.	PoA Form v1	Section A.4.4.1 of the PoA-DD has been modified to have a clearer structure, where a provision has been included under point a) for the CPA implementer to indicate their voluntary participation to be subscribed as part of the PoA.	Section A.4.4.1 of the PoA—DD version 2 has been modified to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA. **CAR_AVD_25 was closed.** **OK**
CAR_AVD_26 – In the table 1, Baseline, Emissions from electricity consumption, it is not following the methodology ACM0001, version 11, for CO_2 and in table 2, Project Activity, Methane contained in the effluent it is not following the methodology AM0053, version 2, for CH_4.	PoA Form v1	Table 1 (now table 2 after updating the documents) has been corrected to follow exactly the table as per methodology ACM0001. Table associated with methodology AM0053 has not been included because it is not going to be part of the PoA-PDD.	Correction of made to follow ACM0001, version 11. AM0053 is not anymore applicable to the project activity. The explanation has been accepted. **CAR_AVD_26 was closed.** **OK**

CAR_AVD_27 – The Section B.4 of the specific CDM-CPA-DD with generic information relevant to all CPAs and the Section B.4 of the completed CDM-CPA-DD (CPA – 1) do not include the table 2 of Section E.3 of CDM-PoA-DD, referring to the methodology AM0053.	EB 55 Annex 38	Methodology AM0053 has been excluded from the PoA-PDD	AM0053 is not anymore applicable to the project activity. The explanation has been accepted. **CAR_AVD_27 was closed.** **OK**
CAR_AVD_28 – In the Sections C.1 and D.1 of the specific CDM-CPA-DD with generic information relevant to all CPAs and in the Section C.1 and D.1 of the completed CDM-CPA-DD (CPA – 1) the justifications of the choice of level at which the environmental analysis is undertaken and stakeholders comments are invited are not provided.	EB 55 Annex 38	Sections C.1 and D.1 of CPA-1 have been updated	As described in the Sections C.1 and in Section D.1 of the PoA-DD, the environmental analysis and the stakeholders comments are undertaken at the CPA level. **CAR_AVD_28 was closed.** **OK**

CAR_AVD_29 – On the 2nd paragraph of Section A.2 of CDM-CPA-DD (CPA – 1), version 2, the phrase "CTR Santa Rosa will start its operations on January 2011" it is not on compliance with the information of the table A.4.4.	EB 55 Annex 38	The 2nd paragraph of Section A.2 of CDM-CPA-DD (CPA – 1), version 2, the phrase "CTR Santa Rosa will start its operations on January 2011" has been reformulated to "CTR Santa Rosa started receiving waste on January 2011. The date in table A.4.4 of 01/07/2012 is the expected starting date of the crediting period, which is not the same date in which the LFS started receiving waste. The format of the tables from section A.4.4 through B.5.3 has also been corrected to comply with the Template "Clean Development Mechanism Program Activity Design Document Form", (CDM-CPA-DD), Version 01, by representing complete years with their number.	**23/12/2011** The answer has been accepted, but the representation of the years in the Sections A.4.4 and B.5.3 should be: 01/07/2012-31/12/2012 and 01/01/2019-30/06/2019 only for the years covering a part of the year. The other complete years should be represented the way it is being informed in table B.5.3 of the Template "Clean Development Mechanism Program Activity Design Document Form", (CDM-CPA-DD), Version 01 (2013, 2014, 2015, 2016, 2017 and 2018). **CAR AVD 29 was not closed.** **05/01/2012** The required correction has been made and accepted. **CAR AVD 29 was closed.** **OK**

CAR_AVD_30 – In the Section B.5.2 of the CDM-CPA-DD (CPA – 1), version 2 and in Section E.6.2 of the CDM-PoA-DD, version 2, Baseline Emissions, the definition of $MD_{project,y}$ = The amount of methane that would have been generated at the landfill site during the year it is not in accordance with the methodology ACM0001, version 11.	ACM0001 v11	The definition of $MD_{project, y}$ has been updated to say"The amount of methane that would have been destroyed/combusted during the year, in tonnes of methane (tCH4) in project scenario" in accordance with the exact text on methodology ACM0001, version 11.	**23/12/2011** In the Section B.5.2 of the CDM-CPA-DD (CPA – 1), version 3 and in Section E.6.2 of the CDM-PoA-DD, version 3, the definition of $MD_{project,y}$ is now in accordance with the methodology ACM0001, version 11. **CAR AVD 30 was closed. OK**

CAR_AVD_31 – In Section B.6.2 of CDM-CPA-DD (CPA – 1), version 2: -The information of the line "Value of data applied for the purpose of calculating expected emission reductions in Section B.5" has not been given for the Data/Parameter: $MG_{PR,y}$, and T_{flare} (ºC). - The origin of the values $PE_{EC,y}$ = 96 tCO_2/year and $PE_{FC,j,y}$ = 12.6 tCO_2/year has not been informed.	ACM0001 v11	For the values $MG_{PR,y}$, and T_{flare} (ºC), information of the line "Value of data applied for the purpose of calculating expected emission reductions in Section B.5" in Section B.6.2 of CDM-CPA-DD (CPA – 1) has been included as N/A since they are not used in the ex-ante calculation. The values $PE_{EC,y}$ = 201 tCO_2/year and $PE_{FC,j,y}$ = 1.44E-08 tCO_2 have been updated as per the ER Calculation sheet and its origins have been clarified in the respective section "Value of data applied for the purpose of calculating expected emission reductions in section B.5".	**23/12/2011** In Section B.6.2 The corrections of $MG_{PR,y}$, and T_{flare} have been made in CDM-CPA-DD (CPA – 1), version 3. **OK** In relation to the value of $PE_{EC,y}$ = 106 tCO_2/year, please, refer to **CAR AVD 09**, which has not been closed. The value of $PE_{FC,j,y}$ = 1.01E-07 tCO_2 it is not correct. According to the Table 10 Project emissions due to fuel consumed on site of the CDM-CPA-DD (CPA-1), version 3, the correct value is $PE_{FC,j,y}$ = 1.44 E-07 tCO_2. **CAR AVD 31 was not closed.** **05/01/2012** The values of $PE_{EC,y}$ = 201 tCO_2/year and $PE_{FC,j,y}$ = 1.44E-08 tCO_2 have been updated and accepted. **CAR AVD 31 was closed.** **OK**

CAR_AVD_32 – In Sections E.1 and E.6.1 of the CDM-PoA-DD, there are new versions of the following Tools: -Tool for the demonstration and assessment of additionality, version 06.0.0, of EB 65, Annex 21. - "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05.1.0, of EB 61, Annex 10. In Section B.3 of the CDM-CPA-DD -1 and of CDM-CPA-DD generic, there is a new version of: -Tool for the demonstration and assessment of additionality, version 6.0.0, of EB 65, Annex 21.	EB 65 Annex 21 EB 61 Annex 10	1. Regarding the new version of the additionality tool, as per the 65th EB report meeting, where the new tool was approved, paragraph 89, it says: "89. For all revised methodologies and tools that were approved by the Board at this meeting, the DOEs may upload not later than 25 July 2012 (24:00 GMT) for registration the project design documents (PDDs) of project activities in which the previous version of an approved methodology or an approved tool has been applied, in accordance with paragraph 36 of the "Procedure for the submission and consideration of requests for revision of approved baseline and monitoring methodologies and tools for large scale CDM project activities"." Hence we are still within the grace period for the change of the tool, and are still allowed to use the previous version. 2. Regarding the new version of"Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05.1.0, of EB 61, Annex 10, since the change to the tool was an amendment to include a default value for the fraction of degradable organic carbon (DOCj) of sludge from domestic wastewater treatment plants, and this has no effect on the current PoA-DD, nor CPA-DDs, the version of the tool	**06/01/2012** 1. According to paragraph 89 of the EB 65th meeting report, as we still are in the grace period until July 25th, 2012, it is not necessary to up-date the Tools approved on that meeting. 2. Regarding the new version of the Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site", version 05.1.0, of EB 61, Annex 10, the version of this tool has been up-dated on the PoA-DD, CPA-DD and specific CPA-DD. The answers have been accepted, but this CAR was not closed because the last version of the "Tool for the demonstration and assessment of additionality" before version 06.0.0 is version 05.2.1, of 27 June 2011, and not version 05.2, as informed in Sections E.1, E.6.1 of the CDM-PoA-DD and in Sections B.3 of the CDM-CPA-DD -1 and of CDM-CPA-DD generic. This information must be corrected. **CAR AVD 32 was not closed**.

		has been updated to 05.1.0 on the PoA-DD, CPA-DD and specific CPA-DD, without it having any effect on the application of the tool. **09/01/2012:** Sections E.1, E.6.1 of the CDM-PoA-DD and Section B.3 of the CDM-CPA-DD -1 and of CDM-CPA-DD generic, have been corrected	**10/01/2012** The required corrections have been made. **CAR AVD 32 was closed.** **OK** .

CAR_AVD_33 – In Step 4. Common practice analysis of Section B.3 of the CDM-CPA-DD -1 and of CDM-CPA-DD generic, and of Section E.5.1 of the CDM-PoA-DD, there are new guidelines: -Guidelines on Common Practice, version 01, of EB 63, Annex 12, Which have not being applied.	EB 63 Annex 12	The new guidelines on common practice have been incorporated into the new version of the additionality tool as per EB 65, Annex 21. As mentioned above in CAR_AVD_32 , as per the 65th EB report meeting, where the new tool was approved, paragraph 89, it says: "89. For all revised methodologies and tools that were approved by the Board at this meeting, the DOEs may upload not later than 25 July 2012 (24:00 GMT) for registration the project design documents (PDDs) of project activities in which the previous version of an approved methodology or an approved tool has been applied, in accordance with paragraph 36 of the "Procedure for the submission and consideration of requests for revision of approved baseline and monitoring methodologies and tools for large scale CDM project activities"." Hence we are still within the grace period for the change of the tool, and are still allowed to submit the documents. 09/01/2012: PoA-DD, CPA-DD generic and CPA-DD-1 have been updated to follow the "Guidelines on Common Practice, version 01, of EB 63, Annex 12"	**06/01/2012** The answer has not been accepted. Although the new guidelines on common practice have been incorporated into the new version of the additionality tool as per EB 65, Annex 21, they have been approved as per EB 63, Annex 13. According to paragraph 84 of EB 63, "Following the consideration, the Board adopted the "Guidelines on additionality of First-of-its-kind project activities" and the "Guidelines on Common Practice", as contained in annex 11 and annex 12, respectively, to this report". There is no grace period for the two guidelines approved on that meeting. Consequently, the "Guidelines on Common Practice, version 01, of EB 63, Annex 12" shall be used to assess Common Practice. **CAR AVD 33 was not closed**.

			10/01/2012 As the PoA-DD, CPA-DD generic and CPA-DD-1 have been updated to follow the "Guidelines on Common Practice, version 01, of EB 63, Annex 12", the answer has been accepted. **CAR AVD 33 was closed.** **OK** .

CAR_AVD_34 – In Section D.2 of the CDM-CPA-DD -1 and of CDM-CPA-DD generic, it has not been utilized the Resolution nº 9, of March 20th, 2009, of the Interministerial Commission on Global Climate Change (CIMGC), the Brazilian DNA, which is specifically applicable to Stakeholders' Comments in Program of Activities.	Brazilian DNA's Resolution Nº 9	Resolution 9 of March 20th, 2009, of the Interministerial Commission on Global Climate Change (CIMGC), the Brazilian DNA has in fact been followed since the CPAs started the validation process. This is a typo, and has been corrected on both generic and specific CPA-DDs to indicate Resolution No 9. **09/01/2012:** - The information of the landfill area in "Anexo III", which was uploaded in the www.ciclusambiental.com.br website has been corrected, following CAR_AVD-16 - Section D.2 of the CDM-CPA-DD generic has been corrected	The answer has been accepted, but the following corrections must be made: -In the CDM-CPA-DD -1, Section D.2, www.ciclusambiental.com.br, Anexo III, the information of the landfill area = 2,212,000 m2 it is not correct. Please, refer to CAR_AVD_16. -In the CDM-CPA-DD generic, Section D.2, the information "The CPA in Portuguese as well as Annex III of the resolution will be available at the following website until registration: www.ciclusambiental.com.br, should be excluded, because this information is applicable only to CDM-CPA-DD -1. **CAR AVD 34 was not closed**. **10/01/2012** The required corrections have been made. **CAR AVD 34 was closed. OK**

CAR_AVD_35 1 - According to Section A.4.4.1 of the PoA form, besides the items defined by the CME related to the Operational and Management Plan, items (i), (ii) and (iii) must be textually included in this section. 2 – In Section E.4, the procedure for the selection of the most plausible baseline scenario was not presented in their entirety and there is not a final conclusion. 3 – In Section E.6.2, the information in the paragraph below formula (6) it is not correct: The second part of the baseline equation represents the baseline emissions produced by the amount of expected energy that would have been produced by the grid, and will be replaced by the electricity produced by the project activities in the CPAs. This is calculated by multiplying $ET_{LFG,y}$ times $CEF_{ther.BL,y}$. It should be $EL_{LFG,y}$ *$CEF_{elec.BL,y}$. 4 – In Section E.6.2, in Ex-Ante Baseline emissions, formula (4), it is not correct the information: the parameter MDproject,y was calculated as per the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site". $MD_{project,y}$ is calculated as per the methodology ACM0001 and the tool was used to calculate the parameter $BE_{CH4,SWDS,y}$. 5 – In Annex 1, the information related to the Kingdom of Spain - Ministry of Economy and Finance should not be included, because it is neither a PP nor the CME.	PoA-DD Version 5	1- Section A.4.4.1 of the PoA-DD has been modified continuing with the order of the items but textually including items (i) to (iii) of the PoA template, as part of the items that had already been listed. Therefore item (i) has been incorporated into item (h), item (ii) has been incorporated into item (b); and item (iii) has been incorporated into item (a). 2- Section E.4 of the PoA-DD has been edited to indicate the 4 steps of the methodology, along with the steps of the additionality tool referenced by the methodology, and explicitly indicate the outcome of the steps, along with a final conclusion on the very last paragraph. 3- Section E.6.2 has been corrected to say $EL_{LFG,y}$ 4- Text in section E.6.2 regarding the ex-ante calculations has been corrected to indicate that $MD_{project,y}$ is calculated as per the methodology ACM0001 and the tool was used to calculate the parameter $BE_{CH4,SWDS,y}$. 5-Information on Annex 1 related to the Kingdom of Spain has not been removed, as they are PPs, as indicated in table 1, of section A.3 of the PoA-DD.	**19 01 2012** 1 – The required modification was made in Section A.4.4.1 of the PoA, but not considered complete: Referring to the answer to item (h), please describe with more details the database that will be developed (or has already been developed): How it will work, who will operate it, training, type of records (models), control of the information, etc. **The answer was not accepted.** **20 01 2012** 1 – The detailed database is described in Section A.4.4.2. A reference was included in Section A.4.4.1, item h, referring to Section A.4.4.2. **OK** 2 – In Section E.4, the procedure for the selection of the most plausible scenario was revised, being presented in its entirety and with a final conclusion. **OK** 3 – The information is still not correct. It is being considered $EL_{LFG,y}$ * $CEF_{ther,BL,y}$, instead of $EL_{LFG,y}$ *$CEF_{elec.BL,y}$. **The answer was not accepted.**

			20 01 2012 3 – The information in Section E.6.2 is now correct. **OK** 4 – Text in section E.6.2 regarding the ex-ante calculations has been corrected to indicate that $MD_{project,y}$ is calculated as per the methodology ACM0001 and the tool was used to calculate the parameter $BE_{CH4,SWDS,y}$. **OK** 5 – The answer is correct and was accepted. **OK**

CAR_AVD_36 1 – In Section A.4.3.1, please inform which is the evidence for the expected operational lifetime of 21 years. 2 – In Section B.3, "The establishment of the baseline scenario as a LFG2, P6 as required by the approved methodology ACM0001 Version 11 will be done at the CPA level." The CDM-CPA-DD (CPA-1) does not present in a clear way this condition. 3 – In Section B.5.2, on the 2nd paragraph below formula (5), the following information is given: "The characterization of the municipal solid waste is based on the waste characterization done by the prefecture of the city of Rio", but in table 12 of Annex 3, the source to the waste composition is "Haztec – Gramacho Landfill Project". The information is not consistent. 4 – In Annex 3, Brazilian Grid Emission Factor, $EF_{grid,CM,y}$, the use of the *"Tool to Calculate the Emission Factor for an Electricity System",* version 02.2.1, was not clearly explained, step by step. 5 – In Section B.5.2, the tables 6 (Electricity displaced from the grid – utilized the emission factor of 2009 instead of 2010), 8 Grid displacement (tCO_2e) and BE_y (tCO_2e), 9 and 11, are not in accordance with the values from the spreadsheet WB BRCaixa-Santa Rosa LFG ERcal_110520.xls.	CPA-DD 1 Version 5	1- Technical specifications of the Landfill Gas Enclosed Flare System provided by the equipment supplier ZTOF (Flare spec ZTOF JZ.pdf). 2- Section B.3 of the CPA-DD 1 has been edited to follow the new text of the PoA-DD and explicitly indicate that as a result of the investment analysis, it is demonstrated that the baseline scenario is LFG2 and P6 and that the project is additional. Please see the concluding remark on the last paragraph of the section. 3- The reference in Table 12 of Annex 3 has been corrected to indicate: "waste characterization done by the prefecture of the city of Rio" 4-Annex 3 has been modified to indicate the step by step approach as detailed as possible given the fact that this is calculated by the Brazil DNA. 5- The latest version of the ER spreadsheet is that with name WB BRCaixa-SantaRosaLFG ERCal_111227.xls, where the grid emission factor for 2010 was corrected. The values in the mentioned tables in this section do match this latest version. (It was version 110520 the one which used the 2009 grid emission factor).	**19 01 2012** 1 – The pdf file sent to the DOE doesn't have any identification, from the supplier nor from any other source. **The answer was not accepted.** **20 01 2012** 1 – The evidence of the expected operational lifetime of 20 years was given by the supplier of the Flare. **OK** 2 – Section B.3 of the CPA-DD 1 has been edited to follow the new text of the PoA-DD and explicitly indicate that as a result of the investment analysis, it is demonstrated that the baseline scenario is LFG2 and P6 and that the project is additional. **OK** 3 – The required correction was made and accepted. **OK** 4 – Step 1 and Step 2 are not correct. Please, revise them. **The answer was not accepted.**

6 – In Section B.5.2, Project Emissions, on the 1st paragraph below formula (11), please provide the source of the information "For the first term, the viability study reports that 15% of all electricity generated will be consumed on site, while the rest will be sourced from the grid." 7 – In Section B.5.2, Project Emissions, on the 1st paragraph below formula (13), please provide the source of the information "Based on monitored values of similar project, 0.00000206829 m3/year of LPG for the parameter FCi,j,y has been used." 8 – In Section B.6.2, table NCVi,y, there is not an evidence from the supplier supporting the value for NCVi,y = 0.1059 GJ/m3.		6- Text in section B.5.2 has been replaced by the following "For the first term of the above equation, for the ex-ante calculation of project emissions, the most conservative estimate has been made where 100% of all electricity consumed by the project activity has been assumed to come from the national grid.", given that the 15% estimate was in fact not used. 7- In section B.5.2 the following footnote has been added: "Value from Project Developer, based on monitored consumption on similar equipment installed at a project site run by the same project developer: CDM project reference Number 0008, Brazil NovaGerar Landfill Gas to Energy Project, 2008 verified Monitoring Report." 8- In the table for NCVi,y in section B.6.2, the reference from the supplier has been added, as can be found online at http://www.ultragaz.com.br/pt/Institucional/O_gas_LP/Vantagens_do_GasLP/Default.aspx	**20 01 2012** 4 – Step 1 and Step 2 were corrected. **OK** 5 – All the figures in the tables are correct and according to WB BRCaixa-SantaRosaLFG ERCal_111227.xls, but the identification numbers of the tables have changed from version 5 to version 6 of the CPA-DD-1. The tables 8 and 9 do not exist in the CPA-DD-1. There is a jump from table 7 to table 10. **The answer was not accepted.** **20 01 2012** 5 – All the figures in the tables are correct and according to WB BRCaixa-SantaRosaLFG ERCal_111227.xls, and the numbers of the tables are correct. **OK** 6 – The figure 15% was not used in the calculations and, because of that, eliminated from the CPA-DD-1. The answer was accepted. **OK**

			7 – Why Marambaia site was chosen as a reference for LPG consumption (2.06829E-06 m^3/year), as there is another reference of Adrianopolis (1.14551E-06 m^3/year)? **The answer was not accepted.** **20 01 2012** 7 – Marambaia site figure was used because it is more conservative. The information was used only to calculate the estimation of emission reductions. The consumption of LPG will be monitored in the project. **OK** 8 – The information in the site is 25,300 kcal/m^3, which corresponds to 0.10592604 GJ/m^3. **OK**

CAR_AVD_37 1 – In Section A.1, the version and the date are information to be completed in any of the CPAs to be included in the PoA Caixa. Also, the information related to the "CPA preparation date" should be erased. The version of the document is not necessary information, and then should be excluded. 2 – In Section A.4.2.1, the CPA DD 1 should be written in accordance with the CPA DD GENERIC. Also, the definition of the starting date presented on the CPA DD 1 it is not in accordance with the definition from the glossary of terms version 05.	CPA-DD Generic Version 4	1- In Section A.1 the preparation date and version of the template have been deleted, only leaving the version and date to be completed by the CPAs to be included. 2- Section A.4.2.1 of the generic CPA-DD has been modified, by including the following text: ", when the [implementation/construction or real action] is expected to begin", in accordance with CAR_AVD_15 above. As was answered in the latter mentioned CAR, the definition is in accordance with the definition from the glossary of terms version 05, given that as per the glossary the start date is the "earliest date at which either the implementation or construction or real action of a programme activity begins". For the CPA-DD 1 project activity, which is the installation and operation of the landfill gas collection system, no real action has taken place. Therefore the starting date of the CPA 1 has been modified to say "31/12/2011, when the implementation of the gas collection system is expected to begin", which is thus in accordance with the glossary as this will be the first real action for the project.	**19_01_2012** 1 – The version of the document was not included. **The answer was not accepted.** **20_01_2012** 1 – The version of the document was included. **OK** 2. 2.1 – The revision made in Section A.4.2.1 of the CPA-DD generic was accepted. 2.2 – Please, explain the meaning of the word implementation in the project. 2.3 – It is possible to accept a future date as the starting date, but not a past date as 31/12/2011, unless there are evidences to present to the DOE that the implementation/construction or real action began. **The answer was not accepted.** **20_01_2012** 2 – In Section 4.2.1: -The starting date of the CPA was defined on 31/12/2011, when the implementation of the gas collection and flare system is expected to begin, with the signature of the contract with the supplier of the flare.

3 – In Sections A.4.3.1 and A.4.3.2, the CPA DD 1 should be written in accordance with the CPA DD Generic. 4 – On the 1st paragraph of Section A.4.6, please correct the words: CMe and thet. 5 – In Section B.3, sub-step 2b, the phrase "Investment analysis was done by" was not reproduced on the CPA DD 1. 6 – In Section B.3, sub-step 2c of the CPA DD 1 it is not on compliance with sub-step 2c of the CPA DD Generic. 7 – In Section B.3, sub-step 2d of the CPA DD 1 it is not on compliance with sub-step 2d of CPA DD Generic. 8 – In Section B.4, table 3 from the CPA DD 1 Santa Rosa it is not in accordance with the same table of the CPA DD Generic (Natural gas distribution grid / Flaring of vent gas). Also on the table 3 from the CPA DD Generic the word baseline does not appear on the table.		3- Section A.4.3.1 of the Generic CPA-DD has been modified to include the following text: "[DD/MM/YYYY], , when the project is expected to be operational, or upon inclusion under the PoA, whichever is later, which makes the CPA-DD 1 in accordance with the CPA-DD Generic. 4- The first paragraph of section A.4.6 of the Generic CPA-DD has been corrected with the words "CME", and "that" 5- Section B.3 of the Generic CPA-DD has been modified to match the changes made to the section as per the previous 2 CARs. Hence the CPA-DD 1 is in accordance with the CPA-DD Generic. 6- Section B.3 of the Generic CPA-DD has been modified to match the changes made to the section as per the previous 2 CARs. Hence the CPA-DD 1 is in accordance with the CPA-DD Generic. 7- Section B.3 of the Generic CPA-DD has been modified to match the changes made to the section as per the previous 2 CARs. Hence the CPA-DD 1 is in accordance with the CPA-DD Generic. 8- In Section B.4, table 3 from the CPA DD 1 Santa Rosa has been modified to be in accordance with the same table of the CPA DD Generic; also on the table for the Generic CPA-DD the word "Project Activity" is now showing.	-In Section A.4.2.2. Expected operational lifetime of the CPA is 21 years and of the Flare is 20 years. The Flare will take approximately 1 year to be installed and to start operation. **OK** 3 – The required modifications were made and accepted. **OK** 4 – The required modifications were made. **OK** 5 – The required modifications were made. **OK** 6 – The required modifications were made. **OK** 7 – The required modifications were made. **OK** 8 – The required modifications were made. **OK** 9 – The required modifications were made. **OK**

9 – In Section B.5.1, all the parameters from the CPA DD 1 should be in accordance with the CPA DD Generic. 10 – Section B.5.2 of the CPA DD 1 it is not in accordance with Section B.5.2 of the CPA DD Generic (example: Table 4 CPA DD Generic). 11 – In Section B.6.2, all the parameters from the CPA DD 1 should be in accordance with the CPA DD Generic (example: the source of data related to the parameter LFGPLI,y; monitoring frequency related to the parameter T; blank line related to the parameter P). 12 – Sections C.1 and C.3 from the CPA DD 1 are not in accordance with to the same sections from CPA DD Generic. 13 – Section B.5.1 of the CPA DD Generic version 04 is not in accordance with the Section E.6.3 of the PoA DD version 05 (please, refer also to the comparison between section B.5.1 to the CPA DD Generic and section B.5.1 the CPA DD 1). 14 – Section B.6.2 of the CPA DD Generic version 4 is not in accordance with the Section E.7.1 of the PoA DD version 05 (refer to the comparison between section B.6.2 of the CPA DD Generic and the CPA DD 1).		9- Section B.5.1 of CPA DD 1 is now in accordance with the Generic CPA-DD. 10- Section B.5.2 of CPA DD 1 is now in accordance with the Generic CPA-DD. 11- Section B.6.2 of CPA DD 1 is now in accordance with the Generic CPA-DD. (the source for LFGPI,y is now the same, the monitoring frequency line for T has been deleted, and blank line on parameter P has also been deleted. 12- Sections C.1 and C.3 of CPA DD 1 is now in accordance with the Generic CPA-DD. 13- Section B.5.1 of the Generic CPA-DD as well as the CPA-1 are now in accordance with Section E.6.3 of the PoA- DD. 14- Section B.6.2 of the CPA DD Generic version 4 is now in accordance with the Section E.7.1 of the PoA DD version 06, and CPA-1 is in accordance with them too.	10 – 10.1 – The model of the table Waste Composition was not included in the CPA-DD generic. 10.2 – There is not a correspondence among the number of the tables in CPA-DD 1 and the CPA-DD generic. **The answer was not accepted.** **20 01 2012** 10.1 – The table Waste Composition has been re-included. It was deleted by mistake. 10.2 – The numbers on the tables have been changed to XX, as table 1 is optional, depending on the type of CPA, and that would make all numbers of the tables in the CPA-DD change, if it is not to be included. **OK** 11 – The required modifications were made. **OK** 12 - The required modifications were made. **OK** 13 - The required modifications were made. **OK** 14 – The required modifications were made. **OK**

CAR_RRC_01 - PP does not demonstrate residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen.	EB 28 Annex 13	Section E.2 of the PoA-DD has been updated	The information has been provided in Section E.2 of PoA-DD version 2. **CAR_RRC_01 was closed. OK**
CAR_RRC_02 - The PoA states on page 31 the right hand side of equation "*(7)*" but the correct equation is number "*(9)*" in the text.	ACM0001 v11	Equation number has been updated.	The Equation number has been updated. The information has been corrected in PoA-DD version 2. **CAR_RRC_02 was closed. OK**

CAR_RRC_03 – The reference given, on page 27 of the CPA Santa Rosa, (9) for the equation to calculate the $CEF_{elec,BL,y}$ it is not correct.	ACM0001 v11	The reference given under section B.5.2, for the parameters listed for equation (1) of CPA Santa Rosa for parameter $CEF_{elec,BL,y}$ has been corrected, no longer indicating "(9)". Instead in the CPA-DD Santa Rosa this "(9)" was replaced to say "as explained in the PoA-DD and Annex 3 of this CPA-DD" The same reference under the explanations to equation 1 in section E.6.2 of the PoA DD has been deleted and replaced by the text "as per the section *Determination of* $CEF_{elec,BL,y}$ below".	In Section B.5.2 of CPA Santa Rosa version 2 and in Section E.6.2 of PoA-DD version 2, the reference (9) given to the equation to calculate $CEF_{elec,BL,y}$ is still not correct. **CAR_RRC_03 was not closed.** **23/12/2011** The explanation has not been perfectly understood and accepted. Refer also to **CAR_AVD_09**, which has not been closed. **CAR_RRC_03 was not closed.** **05/01/2012** The explanation has been accepted. **CAR_RRC_03 was closed. OK**
CAR_RRC_04 – In Section A.4.3.1. of the CPA -1 it is informed that Starting date of the crediting period 31/01/2011, when the project is expected to be operational. During the site visit, the landfill construction was delayed resulting on a different project date to be operational. Date must be reviewed.	VVM 56	Section A.4.3.1 has been updated to reflect the expected date for the project to be operational	The answer given in CPA-1 version 2, has been accepted. **CAR_RRC_04 was closed. OK**

CAR_DMC_01 - No evidences were provided to support the assumption that the biogas is venting or flaring prior to implementation of the project activity, as required by the AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_01 was closed. OK**
CAR_DMC_02 – It was not possible to identify in the CPA-DD v1.1, what is the geographical extent of the natural gas distribution grid. Also during the site visit the PP was not able to define exactly the natural gas distribution grid where the biogas is supposed to be sold when the project starts to operate.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_02 was closed. OK**
CAR_DMC_03 - It is not clear in the CPA-DD if the baseline scenario for the displacement of natural gas (AM0053) was considered together with the landfill avoidance methane, as required by the AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_03 was closed. OK**

CAR_DMC_04 - The natural gas distribution grid is not considered within the project boundary as per figure 8, section B.4 of the CPA-DD v.1.1	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_04 was closed. OK**
CAR_DMC_05 – It was not possible to find in the CPA-DD v.1, references for sources and gases included in the boundary, under the AM0053. The section B.4 of the CPA-DD just provides the sources and gases included in the CPA under ACM0001.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_05 was closed. OK**
CAR_DMC_06 – It was not possible to indentify neither in the PoA-DD nor in the CPA-DD, the application of the three steps required by the AM0053 for baseline determination.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_06 was closed. OK**

CAR_DMC_07 - The CPA-DD does not address in section B.5.2 - Project emission, the calculation procedure for project emission due to the incomplete or inefficient combustion of the gases.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_07 was closed. OK**
CAR_DMC_08 - In the CPA-DD, the parameter Nameplate efficiency of the upgrading facility (ηugf), which is supposed to be provided by the manufacturer, is not listed among the "Data and parameters that are available at validation", as required by the AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_08 was closed. OK**
CAR_DMC_09 - No information regarding tools, tests, procedures, survey records, equipment replacement schedule or practices aiming to assure the gas-tightening condition and the systematically identification of leaks, were presented, as required by AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR_DMC_09 was closed. OK**

CAR_DMC_10 - No information regarding monitoring procedure to be established to monitor emergency flare during the periods when the upgrading facility is closed due to the scheduled maintenance, reparation of equipment, or other emergency, were presented as required by AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CAR DMC 10 was closed. OK**
CAR_BQA_1 – Explain how was determined the plant load factor based on EB 48 annex 11.	EB 51 annex 58	As indicated on the work sheet with name "Data sources" within the ER calculation spreadsheet, the source of the ex-ante value used for the Plant Load Factor was determined by the email communication with the generator manufacturer "GE power". The email has been provided attached to this response as evidence under file name "Email of GE Power.pdf". This is in compliance with the "*Guidelines for the Reporting and Validation of Plant Load Factors*" EB48, annex 11, as per option b) of the guideline, under paragraph 3, the ex-ante value of the PLF can be determined by a third party contracted by the project participants (e.g. an engineering company);.	Answer 1 (16/12/2011) The referred document was checked and it was considered acceptable and applicable at the time of investment decision and confirms the input value used in the investment analysis. **CAR BQA 1 is closed**.

CAR_BQA_2 – Provide a spreadsheet containing all the assumptions and input values used in the investment analysis with its respective description and provide the evidences to justify the respective evidence, the description of the evidence and evidence's date. Make sure that all information and evidences are based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. (Total investment, energy price, plant load factor, O&M costs and among others).	VVM 111	DOE to provide the World Bank clarity on the pending issues associated with the Financial Analysis	Answer 1 from 16/12/2011 DOE received evidences to justify and support each of the input values used in the investment analysis. DOE was able to attest that all evidences were available at the moment of investment decision. **CAR BQA 2 is closed**.
CAR_BQA_3 – The benchmark was calculated in nominal terms and the cash flow was calculated in real terms.	VVM 111	CPA-DD-1 updated to reflect the benchmark in real terms.	Answer 1 16/12/2011 The benchmark was calculated in real terms and it is in accordance to the best financial practices. **CAR BQA 3 is closed**.

CL_AVD_01 – Please, inform the present situation of the Kingdom of Spain's approval of the project activity.	VVM 44	The Spanish DNA needs the FVR and the HC LoA to process the Annex I country LoA. Hence, until these processes have been completed the LoA cannot be requested	Until the Kingdom of Spain's LoA is available, this CL cannot be closed. **CL_AVD_01 was not closed.** **23/12/2011** The Spanish DNA needs the FVR and the HC LoA to process the Annex I country LoA. Hence, until these processes have been completed the LoA cannot be requested. **CL_AVD_01 was closed.** **OK**
CL_AVD_02 – How will be defined the distribution of the total quantity of LFG generated for the different applicable scenarios on the CPA's?	PoA Form v1	The following text has been added to section A.4.2.1 of the PoA-DD "The determination of the proportions of the landfill gas to be destined in the different uses will be determined by the availability of gas, and therefore will be described in more detail at the CPA level."	The answer has been accepted. **CL_AVD_02 was closed.** **OK**

CL_AVD_03 – According to section A.2 of Annex 31 of EB 47 "When validating a PoA which seeks to apply a combination of methodologies, the DOE shall submit a request for approval of the application of multiple methodologies in accordance with this procedure prior to the submission of a request for registration. This procedure only relates to the combination of methodologies but not to the application of different scenarios in the PoA. How is this situation going to be faced?	PoA Form v1	N/A	As the methodology AM0053 is not anymore applicable to the project, only one methodology, ACM0001 is applicable. **CL_AVD_03 was closed. OK**
CL_AVD_04 – According to the CDM-PoA-DD, when considering the export of the generated electricity to the grid, the national electricity grid will also be included in the CPA's boundary. Why, when considering the captured gas being used to supply consumers through a natural gas distribution network, this natural gas distribution network is not considered being included in the CPA's boundary?	PoA Form v1	Section E.3 of the PoA DD has the following text when describing what is included in the boundary: The natural gas distribution network, i.e., the system of pipelines that distribute gas without significant transmission constraints, and all the facilities and devices connected directly to it. Section B.4 of the CPA-1 has been modified to include Table 3 from the PoA-DD 1 to clarify that it is part of the project boundary.	Section E.3 of the PoA DD version 2 and Section B.4 of the CPA-1 version 2 have been checked. The information has been confirmed. **CL_AVD_04 was closed. OK**
CL_AVD_05 – Please specify which is the latest guidance is provided by the CDM Executive Board on statistically sound sampling methods/ procedures.	PoA Form v1	100% of the CPAs under the PoA will be verified; therefore the sampling approach has been deleted from the document.	Section A.4.4.2 of PoA version 2 has been checked to confirm: Under this PoA, 100% of the CPAs will be monitored and verified. **CL_AVD_05 was closed. OK**

CL_AVD_06 – Please, inform on item f), the meaning of "CPA PE"	PoA Form v1	The text has been corrected to say Project Implementer	Item f of Section A.4.4.1 of PoA version 1 corresponds to Item g of Section A.4.4.1 of PoA version 2. The information has been checked and the correction made. **CL_AVD_06 was closed. OK**
CL_AVD_07 – Since the wastes are going to be received from Gramacho Landfill, from Seropedica Landfill and from Itaguai Landfill, why the sampling to determine the different waste types has only been made in Gramacho Landfill?	ACM0001 v11	The source for the composition of waste has been corrected to include information published by Rio Prefeitura available online at http://comlurb.rio.rj.gov.br/download/caracteriza%C3%A7%C3%A3o%202009.pdf This is considered to be representative of the waste composition of the waste disposed at the CTR Santa Rosa since the great volume of waste will come from the municipality of Rio de Janeiro. The volumes from Seropedica and Itaguai municipalities are significantly smaller and it is expected that the composition will be similar.	The change in waste composition, considering it based on the information published by Rio de Janeiro City Hall for the year 2009, has been accepted to be used to calculate the ex-ante emission reductions of the project. **CL_AVD_07 was closed. OK**

CL_AVD_08 – Please, explain why MD_{HIST} and MG_{HIST}, included in the methodology ACM0001, version 11, as Data and Parameters not monitored, are not included nor explained the reasons for their not inclusion in both, CDM-PoA-DD and CDM-CPA-DD.	ACM0001 v11	Parameters MD_{HIST} and MG_{HIST}, have been included in the PoA DD, with the note that these will be reported in those CPAs that need to calculate the Adjustment Factor AF.	The information has been checked in Section E.6.3 of the PoA DD version 2. Considering Section B.5.2 of the CPA-1 version 2, AF is determined to be zero and will be reviewed accordingly, at the renewal of the crediting period of the CPA. The answer has been accepted. **CL_AVD_08 was closed.** **OK**
CL_AVD_09 – The DOE did not have access to the concession contract signed between COMLURB and HAZTEC/SERB.	EB 39 Annex 10	Contract sent to the DOE as additional documentation. The company Júlio Simões Transportes e Serviços Ltda is a partner company of the company SERB/CICLUS as can be evidenced in the document: *CL_AVD_09_Estatuto Social SERB*	The concession contract received, nº 318/2003, is between COMLURB and Júlio Simões Transportes e Serviços Ltda. Please, inform which is the relationship between Júlio Simões Transportes e Serviços Ltda and HAZTEC/SERB. **CL_AVD_09 was not closed.** **23/12/2011** The information has been accepted. **CL_AVD_09 was closed.** **OK**
CL_AVD_10 – Please, revise the format of CDM13. It should have been CDM[13].	EB 39 Annex 10	Corrected in the PoA-PDD	The answer has been accepted. **CL_AVD_10 was closed.** **OK**

CL_AVD_11 – The Resolution nº 9, of 20/03/2009, of the Interministerial Commission on Global Climate Change (CIMGC), has a list of 4 (four) local stakeholders that must be consulted. Please inform how have been defined the other 5 (five) local stakeholders that have been asked for comments. Are there any Union or local residents that have not been consulted? Why the Municipal Administration of Itaguai and of Rio de Janeiro have not been invited? Also explain why three of the four local stakeholders listed in the Resolution nº 9 appear in a different way: 1. Fórum Brasileiro de ONG's e Movimentos Sociais para o meio Ambiente e Desenvolvimento – http://www.fboms.org.br (Resolution #9 of the GIMGC) versus Fórum Brasileiro de Movimentos e Organizacões Sociais (FBMOS) / Brazilian NGO Fórum (CPA_DD_1 – Section D.2.); 2. There are no relevant national entities listed in the CPA_DD_1 – Section D.2.; 3. Explain if the correct is Federal Public Ministry of Rio de Janeiro or Federal Public Ministry in Rio de Janeiro. Also the correct is Instituto Estadual do Ambiente and not Instituto Estadual do Ambiental.	VVM 129	- The local stakeholders to be consulted were defined following the Brazilian DNA "Manual de Procedimentos para Submissão de Projetos de MDL à CIMGC", available at http://www.mct.gov.br/index.php/content/view/37142.html. - There is no local or Federal related entity that was not consulted. - According to the Manual, the Municipal Administration that has to be consulted is the one in which the Project is developed. In this case, the municipality of Seropedica, that is why the Municipalities of Itaguaí and Rio de Janeiro were not consulted. - The name "Fórum Brasileiro de ONG's e Movimentos Sociais para o Meio Ambiente e Desenvolvimento". Has been updated in section D.2. - The Federal Public Ministry in Rio de Janeiro and the State Public Ministry were consulted. - The name INSTITUTO ESTADUAL DO AMBIENTE has been updated in section D.2.	Section D.2 of CPA-1 version 2 has been checked and the answer received accepted. **CL_AVD_11 was closed.** **OK**

CL_AVD_12 – Please, inform the present compliance situation of the "Specific Validation Conditions" of the Installation License LI-IN001633 of the CTR Santa Rosa Landfill and whether it has been developed a Monitoring Plan to control those conditions.	VVM 132	The document "Relatório trimestral de Condições de Validade Específicas", describing the current situation and the monitoring plan has been provided to the DOE Please see the provided document CL_AVD_12_*Relatório trimestral de Condições de Validade Específicas.pdf*	The document "Relatório trimestral de Condições de Validade Específicas" has not been received by the DOE. **CL_AVD_12 was not closed.** **23/12/2011** Received the document "Relatório trimestral de Condições de Validade Específicas", describing the current situation and the monitoring plan. This Report is related to the "Licença de Operação LO IN 016380 (Operation License), which had not been received by the DOE. **CL_AVD_12 was closed.** **OK**

CL_AVD_13 – Please, provide the source of the information "Disregarding the CDM projects from the sample of this research, only 3% of the landfills use/flare the gas but are not CDM projects".	EB 39 Annex 10	The source is the "Diagnostic for the urban Solid Waste Management" document (*Diagnóstico do Manejo de Resíduos Sólidos Urbanos*) elaborated by the Brazilian Ministry of the Cities in 2007, Available at http://www.snis.gov.br/ And as per the data and spreadsheets available for this report available at http://www.snis.gov.br/PaginaCarrega.php?EWRErterterTERTer=80 Also made available to the validator as an attachment to this submission. The 3% is not a statement on the documents but was derived based on the information provided by the sources mentioned above. On the spreadsheet provided with this response with name "*Brazil 2009 report on landfills with gas use.xls*", the information from the landfill sites has been filtered by those who indicated "yes" to the question "Use of Gas" on column K. There are 17 sites that answered positively. For those 17 sites, on column B those highlighted have been identified to be CDM projects, where the CDM Ref number has been added individually as a comment to each name of the site. It can be seen that 5 of them are not CDM projects and 2 of them have been withdrawn projects, for a total of 7 non CDM projects. Therefore out of the 267 landfill sites included in the report, disregarding the CDM projects, only 7 indicated to have use of gas. Therefore 7/267 = 2.62 which approximated is equal to the 3% used in the statement.	The information: "Disregarding the CDM projects from the sample of this research, only 3% of the landfills use/flare the gas but are not CDM projects". Could not be found. **CL_AVD_13 was not closed.** **23/12/2011** The answer has been accepted. **CL_AVD_13 was closed. OK**

CL_AVD_14 – The INEA's LP Nº IN000941, of 03/11/2009 is on the name of S.A. Paulista de Construções e Comércio, while INEA's Installation License LI-IN001633, of 08/04/2010, is on the name of SERB – Saneamento e Energia Renovável do Brasil S/A. The evidence of property's transference has not been available to the DOE.	VVM 132	The document "Retificação Processo INEA S.A. Paulista – SERB" giving evidence of the property transference has been submitted to the DOE Please find attached the document CL_AVD_14_*Retificação Processo INEA S.A. Paulista – SERB.pdf*	The document "Retificação Processo INEA S.A. Paulista – SERB" could not be found. **CL_AVD_14 was not closed.** **23/12/2011** The document "Retificação Processo INEA S.A. Paulista – SERB" giving evidence of the property transference has been checked and accepted by the DOE. **CL_AVD_14 was closed.** **OK**
CL_AVD_15 – Revise the CDM-CPA-DD for the "CPA-1: Landfill gas recovery, energy generation and biogas distribution" in a way that the utilization of the names of CPA-1 and of the CTR Santa Rosa Landfill be the same throughout all the document.	PoA Form v1	CPA-PDD has been updated	The answer has been accepted. **CL_AVD_15 was closed.** **OK**
CL_AVD_16 – Please, inform in Section A.4.6 of the CPA – 1 the meaning of CMe.	VVM 56	Section A.4.6 of the CPA-1 has been modified to give the definition of CME	CMe has been replaced by CME, which means "Coordinating/ Managing entity. **CL_AVD_16 was closed.** **OK**

CL_AVD_17 – On Section B.2 of the CPA -1 it has not been available to the DOE evidence that the CPA proponent has signed a loan agreement with Caixa to be part of the PoA and of the confirmation that Santa Rosa Landfill site is neither registered as an individual CDM project nor included in another PoA and that the CPA is subscribed to this PoA.	VVM 56	Section A.4.2.2. of the PoA-PDD has been modified and the CPA does not need to have a signed loan agreement with Caixa to be part of the PoA. Documentation confirming that CPA-1 is not registered as an individual project and that has not been included in another PoA has been provided to the DOE	The documentation confirming that CPA-1 is not registered as an individual project and that has not been included in another PoA has been received by the DOE. **CL_AVD_17 was closed. OK**
CL_AVD_18 – Please, confirm the source of the information of Annex 3 of the CPA -1 referring to table 11, Domestic Waste to be deposited annually in CTR Santa Rosa.	VVM 56	It has been added a footnote with the source: “Edital de concorrência da Comlurb”.	The source of the information has been given in the footnote of Annex 3 of CPA -1. **CL_AVD_18 was closed. OK**

CL_AVD_19 – On item E.6.3 of CDM-PoA-DD, please inform: - Why the source of Data/Parameters of Regulatory requirements relating to landfill gas it is not indicated in the CDM-PoA-DD and why in item B.5.1 of CDM-CPA-DD generic and in CPA – 1 the source of information is the DNA. - The parameters OX should have been defined on the table of CPA – 1. - The value applied for $W_{j,x}$ and DOC_j should have been informed on the table for CPA – 1. - Inform the origin of the value of E_{DS} = 50%. - The value of TDL_y is not indicated on the table for CAP generic. On the table of PoA, TDL_y is informed twice, one referring to the version 01 and the other to the version 02 of the Tool to calculate project emissions from electricity consumption.	CDM-PoA-DD CDM-CPA-DD generic CDM-CPA-DD for CPA – 1	- The parameter for monitoring the regulatory requirements is now indicated both in the PoA-PDD and CPA-PDD. The source of information is public available information. - Parameter OX has been included in CPA-1 - CPA-1 has been updated - Source of the value E_{DS} = 50% has been included in PoA-PDD - The value of TDL has been corrected both in the PoA-PDD and CPA-PDD. The name of the tool has been updated to **"Tool to calculate baseline, project and/or leakage emissions from electricity consumption"**	The information required has been given, other information has been corrected, but in Section E.7.1 of the PoA-PDD version 2, table TDL, in Source of the data to be used, the name of the Tool is not correct. **CL AVD 19 was not closed.** **23/12/2011** In Section E.7.1 of the PoA-PDD version 3, table TDL, in Source of the data to be used, the name of the Tool is now correct: "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01. **CL AVD 19 was closed.** **OK**

CL_AVD_20 – In Section A.4.2 of the CPA -1 it is informed that the expected operational lifetime of the CPA is of 15 years, due to the contract signed between COMLURB and HAZTED/SERB, according to information on sub-step 2b of Section B.3 of CPA -1. In section A.4.3 it is informed that the project is considering a renewable crediting period and in Section A.4.3.2 it is informed that the length of the first crediting period is of 7 years. Although that information, why the presented spreadsheet for ER calculations does not show the full 21-year period? What is it going to happen with the biogas generated by the project activity after the 15 years period of the contract?	VVM 56	Operational lifetime of the CPA-1 has been corrected to 21 years which is the expected lifetime of the equipment	The correction has of the Operational lifetime has been made in the CPA-1 version 2. **CL_AVD_20 was closed.** **OK**
CL_AVD_21 – Please, inform which are the Brazilian national as well as the State laws and regulations on which is based the phrase "Brazilian national as well as state laws and regulations require that an environmental analysis should be performed for any kind of landfill".	PoA Form v1	The sentence ""Brazilian national as well as state laws and regulations require that an environmental analysis should be performed for any kind of landfill" is based on the Decree # 88.351 of the constitution of 1983, which establishes the licensing system and the EIA study and its executive summary - Relatório de Impacto Ambiental (RIMA) - as the pre-requisite for a landfill site.	The answer has not been given. **CL_AVD_21 was not closed.** **23/12/2011** The answer has been accepted. **CL_AVD_21 was closed.** **OK**

CL_AVD_22 – Please, inform why the PoA version 2 and the CPA version 2 have changed their original scope, in comparison with the version 1 of those documents, not considering anymore the CERs from the replacement of the natural gas by the biogas produced by the project. As a consequence, the methodology AM0053 is not anymore applicable to the project.	PoA CPA-1	Given that the intention of the PoA is to scale up the use of landfill gas collection and use systems, reaching a broader audience than the current project by project basis, it has become evident that the pool of facilities that are willing to implement a treatment plant for upgraded biogas is quite small, even taking into account the benefit of the CDM revenues. There are few landfill sites in Brazil, that are not already CDM projects, with the magnitude required for a treatment plant, therefore the CME has decided to make this a more conservative PoA by not claiming credits for the operation of this option, but to leave it as an option on implementation, for those cases that may want to implement the treatment plant under this PoA. As a consequence, only methodology ACM0001 will be used under this PoA.	**23/12/2011** The explanation has been accepted. **CL_AVD_22 was closed.** **OK**

CL_AVD_23 – Please, inform the following: -Why has it been necessary, on November 9th, 2011, to make a second up-load for registration of the PoA "Caixa Econômica Federal Solid Waste Management and Carbon Finance Project", version 3? - Which have been the differences between the up-loaded CDM-PoA-DD version 1 and the CDM-PoA-DD version 3, between the CTR Santa Rosa CDM-CPA-DD version 1.1 and the CTR Santa Rosa CDM-CPA-DD version 3 and between the generic CDM-CPA-DD version 1 and the generic CDM-CPA-DD version 2? -Why are there only two versions of the generic CDM-CPA-DD (version 1 and version 2), while there are three versions of CDM-PoA-DD and of CTR Santa Rosa CDM-CPA-DD?	CDM PoA DD	1. As explained above in CL_AVD_22, given that no credits will be claimed for the operation of a treatment plant for upgraded biogas, it became clear that there was no longer a need to include the combination of methodology AM0053 with ACM0001. The CME has decided to make this a more conservative PoA, hence only ACM0001 will be applied to the PoA-DD. This generated an inconsistency with the information posted on the UNFCCC website, where both methodologies were listed. In order to accommodate the significant changes this entailed and to have the correct information for global comments, a new upload was required, and hence done on 09/11/2011. 2. The main differences between the documents are: a) PoA-DD version 1 to version 3: Elimination of all references and options related to the claim of ERs from the implementation of a treatment plant for upgraded biogas. Changes made in the attempt to comply with all CARs and CLs from the first round of answers to the first protocol, as documented in the above CARs and CLs. b) CTR Santa Rosa CPA-DD version 1.1 to 3: removal of all references to AM0053, and changes made in the attempt to comply with CARs and CLs from the first round of answers to the first protocol as documented in the above CARs and CLs.	**05/01/2012** The answer has been accepted. **CL_AVD_23 was closed. OK**

		c) Generic CPA-DD version 1 to version 2: removal of all options related to methodology AM0053, and changes made in the attempt to comply with CARs and CLs from the first round of answers to the first protocol, as documented in the above CARs and CLs. 3. There are only two versions of the Generic CPA-DD, because no generic CPA-DD was provided on the first round of comments to the DOE, along with the new versions of the PoA-DD and specific CPA-DD, as documented in the above CARs and CLs. This was done because it was thought to be better to close first all CARs and CLs from the PoA-DD and CPA-DD, in order to close the ones for the generic CPA-DD.	
CL_AVD_24 – As the "Licença de Operação LO IN 016380 (Operation License)" has not been received, it must be sent to the DOE.	VVM 132	Please find attached to this submission the document with name *LO IN 16380 - CTR Seropedica.pdf* with the Operation License.	**05/01/2012** The "Licença de Operação LO Nº IN016380 (Operation License)" has been received by the DOE. **CL_AVD_24 was closed. OK**

CL_AVD_25 – Please, clarify the following: - Annex 1 of the CTR Santa Rosa CDM-CPA-DD informs that Haztec Tecnologia e Planejamento Ambiental SA is the Entity responsible for the CPA, while in Section A.3 the information is that the Entity/individual responsible for the CPA is HAZTEC/SERB. Which company, HAZTEC or SERB will be responsible for the CPA?	CDM-CPA-DD Santa Rosa	CDM-CPA-DD-1 has been updated to correct the company responsible for the CPA, which is SERB – SANEAMENTO E ENERGIA RENOVÁVEL DO BRASIL S.A.	**10/01/2012** The required correction has been made and now the information of Section A.3 is consistent with the information of Annex 1 of the CDM-CPA-DD-1. **CL_AVD_25 was closed. OK**
CL_RRC_01 - It is not clear which method is used to estimate electricity generation efficiency.	ACM0001 v11	The ER spreadsheet has been clarified As indicated on the work sheet with name "Data sources" within the ER calculation spreadsheet, the source of the ex-ante value used for the Plant Load Factor was determined by the email communication with the generator manufacturer "GE power". The email has been provided attached to this response as evidence under file name "Email of GE Power.pdf".This is in compliance with the "*Guidelines for the Reporting and Validation of Plant Load Factors*" EB48, annex 11, as per option b) of the guideline, under paragraph 3, the ex-ante value of the PLF can be determined by a third party contracted by the project participants (e.g. an engineering company);.	The answer has not been accepted. The plant load factor must be calculated using Annex 11 of EB 48. **CL_RRC_01 was not closed.** **23/12/2011** The referred document has been checked and considered acceptable and applicable at the time of investment decision and confirms the input value used in the investment analysis. **CL_RRC_01 was closed. OK**

CL_RRC_02 - It is not clear how the project participant is going to monitor the relevant regulations.	ACM0001 v11	The regulations are public information and they form part of the Monitoring Plan agreed by the project participant	The answer has been accepted. **CL_RRC_02 was closed.** **OK**
CL_RRC_03 – The table containing input values (column G lines 4-5-7-8-9-10) of spreadsheet "Injection" from the file "ER_Calculations_Brazil_SantaRosa.xls" does not state references. References must be presented. Concerning to the Plant Load Factor, please refer to Annex 11 of EB 48.	VVM 56	The ER spreadsheet has been clarified As indicated on the work sheet with name "Data sources" within the ER calculation spreadsheet, the source of the ex-ante value used for the Plant Load Factor was determined by the email communication with the generator manufacturer "GE power". The email has been provided attached to this response as evidence under file name "Email of GE Power.pdf". This is in compliance with the "*Guidelines for the Reporting and Validation of Plant Load Factors*" EB48, annex 11, as per option b) of the guideline, under paragraph 3, the ex-ante value of the PLF can be determined by a third party contracted by the project participants (e.g. an engineering company);.	The table Data Sources of the Microsoft Excel WB BRCaixa-SantaRosaLFG ERcalc_110520 provide the references, but the Plant Load Factor provided it is not on compliance with Annex 11 of EB 48. **CL_RRC_03 was not closed.** **23/12/2011** The references have been supplied and the Plant Load Factor informed have followed EB48, annex 11, as per option b) of the guideline, under paragraph 3, the ex-ante value of the PLF can be determined by a third party contracted by the project participants (e.g. an engineering company). **CL_RRC_03 was closed.** **OK**

CL_RRC_04 – The table containing input values (column G lines 4-6-7-8-9-10) of spreadsheet "Electricity" from the file "ER_Calculations_Brazil_SantaRosa.xls" does not state references. References must be presented. Concerning to the Plant Load Factor, please refer to Annex 11 of EB 48.	VVM 56	CL_RRC_04 is equal to CL_RRC_03, please see answer above	CL_RRC_04 is equal to CL_RRC_03. **CL_RRC_04 was closed.** **OK**
CL_DMC_01 - It is not clear in the CPA-DD if the Emissions due to fossil fuel(s) consumption has been considered.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_01 was closed.** **OK**
CL_DMC_02 - It is not clear if the values used for ex-ante calculation (e.g.: energy consumption and flare efficiency) were provided by the equipment manufacturers, as required by the AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_02 was closed.** **OK**

CL_DMC_03 - It is not clear, based in the "ER_Calculations_Brazil_ SantaRosa" spreadsheet, that the ex-ante methane emissions from flaring of vent gas, has taken due account the efficiency of the upgrading process, as required by the AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_03 was closed.** **OK**
CL_DMC_04 - It is not clear based in the "ER_Calculations_Brazil_ SantaRosa" spreadsheet neither in the CPA-DD if the methane not injected in the natural gas distribution grid leaves the upgrading facility in wastewater, has taken due account, as required by AM0053.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_04 was closed.** **OK**
CL_DMC_05 - Although the residual gas come from landfill as stated in the "Tool to determine project emissions from flaring gases containing methane" the PP does not clarify in the PoA-DD neither in the CPA-DD, whether the gas to be flared is free of any other combustible gas than methane, carbon monoxide and hydrogen.	EB 28 Ann 13	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_05 was closed.** **OK**

CL_DMC_06 - It is not clear whether and how the Alternative scenarios as per "Combined tool to identify the baseline scenario and demonstrate additionality", was considered as required by AM0053, once there is no reference to this specific tool neither in the PoA-DD nor in the CPA-DD.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_06 was closed.** **OK**
CL_DMC_07 - It is not clear in the PoA-DD and in the CPA-DD if the measurement of methane emissions in the vent gases was considered in the monitoring plan, as required by AM0053	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_07 was closed.** **OK**
CL_DMC_08 - It is not clear if the parameters wCH4,y (Methane fraction in the landfill gas) presented in the tables "Data and parameters to be monitored" of the PoA-DD and CPA-DD is the same parameter required by the AM0053: wCH4 (Concentration of methane in biogas in year y), that is supposed to be measured at the biogas generation facility	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_08 was closed.** **OK**

CL_DMC_09 - Based in the statement "no CPA under this PoA will use water absorption technology" presented in the item "Ex-post estimations of project emissions" of section E.6.2 of the PoA-DD version 1. It is not clear why this technology is listed in section E.6, pg 26 and section E.2, pg 17 of the PoA-DD v1.	AM0053	N/A	As the CERs from the replacement of the natural gas by the biogas produced by the project are not going to be requested, the methodology AM0053 is not anymore applicable to the project. **CL_DMC_09 was closed.** **OK**

CL_BQA_1 – Clarify with evidences the moment of investment decision, in order to guarantee that the input values are the correct ones at this moment in the project chronology.	EB 51 annex 58	Regarding the first CPA of this PoA, as described in the CPA-DD-1, demonstrated on the site visit, and following the "*Procedures for Registration of a Programme of Activities"* on point (d) of paragraph 7, the start date of the CPA has not happened yet, and as a matter of fact will not happen until there is more certainty on the registration of the PoA and therefore less uncertainty on the inclusion of the CPA. These, as well as the documents that have been presented to the DOE are all evidences that demonstrate that the moment of investment decision is still in the future. Understanding the need to set a moment in time for the DOE to validate the analysis, the PE suggests that this be the moment the documents were uploaded to the UNFCCC website, which reflects the available information at this time upon which the PE will base their decision on to go ahead with the project.	Answer 1 from 16/12/2011 DOE agrees that moment of investment decision is the moment that the documents were uploaded. **CL BQA 1 is closed**.
CL_BQA_2 – Did the project participants rely on values from Feasibility Study Reports (FSR)?	VVM 113	Yes, Please refer to the document "Estudo de Viabilidade do Projeto Biogás Seropédica".	Answer 1 (16/12/2011) All values were checked with the referred evidence. **CL BQA 2 is closed**.