

VALIDATION REPORT

Ecomed Gestion des Dechets

**Fes New Landfill Gas Recovery
Reuse and Flaring Project**

Date of Issue:		Project Number:	
13/03/2014		CDM.VAL2074	
Project Title:			
Fes New Landfill Gas Recovery Reuse and Flaring Project			
Organisation:		Client:	
SGS United Kingdom Limited		Ecomed Gestion des Dechets	
Publication of PDD for Stakeholders Consultation			
Commenting Period:		19/08/2008 to 17/09/2008	
First PDD Version and Date:		Version: 04, Dated: 01/07/2008	
Final PDD Version and Date:		Version: 15.1, Dated: 06/03/2014	
Summary:			
Ecomed Gestion des Dechets has commissioned SGS to perform the validation of the project: 'Fes New Landfill Gas Recovery Reuse and Flaring Project'.			
Methodology Used: ACM0001 "Flaring or use of landfill gas"			
Version and Date: Version-13.0.0 and Date:11/05/2012			
The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Standard (version 05.0), Kyoto Protocol requirements and UNFCCC rules.			
The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.			
The report and the annexed validation describes a total of '22' findings which include:			
<ul style="list-style-type: none"> • 11 Corrective Action Requests (CARs); • 10 Clarification Requests (CLs); • 01 Forward Action Requests (FARs); 			
All findings (CAR and CL) have been closed satisfactorily. FAR #22 is raised to check project implementation of the project activity is in line with the PDD, at the time of verification. Therefore the proposed project will be recommended to the CDM Executive Board for registration.			
Subject:		Document Distribution	
CDM Validation			
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Abbreviations

CAR	Corrective action request
CDM	EB CDM Executive Board
CER	Certified emission reduction
CL	Clarification request
COP/MOP	Conference of Parties/Meeting of the Parties
CUF	Commune Urbaine de Fes
DG	Diesel Generator
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
FAR	Forward action request
FOD	First Order Decay
FSR	Feasibility Study Report
GESS	Green Energy Solutions & Sustainability
GHG	Greenhouse gas(es)
HCA	Host Country Approval
HDPE	High-Density Polyethylene
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LCV	Lower Calorific Value
LFG	Land Fill Gas
LoA	Letter of Approval
MD	Managing Director
MoC	Modalities of Communication
MP	Monitoring Plan
MSW	Municipal Solid Waste
MT	Metric Ton
NA	Not Applicable
NPV	Net Present Value
NTP	Normal Temperature and Pressure
ODA	Official Development Assistance
ONE	Office National de l'Electricité (National Office of Electricity, Morocco)
O&M	Operation & Maintenance
PDD	Project Design Document
PIN	Project Information Note
PP	Project Participant
PPA	Power Purchase Agreement
PS	Project Standard, Version 2.1
QA/QC	Quality Assurance/Quality Control
SV	Site Visit
SWDS	Solid Waste Disposal site
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard, Version 05.0

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Ecomed Gestion des Dechets to perform a validation of the project: Fes New Landfill Gas Recovery Reuse and Flaring Project, in Morocco.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism Validation and Verification Standard (Version 05.0) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The proposed project activity includes the installation of enhanced landfill gas extraction and flaring equipment for the destruction of the landfill gas, using the landfill gas; and the installation of electricity generation (3.0 MW) equipment for the production of onsite electricity using also the landfill gas.

By maximizing the capture and destruction of landfill gas (LFG) from the new landfill site the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology ACM001^{7/} version 13.0.0. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project is estimated to be 1,185,533 tCO₂e over a 10 year crediting period, averaging 118,553 t of CO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

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

Signed on Behalf of the Validation Body by Authorized Signatory

Signature:



Name: Siddharth Yadav

Date: 13/03/2014

2. Introduction

2.1 Objective

Ecomed Gestion des Dechets has contracted SGS to perform the validation of the project: Fes New Landfill Gas Recovery Reuse and Flaring Project with regards to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

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

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

2.3 GHG Project Description

The Project activity includes the installation of enhanced landfill gas extraction and flaring equipment for the destruction of the landfill gas, and the installation of electricity generation (3.0 MW) equipment for the production of onsite electricity using also the landfill gas.

Each and all of these activities involve the combustion of methane contained in the landfill gas, therefore, they will all lead to the reduction of greenhouse gas emissions.

2.4 The Names and Roles of the Validation Team Members

Assessment Team	Role
Vikas Bankar	Lead Assessor
Rekibuddin Ahmed	Assessor
Natacha Andre	Local Assessor
Chandra Prakash Singh	Financial Expert
A T Surendra	Sectoral Scope Expert TA 13.1

Technical Review	Role
Ramkrishna Patil	Technical Reviewer
Sameer Rege	Sectoral Scope Expert TA 13.1

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project design document version 04 dated 01/07/2008 (first document submitted to SGS for validation and webhosted document see section 5 of this report) and the subsequent versions (version 05 (dated 31/04/2009), version 03* (dated: 11/05/2010), version 04* (dated 27/09/2010) version 06 (dated 14/04/2011) version 07 (dated 14/08/2011) version 08 (dated 31/01/2012) version 09 (dated 31/07/2012) & version 10 (dated 15/03/2013) version 11 (dated 30/04/2013) version 12 (dated 10/07/2013), version 13 (dated 05/08/2013), version 14 (dated 05/09/2013) version 14.1 (dated 10/09/2013), Version 15 (dated 28/02/2014) and version 15.1 (dated 06/03/2014).

It is noteworthy that there was an error while sequencing the PDDs (marked * in above paragraph) submitted by the PP to DoE. This issue has been discussed under finding CL 18, under section 4.4 of this report. All versions have been kept for transparency and audit trail. The assessment is performed by trained assessors using a validation protocol attached as Annex 2, table 2.

The site visit was performed on 03/11/2008 & 04/11/2008. The discussion of all the findings raised have been included in the Annex 3 of this report.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Standard, Version 05.0. It serves the following purposes:

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

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

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

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

3.3 Findings

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

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

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

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

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

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

As indicated in section A.3 of the PDD^{/1/} version 04, the Host Party for the proposed project activity is Morocco. Morocco has ratified the Kyoto Protocol on 3rd April 2002. The letter of approval^{/2/} dated 29/12/2009 has been issued by the Host country (Morocco), DNA for both the Project Participants i.e. Ecomed Gestion des Dechets (private entity) & Commune Urbaine de Fes (public entity). The HCA has been submitted by the PP. The information of the DNA of Morocco, such as DNA Address and Contact Person which was referred in the letter, has been confirmed from the information provided on the UNFCCC webpage: <http://cdm.unfccc.int/DNA/index.html>^{/8/} and was found to be consistent with the HCA letter^{/2/}.

The letter of approval is clear, transparent and confirms the ratification year of Kyoto Protocol by the Host Party, voluntary participation of the proposed CDM project activity and contribution to sustainable development of the Host Country. The aforementioned letter of approval does not contain any additional information regarding the PDD^{/1/} of the proposed project activity. Thus the project activity has met the requirement of paragraph 39 of VVS version 05.0.

The authenticity of LoA^{/2/} was further cross checked from the DNA of Morocco via email communication^{/77/} dated 13/09/2012. The DNA of Morocco confirmed the issuance of the LoA, dated 29/12/2009 to the project activity. Further the status of the project was also checked from the DNA website^{/44/} (http://www.minenv.gov.ma/PDFs/Portefeuille_MDP.pdf), which has listed the project as under “validation” project. A screen shot^{/63/} of the website has been included in the section 7 of this report.

The HCA letter^{/2/} clearly stated the four major requirements as indicated by Paragraph 39 of VVS version 05.0^{/6/} which was checked and it was concluded that Morocco is a Party to the Kyoto Protocol; the participation in the proposed CDM project activity is voluntary and assists Morocco in achieving sustainable development. The letter of approval^{/2/} has also indicated the precise title of the project activity that is being submitted along with this Validation Report and is unconditional. This is in accordance with paragraphs 39-42 of VVS version 05.0^{/6/}.

It is noteworthy that during validation process it has been observed that there are two Letter of Approvals issued for the proposed project activity (Fes New Landfill Gas Recovery Reuse and Flaring Project) issued by Moroccan DNA:

1. Initial Letter of Approval, dated 13/06/2008 (this LoA was checked in original during site visit by the assessment team)
2. Revised final Letter of Approval, dated 29/12/2009 (the authenticity of this revised final LoA has been duly checked as discussed above)

Both the Letter of Approvals are endorsed and signed by Mr. Abdelkbir ZAHOU, Secretary of State in charge of Water and Environment as the appointed Designated National Authority of Morocco for the Clean Development Mechanism. The authenticity and consistency between both the Initial Letter of Approval, dated 13/06/2008 and Revised final Letter of Approval, dated 29/12/2009 as issued by Moroccan DNA has been cross verified with reference to the Project Title (Fes New Landfill Gas Recovery Reuse and Flaring Project), name of the Project Participants (ECOMED Gestion des Dechets and Commune Urbaine de Fes) and the text of the LoAs.

The project title (Fes New Landfill Gas Recovery Reuse and Flaring Project) and the name of the PP (Ecomed) is found completely consistent between both the LoAs and it has been observed that only the name of another Public entity (Commune Urbaine de Fes) has been included as the PP under the revised final Letter of Approval issued by Moroccan DNA dated 29/12/2009 and the remaining text of both the old Letter of Approval dated 13/06/2008 and revised new Letter of Approval dated 29/12/2009 are completely identical and consistent.

Therefore the revised final Letter of Approval, dated 29/12/2009 has been considered by the assessment team to finalise the validation opinion.

Discussion of CAR/CL:

CAR 01 was raised as follows-

CAR 01 was raised asking the PP to submit the Letter of Approval^{/2/} (LoA) for the project activity from the Designated National Authority (DNA) of Morocco.

During the validation process assessment team found that, PP had deleted the private and public entity details from the intermittent PDD^{/1/} version 04 dated 27th Sep 2010, whereas the immediate earlier submitted PDD^{/1/} version 03 dated 11th May 2010 mentioned both the entities (private and public). The PP was asked to justify the deletion. The title of the project activity in the LoA and revised PDD^{/1/}, version 03, dated 11th May 2010 was also not consistent.

The PP was requested to include the date of issue of the DNA letter in which both the PPs have been mentioned by name, under section B.5 of the PDD. The PP was also requested to clarify, why the length of the crediting period was mentioned as 21 years in the LoA (which is indication of renewable crediting period), whereas the actual length of the crediting period is mentioned as 10 years in the PDD (which is an indication of fixed crediting period).

The PP was also asked to submit a revised MoC^{/3/} completed on the latest version (version 02.1) of the MoC template that is available on the UNFCCC website.

Response from PP:

Responding to CAR 01 the PP provided the LoA for both the Project Participants, i.e., Ecomed Gestion des Dechets & Commune Urbaine de Fes dated 29/12/2009, issued by the Ministry of Water and Environment, Morocco (DNA of Morocco). This was checked by the assessment team and was found to be correct.

The authenticity of LoA^{/2/} was further cross checked from the DNA of Morocco via email communication^{/77/} dated 13/09/2012 and DNA website^{/44/} (http://www.minenv.gov.ma/PDFs/Portefeuille_MDP.pdf) listed the project as under “validation”^{/63/} project. The DNA of Morocco has duly confirmed the issuance of the LoA, dated 29/12/2009 to the proposed project activity being developed by the Project Participants.

The PP made the necessary corrections in a revised PDD^{/1/} and mentioned both the private and public entities. The title of the project activity was also made in line with the LoA Letter^{/2/}. This has further been discussed in section 4.4 of this report. The title of the project activity as mentioned in the final version of the PDD, is matching with the LoA^{/2/} of the project activity. This was checked by the assessment team and was found to be correct.

Furthermore, in response the PP confirmed that the LoA Letter was signed on December 29, 2009 and forwarded to the PPs on December 31, 2009. Initially the PPs were planning to use a crediting period of 21 year but changed to 10 year instead as the project was delayed in the validation process. Therefore, the extraneous information in the LoA is merely a reflection of what was appropriate at that point of time based on the PDD then provided. However, it is not a condition of the LoA for the project participant to keep the same crediting period. Further, the LoA is still specific to the project title and the PPs. This was checked and confirmed by the assessment team.

In continuation, the MoC^{/3/} dated 30/04/2013 as submitted by the PP was also checked by the assessment team and it was found to be in the latest MoC template (Version 02.1). This was accepted by the assessment team. Thus CAR 01 was **closed**.

Opinion

With reference to paragraph 38 of VVS, version 05.0, the assessment team validated and confirmed that the designated national authority (DNA) of the Party indicated as being involved in the proposed CDM project activity in the PDD is Morocco and the DNA has provided a written letter of approval^{/2/}, in the name of both the project participants as mentioned in the PDD.

Further the LoA letter was checked for its compliance of paragraph 39 of VVS, version 05.0, and the assessment team concluded that the LoA letter has met the requirements of paragraph 39.

The assessment team also confirmed that the approval is unconditional with respect to paragraph 39 (a) to (d) of VVS version 05.0. The assessment team also confirms that the letter of approval has been issued by the host country DNA and is valid for the proposed project activity under validation.

The validation team confirms that the LoA^{/2/} submitted by the PP is in compliance with the requirements of paragraphs 39-42 of the VVS version 05.0^{/6/}.

4.2 Authorization

The host Party for this project is Morocco. Morocco has ratified the Kyoto protocol on 3rd April 2002. The Project Participant has provided the Host country DNA approval letter^{/2/} as mentioned above in section 4.1. No Annex I Party has been identified in the PDD^{/1/} and therefore no further Letter of Approval was available. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex 1 Party, a Letter of Approval from Annex 1 Party will need to be submitted. The name of the Project Participants are “Ecomed Gestion des Dechets” (private entity), “Commune Urbaine de Fes”, (public entity). They are listed in tabular form in section A.4, of the PDD^{/1/} and also, this information was found to be consistent with the contact details provided in Appendix 1 of PDD^{/1/}. Thus the project activity meets the requirement as set out in the VVS version 05.0^{/6/}, paragraph 45-48.

Opinion:

The assessment team has confirmed that the project participants for the proposed project activity have been authorised by DNA of Morocco in a letter of approval^{/2/}. The project participant is listed in tabular form in section A.4 of the PDD^{/1/} and this information is consistent with the information provided in the Appendix 1 of the PDD^{/1/}. No entities other than those authorised as project participants are included in these sections of the PDD^{/1/}.

The assessment team further confirms that the approval of participation has been issued from the relevant DNA. The authenticity of LoA^{/2/} was cross checked from the DNA of Morocco via email communication^{/77/} dated 13/09/2012. The DNA of Morocco confirmed the issuance of the LoA, dated 29/12/2009 to the project activity. Further the status of the project was also checked from the DNA website^{/44/} (http://www.minenv.gov.ma/PDFs/Portefeuille_MDP.pdf), which has listed the project as under “validation” project. A screen shot^{/63/} of the website has been included in the section 7 of this report. This is in line with the requirement of paragraph 45-48 of VVS^{/6/} version 05.0.

4.3 Modalities of Communication and MoC Statement

The corporate identity of the Project Participants and focal points have been included in the MoC statement provided by the PP. The assessment team confirms that MoC statement signed by the PPs, dated 30/04/2013 has been correctly completed and signed by authorised signatory. The assessment team also confirms that:

The latest version (version 02.1) of the form “Modalities of Communication Statement” (F-CDM-MOC) has been used. The information required as per the F-CDM-MOC, including its annex 1 is correctly completed. The Project Participants authorised signatories signing the F-CDM-MOC correspond to the project participants authorised signatures included in the Appendix 1 of the final version of the PDD (version 15.1, dated 06/03/2014).

Discussion of CAR/CLs:

CAR 01 was raised related to the MoC document submitted by the PP, this finding has been discussed above under section 4.1 of this report.

Opinion:

The assessment team confirms that the validation of the MoC^{/3/} document submitted by the PP was done as per paragraph 54-57 of VVS, Version 05.0, and the MoC^{/3/} form has been filled out as per the requirement.

4.4 Project Design Document including Project Description

The PDD has been prepared using latest project design document form for CDM project activities (F-CDM-PDD), version 04.1 as available in UNFCCC website (http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form05.pdf). Further assessment team also confirms that the PDD was prepared as per the requirement of Guidelines for completing the project design document form (version 01.0), EB 66, Annex 8.

The PDD^{/1/} mentions the unique name of the project activity, “Fes New Landfill Gas Recovery Reuse and Flaring Project”. The title of the project activity as mentioned in the final version of the PDD, is matching with the LoA^{/2/} of the project activity. This is in line with the requirement of VVS, version 05.0, paragraph 39 (d), which states that the LoA should refer to the precise proposed project activity title in the PDD being submitted for registration.

It is worth mentioning that the title of project activity as appears in the final version of the PDD is different from the title as mentioned in the webhosted PDD for global stakeholders' comments <http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html>. The initial title “Fes New Landfill Gas Recovery Reuse and Flaring Project – Fes, Morocco” as mentioned in the webhosted PDD (version 04) was later changed to “Fes New Landfill Gas Recovery Reuse and Flaring Project”. This was done by the PP to ensure consistency with the LoA issued to the project activity by the host DNA. The assessment team by verifying the LoA^{/2/} and the information available on the UNFCCC website (<http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html>) confirms that it is the same project, hence the assessment team observed no issues with the change in project title of the project activity. This issue was also discussed under **CAR 01** in section 4.1 of this report. It is confirmed that the PDD^{/1/} was prepared in accordance with the ‘Guidelines for completing the simplified project design document (CDM-PDD) version 01.0 (as per EB66, Annex 8) and– the latest CDM PDD template version 04.1 as available on website: http://cdm.unfccc.int/Reference/PDDs_Forms/index.html. The table for mentioning the Project Participants has been correctly mentioned in the PDD^{/1/} (final version), in section A.4., which is as per VVS^{/6/}, version 05.0, Paragraph 62.

The proposed CDM project activity is located in the city of Fes, Northeast of Morocco. The location of the project activity is 34°00'20.7"N and 4°56'1.5"W which has been checked from the website (<http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=34.000000&lon=-4.930000&setLatLon=Set>) and was found to be correct.

Assessment on project description:

The description of the proposed CDM project activity as contained in section A.1 of the PDD^{/1/} version 04, dated 01/07/2008 (Webhosted Version) as well as the subsequent version (in particular final version, 15.1 dated 06/03/2014) sufficiently covers all relevant elements accurately and it is consistent with details provided in further chapters of the PDDs.

The objective of the Project is the capture and destruction of landfill gas (LFG) from the new landfill site in order to reduce the potential local impacts of odours, explosions and fire hazards associated with landfill gas, and to reduce the fugitive emissions of greenhouse gas methane contained in the landfill gas which contributes to global climate change.

The proposed project activity includes the installation of enhanced landfill gas extraction and flaring equipment for the destruction of the landfill gas along with installation of electricity generation (3.0 MW) equipment for generation of electricity using captured landfill gas.

The project activity involves the following components-

Landfill Gas Collection system:

The gas collection system consists of Horizontal Wells, Vertical Wells, Collection Piping, Condensate Management and Blowers. Sophisticated portable gas monitoring equipment, fitted with in-built data logging facility and data retrieval to a PC will be used in the day-to-day operation of the system.

The details of piping were checked from the quotation^{/33/} provided from Plastima, dated 03/01/2006 to Ecomed (the PP). This was further cross-checked from the technical specification of pipes^{/70/} dated 01/06/2011 & 01/07/2011 as purchased by PP from Plastima. The details of the HDPE pipes as mentioned in the quotation were found to be consistent with the technical specification details^{/70/} of pipes purchased for the project activity. Thus the information of the gas collecting system provided by the PP was found to be correct.

Landfill Gas Flaring:

The Project Developer has designed and installed skid / base mounted and mobile gas flares for burning LFG for over twenty years. Enclosed stacks provide conditions for high temperature combustion to effectively destruct methane with other combustible LFG components and meet low emission regulations in accordance with latest best practice guidelines issued by USA EPA^{/66/}.

The details of the gas flaring system was checked from the quotation^{/31/} provided by John Zink Company LLC, dated 02/03/2006. It involves one Pilot Gas Control System including a pressure regulator, fail-closed shutdown valve, manual block valve, and pressure indicator, one eccentric *Enardo* Flame Arrester with aluminium housing, one purge air blower, A-36 carbon steel flare stack enclosure & Biogas Burners with stainless steel anti-flashback tips and maximum flame stability through the full range of design flow rates. It also includes Automatic Ignition and Control Station for proper and efficient burning of LFG. This was checked by the assessment team and was found to be correct.

Electricity Generation:

The proposed project activity will involve installation of gas engines of 3 MW electricity generation capacity (8 units of 375 kW each) to produce electricity for on-site consumption and/or export to the grid. This was checked from the quotation^{/56/} provided by Kraft Power Corporation, dated 02/02/2006 and the information provided in the PDD^{/1/} was found to be consistent with the quotation from the supplier.

The project activity is expected to reduce 22,206 tCO₂ during the first year and a total of 1,185,533 tCO₂ during its entire crediting period.

The project design includes gensets modules of 375 KW as specified in Section A.3 of the revised PDD. The 165 KW module will be considered to be used only as a temporary genset until more gas is available and the registration of the project is obtained. The cost of this temporary engine is not considered in the investment analysis. If more gas would be available the sizing of remaining engines would be reviewed at later stage after the project registration; and if there are any changes, these can be considered as per the post registration process defined by the CDM EB. This was found to be a conservative approach and was accepted by the assessment team.

It is worth noting that earlier the PP was planning to install one leachate evaporator system as part of the project activity. However, as per the response provided to CAR 21 (discussed under section 4.8 of this report), the PP has confirmed that evaporator or any other heat generating equipment for the treatment of landfill leachate by utilisation of captured landfill gas will not be installed as a part of the project activity. With reference to the description made under section A.3 of the earlier submitted PDD, version 14.1 dated 10/09/2013, in the pre-project scenario there was neither any fossil fuel based heat generating equipment nor any existing fossil fuel based leachate evaporation equipment in place, as the collected leachate are left as such to get sun dried. The pre-project on site leachate handling process has been also duly verified on-

site by the assessment team during associated validation site visit. Thus the intended implementation plan for evaporation system does not replace any fossil fuel based heat generating equipment/ system and vis-à-vis GHG emissions in the baseline scenario exclusively due to the implementation of proposed leachate evaporation system and the GHG emission avoidance related to the use of captured LFG under leachate evaporation system only forms the part of the total baseline emission reduction due to methane emission avoidance due to the total LFG captured from the landfill site.

At the time of validation site visit conducted during 03/11/2008 to 04/11/2008 it was physically validated that there was no implementation/ installation done for the proposed project activity at the designated landfill site. As on March 2014, the project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed. The captured LFG flaring system has also been installed and commissioned in the site on 20/01/2011, this was checked from the commissioning certificate of the flaring system dated 20/01/2011^{71/}. However the PP is yet to install any downstream captured LFG utilisation component of the project activity and procurement of the relevant equipments are yet to be done. This has been further supported by the self declaration letter^{86/} from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014,

Therefore at this stage, the PP has voluntarily decided to exclude leachate evaporation system component by utilising captured LFG from the proposed project implementation plan to avoid any perceived contradiction with CDM requirements, as CDM revenue is essential towards implementation of the proposed project activity. Accordingly, the PP has further submitted revised PDD version 15.1 dated 06/03/2014 which includes the implementation plan for gas engines for electricity generation and LFG flaring activities only as a part of the utilisation of captured LFG under the proposed project activity.

The Delegated Management Agreement, dated December 2001^{18/} signed between landfill owner Fes Urban Community and the operator Ecomed (PP) was checked by the assessment team to confirm if there was any specific requirement for treating the landfill leachate of Fes landfill site. The article 19 in page no 11 of the Delegated Management Agreement states that the PP is required to treat the leachate, however it does not specify any special requirement, how the leachate should be treated.

The assessment team has also checked an English translation of the host country regulation related to management and disposal of wastes, Solid Waste Law N 28-00, dated December 2006^{43/} and it was confirmed that there is no host country regulatory stipulations that mandates treatment of landfill leachate and that too with specific treatment processes such as evaporation technology, etc. This context has been also confirmed based on the local knowledge and expertise of assessment team.

The assessment team has checked the revised PDD, version 15.1, dated 06/03/2014 and confirmed that the PP has removed the description of related to heat generation component utilising captured LFG from all respective sections of revised PDD and the description of the project activity is now consistent throughout the PDD.

Since the proposed project implementation is yet to be completed, the assessment team has raised FAR #22 in this regard to check the compliance on the actual implementation status of the project activity at the time of post registration first verification. The FAR raised is related to implementation status of the project activity only and is not related to the CDM requirements for registration of the project activity. Thus the FAR raised is in line with the requirement of paragraph 27 of VVS, version 05.0. The verifying DOE will assess the implementation of the project as per the description provided in the PDD (version 15.1, dated 06/03/2014) at the time of first verification of the project activity.

The technical description in the PDD^{1/} has been found accurate and complete. This was confirmed by the assessment team during the validation site visit and also cross checked from the documentary evidences such as the feasibility study report and quotations provided for the project activity, along with that the capacity and the technical specification of turbo-generator has been verified from the quotation from the technology supplier. As the project has not been implemented or commissioned yet, the actual installations could not be verified by the assessment team.

Regarding the implementation status of the project activity, the PP confirmed that, the gas collection system pipes for the LFG wells and one unit of enclosed flare system has been purchased by the project participant.

This was checked from the purchase details^{/70/} of one set of pipes and the purchase orders^{/85/} of another set of pipes dated 22/04/2010, 20/04/2010 & 16/04/2010 from technology supplier PLASTIMA. Furthermore, the flaring system has already been installed in the project site. This was checked from the commissioning certificate^{/71/} of the flaring system dated, 20/01/2011. This was also confirmed from the self declaration letter^{/86/} dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the implementation status of the proposed project activity, confirming the implementation schedule of the project activity. The PP has not installed any gas engine yet and it will be installed between 9-12 months after the project is registered with UNFCCC and after assessing the gas availability. Therefore, initially after the registration of the project activity, the flaring would be the key activity; and based on internal evaluation, the gas engines of capacity 375 kW each would be procured as per the need of up to 3 MW. This was checked by the assessment team during the validation site visit & by interviewing plant personnel during the site visit, (a list of personnel interviewed during site visit has been mentioned in section 6 of this report). The PP confirmed that the proposed CDM project activity and its components as depicted under section A.3 Table 1 would be completely installed within the 1st year of the crediting period. Thus the PP has clearly mentioned the implementation status of the project activity and this is as per the requirement of paragraph 30 of Clean Development Mechanism Project Standard, version 05.0.

Discussion of CAR, CLs & FAR:

CAR 02 was raised as follows-

The PP was requested to write the geographical co-ordinates (latitude and longitude of the site) of the project activity in section A.2.4 of the PDD^{/1/}. The PP was also requested to mention the capacity of landfill gas extraction system, capacity of landfill gas flaring system, number of flares, capacity of power plant, number & capacity of biogas engines in section A.4.3 of the PDD^{/1/}. Furthermore, the PP was requested to provide a declaration regarding the involvement of public funding in the project activity.

The closure of CAR 02:

The geographical co-ordinates are now provided in DMS format, this was checked from the revised PDD^{/1/}, version 10, dated 15/03/2013. The geographical coordinates 34° 00' 20.7"N, 4° 56' 1.5"W provided in the PDD are correct; this was checked by the assessment team from the <http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=34.000000&lon=-4.930000&setLatLon=Set>. Thus this was accepted by the assessment team. Thus CAR 02 was **closed**.

CL 18 was raised as follows-

The PP was requested to correct the PDD^{/1/} version numbers and make it sequential with previous submission. The sequential versions numbering of the PDD submitted by the PP are as follows-

- PDD version 04, 1st July 2008 – Webhosted on 19th August 2008
- PDD version 05, 13th April 2009- 1st PP Response to Findings dated 18/06/2009
- PDD version 03, 11th May 2010 - PP Response to Findings dated 10/05/2010
- PDD version 04, 27th September 2010 - PP Response to Findings dated 27/09/2010 (actual mail received on 10/02/2011)

The version numbering are not following sequentially for the revised PDD. The PP was requested to ensure document control was followed for future revisions.

Addressing CL 18, the PP updated the date and version number of the revised PDD^{/1/}. The next version submitted by the PP was PDD, Version 06, dated 14/04/2011. This was checked by the assessment team and was found to be acceptable. Now the sequence of the PDD version number stands as-
PDD version 04, 01/07/2008 – (Webhosted)

- PDD version 05, 13/04/2009- 1st PP Response to Findings dated 18/06/2009
- PDD version 03, 11/05/2010 - PP Response to Findings dated 10/05/2010
- PDD version 04, 27/09/2010 - PP Response to Findings dated 27/09/2010
- PDD version 06, dated-14/04/2011
- PDD version 07, dated 14/08/2011
- PDD Version 08, dated 31/01/2012

- PDD version 09, dated 31/07/2012
- PDD version 10, dated 15/03/2013
- PDD version 11, dated 30/04/2013
- PDD version 12, dated 10/07/2013
- PDD version 13, dated 05/08/2013
- PDD version 14, dated 05/09/2013
- PDD version 14.1, dated 10/09/2013
- PDD version 15, dated 28/02/2014
- PDD version 15.1, dated 06/03/2014 (final version)

Thus CL 18 was **closed**.

CL 20 was raised as follows-

The length of crediting period is mentioned as 10 years under Renewable crediting period in PDD, version 03, dated-11/05/2010, however, the maximum length for each renewable crediting period is only 7 years. The PP was requested to clarify why a renewable crediting period of 10 years was mentioned in the PDD.

The PP was further asked to clarify the below mentioned details:

1. The start date of the renewable crediting period was not mentioned.
2. The length of the crediting period was incorrectly mentioned as the length of three renewable crediting periods (7+7+7 years). The PP is requested to correct as per CDM guidance.
3. PP was requested to clarify why ER calculation was not done for all the years of the crediting period.

Further the PP was also requested to show the investment decision date in Section B.5 of the revised PDD.

The closure of CL 20:

Addressing CL 20, the PP corrected the crediting period of the project activity to fixed crediting period of 10 years. The PP has also put a futuristic start date (01/10/2013 or date of registration whichever is later) for the crediting period, and accordingly the ER calculation for the entire crediting period has been done. Since the crediting period has now been revised to a fixed crediting period of 10 years, it is shorter than the project lifetime and hence no adjustment of the ER calculation is required. Further, the PP revised the PDD and the investment decision date has been correctly put as 04/08/2006. This is the date on which the project was approved by the Ministry of Interior of Morocco. The signed agreement^{34/} (ADDENDUM NO.2 TO AGREEMENT NO.1/2002) was submitted by the PP. This was checked by the assessment team and was accepted. Thus all the issues raised under CL 20 were adequately addressed by the PP and accepted by the assessment team, thus CL 20 was **closed**.

FAR 22 was raised as follows-

The PP had confirmed that they will not install Leachate evaporator system by utilising captured landfill gas under the proposed project activity. Since the proposed project implementation is yet to be completed, the assessment team has raised FAR 22 in this regard to check the compliance on the actual implementation status of the project activity at the time of post registration first verification.

Opinion:

The PDD satisfies the requirements of paragraphs 62 & 64 of VVS^{6/} version 05.0. The PDD used as a basis for validation has been prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. The PDD contains a clear description of the project activity that provides a clear understanding of the precise nature of the project activity. This description was found to be accurate and complete. All details have been consistently mentioned throughout the PDD.

With reference to paragraph 69 of VVS, version 05.0, the assessment team confirms that the accuracy and completeness of the project description was checked during the validation site visit. Further, plant personnel were interviewed by the assessment team to confirm the accuracy and completeness of the project

description. Further, documentary evidences as mentioned above were also used as cross checked to confirm the accuracy and completeness of the project description. Thus on the basis of the assessment during the site visit and subsequent cross checking of documentary evidences, the assessment team concluded that the completeness of the project description is correct and consistent.

Main changes and reason for revision between the final PDD against the first version published for the international stakeholder consultation	
PDD Version no.	Description and reason for changing the information in that section
Version 04, dated 01/07/2008 (VVM Track)	Webhosted Version
PDD Version 15.1, dated 06/03/2014 (VVS Track)	Correction in the project title in line with CAR 01.
	Section A.1: Implementation status and timeline of the project activity in line with CAR 21
	Section A.3: Technical description of the project activity modified
	Section A.5 & Appendix 2: Confirmation on the no public funding involvement added in line with CAR 2
	Geo Co-ordinates of the project activity corrected in line with CAR 02
	Section B.2 & B.4: Description on applicability of methodology and baseline scenario determination revised, in line with CL 3
	Section B.3: Revision in the project boundary and emission sources in line with CAR 04 & CAR 05
	Section B.6.1: Revision of grid emission factor calculation in line with CAR 05
	Section B.4: Description on baseline scenario determination revised in line with CAR 06
	Version of the applied Tool for demonstration of Additionality updated in line with CL 07
	Section B.5: Description on project start date consideration and prior consideration of CDM added in line with CAR 08
	Revised PDD section C.1.1, C.2.2.1 in line with CAR 08
	Section B.5: Revision of investment analysis description in line with CAR 09
	Section B.5: Exclusion of project additionality demonstration as barrier due to first of its kind in line with CAR 10
	B.6.3: Revision of ex-ante emission reduction calculation in line with CAR 11
	B.7: Correction in the Monitoring plan in line with CAR 11 & CAR 12
	B.7.1: Correction in monitoring parameter abbreviations in line with CL 13
	B.7.1: QA/QC procedures included in the monitoring plan in line with CAR 14
	Section E: Local stakeholder consultation details modified in line with CL 17
	Section B.7: Revision in monitoring plan in line with CAR 19
	Section B.6.1: Description on methodological choice for ER calculation revised in line with CAR 19
	Section B.6: Emission Reductions have been updated with revised and updated tools in line with CAR 19
	Section C.2: Length of the crediting period modified in line with CAR 20
	Section A.1, B.2 & B.4: Revision related to clarified description regarding to emission reduction consideration due to combustion of LFG gas in the leachate evaporation system through avoidance of methane emissions, in line with CAR 21. However leachate evaporation component is not a part of project activity in the final PDD. Detailed discussions can be referred to in section 4.3 of this validation report.
	Section B.6.1 and B.6.2: Revision related to description on determination of the grid emission factor following provision as per the Option A2 of "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" Version 1, in line with CAR 21

Main changes and reason for revision between the final PDD against the first version published for the international stakeholder consultation

Section A.3: The project description was revised; heat generation component has been removed.
Section B.2: The applicability criterion has been revised as there is no heat generation component in the project activity now.
Section B.3: The project boundary was revised as result of the revision in project description under section A.3.
Section B.4: The alternative scenario was modified and more justification has been provided on why alternative scenario LFG3, LFG4 & LFG5 has been discarded.
Section B.5: The equity IRR and the sensitivity analysis was revised as the project cost due to leachate evaporator was not considered in the total project cost.
Section B.7.1: additional monitoring parameters were added

All these revision were made in line with CAR 21.

4.5 Applicability of selected methodology to the project activity

The proposed project activity confirms to the requisite applicability criteria of ACM0001, version 13.0.0, under sectoral scope 13 (Waste handling and disposal) and the justification for the applicability criteria has been mentioned clearly in the PDD^{/1/}. The Project's objective is the capture, utilisation and destruction of landfill gas (LFG) from the landfill site in order to generate electricity using gas engines and also to reduce the potential local impacts of odours, explosions and fire hazard associated with landfill gas, and to reduce the fugitive emissions of the greenhouse gas methane contained in the landfill gas which contributes to global climate change.

The applicability of the project activity with regard to the applied methodology ACM0001^{/7/}, version 13.0.0. was assessed as follows-

Applicability Criteria	Assessment
This methodology is applicable to project activities which:	
(a) Install a new LFG capture system in a new or existing SWDS; or	<p>The proposed CDM project activity involves installation of a new LFG capture system in an existing SWDS, therefore complies with the condition.</p> <p>The project equipment supply quotation^{/31/} submitted by the technology supplier, John Zinc Company LLC was checked and it was found that the PP has installed new LFG capture system. Also it was confirmed during the site visit that the project is on existing SWDS. This was found to be consistent with the applicability criteria (a) and thus accepted.</p>
(b) Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that:	<p>The proposed CDM project activity does not aim at investing into an existing LFG capture system but to install a new LFG capture system at the project site. In the absence of the project activity, the LFG capture system at the project site would have been vertical pipes only, that give passage to the LFG generated underneath the landfill. However, these systems are not intended or designed to capture the LFG for any useful purposes such as flaring or utilising in the gas engines. Therefore, this applicability condition is not relevant in the case of this proposed CDM project activity.</p>
(i) The captured LFG was vented or flared and not used prior to the implementation of the project activity; and	The proposed project activity involves the installation of new LFG recovery and flaring system at the existing Landfill site as discussed
(ii) In the case of an existing	

<p>active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flared is available.</p>	<p>above and based on the validated objective documentary evidences, such as quotation^{/33/} from Plastima for the piping arrangement to be installed at the project site. Hence this applicability criterion is not applicable to the project activity.</p>
<p>(c) Flare the LFG and/or use the captured LFG in any (combination) of the following ways:</p> <ul style="list-style-type: none"> (i) Generating electricity; (ii) Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace; and/or (iii) Supplying the LFG to consumers through a natural gas distribution network. 	<p>The proposed CDM project activity would install the landfill capture system and utilise it for electricity generation and flaring purposes. The project will generate electricity using 8 gas engines of 375 kW capacity each. The total capacity of the electricity generation under the project activity is 3 MW. This was checked by the assessment team from the gas engine quotation from Kraft Power, dated 02/03/2006, which includes technical specification^{/56/} of the gas engines and was found to be correct.</p> <p>The project activity does not involve any heat generating equipment utilising captured landfill gas, hence criteria (ii) is not applicable to the proposed project activity.</p> <p>At the time of validation site visit conducted during 03/11/2008 to 04/11/2008 it was physically validated that there was no implementation/ installation done for the proposed project activity at the designated landfill site. As on March 2014, the project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed. The captured LFG flaring system has also been installed and commissioned in the site on 20/01/2011, this was checked from the commissioning certificate of the flaring system dated 20/01/2011^{/71/}. However the PP is yet to install any downstream captured LFG utilisation component of the project activity and procurement of the relevant equipments are yet to be done. This has been further supported by the self declaration letter^{/86/} from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014</p> <p>Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the actual project implementation and utilisation of LFG in the plant which will be checked by the verifying DOE at the time of verification of the project activity.</p> <p>Further, the PP does not envisage to supply the LFG using a natural gas distribution network, the LFG generated will be used for generation of electricity in the gas engines and in evaporating the leachate generated in the project activity, hence point (iii) is not applicable here. This was checked by the assessment team during the site visit and by interviewing plant personnel, which was found to be satisfactory. Thus this was accepted by the assessment team.</p>
<p>(d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.</p>	<p>The proposed project activity involves installation of a new LFG capture and utilisation system in the new Fes landfill site which is the first controlled landfill built in Morocco, opened in April 2004 and receives municipal solid waste from entire urban district of Fes, Morocco.</p>

	<p>Therefore with reference to the requirement of applicability criteria (d) on page 3 from the methodology ACM0001 version 13 (i.e. the methodology is applicable to project activities which do not reduce the amount of organic waste that would be recycled in the absence of the project activity); the assessment on the compliance with methodology applicability criteria (d) has been conducted related to prevailing municipal solid waste management/disposal practices in the urban district of Fes, Morocco in absence of the newly built Fes landfill site as well as the proposed landfill gas recovery and utilisation project activity at the Fes landfill site.</p> <p>The assessment approach adopted by the assessment team was to validate the existing status or provision of the recycling of organic fraction of the expected incoming municipal solid waste at Fes landfill site as per the physical observation/verification during validation site visit at the project site, local knowledge of the assessment team and the documentation referred by the PP in the PDD along with verifying whether the content of the referred documentation was correctly quoted and interpreted in the PDD, following the requirement of paragraph 76 of VVS, version 05.0.</p> <p>In order to do so, firstly the assessment team has cross verified the information related to prevailing municipal solid waste management/disposal practices in the urban district of Fes, Morocco from the third party document 'Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998. This is noteworthy that this Solid Waste Management Feasibility Study Report dated September 1998 is related to the construction of new Fes landfill site and not exclusive to the proposed landfill gas recovery and utilisation project activity at the Fes landfill site. The assessment team has confirmed that the PP has appropriately justified the applicability criteria and this was in line with the validation facts and figures presented under third party prepared feasibility study report. The 'Fes Solid Waste Management Feasibility Study Report' dated September 1998 has mentioned that recycling cannot be an option for treating the organic waste based on techno-economic feasibility of the recycling process. Secondly, during the site visit the assessment team has interviewed Fes landfill site personnel as well as carried out physical inspection of the Fes landfill site along with proposed project area and confirmed that there was no such prevailing practice related to recycling of the organic waste in absence of the newly built Fes landfill site as well as the proposed project activity at the landfill site. Thus reducing the quantity of organic waste recycled as result of implementation of the proposed project activity does not arise. This has been discussed in section 4.5 of the validation report. Thus the assessment team has followed the validation requirement as per the first part of the paragraph 76 of VVS, version 05.0, which states <i>"The DOE shall determine whether the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein. This shall be done by validating the documentation referred to in the PDD and by verifying that the documentation content is correctly quoted and interpreted in the PDD."</i></p> <p>Finally, this issue of prevailing municipal solid waste management/</p>
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disposal practice at urban district of Fes, Morocco was also cross checked and confirmed with the local assessor involved for the assessment team, who has knowledge of the prevailing practice for this type of project in the host country and also has information regarding relevant regional rules and regulations prevailing in the host country. Thus the assessment team has followed the validation requirement of the later part of the paragraph 76 of VVS, version 05.0, which states, *"If the DOE, based on local and sectoral knowledge, is aware that comparable information is available from credible sources other than that used in the PDD, then the DOE shall cross-check the PDD against other sources to confirm that the project activity meets the applicability conditions of the methodology."* After confirmation from the local assessor, the assessment team concluded that the project activity has met the applicability criteria (d) of the methodology. However this third cross checking approach followed, to confirm the compliance with applicability criteria was not explicitly mentioned in the earlier submitted validation report; dated 03/10/2013.

The primary source for checking the compliance with the requirement of methodology applicability criteria (d) is the "Fes Solid Waste Management Feasibility Study Report", dated September 1998, prepared by Sadat International Inc which has ruled out recycling of organic waste as an option for treating municipal solid waste. Further another publicly available article "Country Report on the Solid Waste Management in Morocco", dated July 2010 (traceable at: <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>) was checked by the assessment team. From the above mentioned validated public domain report, the assessment team has cross verified that in the entire host country (Morocco) as on 2009, out of total Municipal Solid Waste generated constitute 65% of organic waste and only 10% of the total municipal solid waste (~33% of the recyclable part) has been recycled as the waste management approach. However the recycled components are mainly the non-organic part, (as confirmed from page 9 of the said public domain report), whereas 28% and 62% of the total municipal solid waste generated has been land filled and open-dumped respectively.

This information was also further cross checked from publicly available independent sources, such as from the World Bank published interview of Mr. Jaafar Sadok Friaa, Senior Environmental Specialist as the Project Task Team Leader of World Bank approved Municipal Solid Waste Sector Development Policy Loan (<http://go.worldbank.org/IWWXXI4MC0>). In the published extract of the interview conducted during April 2009, Mr. Jaafar Sadok Friaa, has clearly indicated that in Morocco, landfill is the most appropriate solution for managing municipal solid waste disposal.

Thus the assessment team has concluded that the information provided in the PDD is correct and consistent with the independent sources of information available, as per the validation requirement of paragraph 76 of VVS, version 05.0. Furthermore, the opinion of the local assessor and sectoral expert (for sectoral scope 13) (both of them are part of the assessment team) has been taken into consideration for cross checking

	<p>the information provided in the revised PDD, version 15.1, dated 06/03/2014.</p> <p>An assessment of prevailing government rules and regulations regarding treatment of incoming waste (for eg. recycling) was carried out by the assessment team. The Household Waste Management National Program was developed in cooperation between the ministries of the Interior, Finance, and the Environment. One aim of Household Waste Management National Program is only to promote the recycling of waste, but does not discuss any mandate in this regard. It was also confirmed by the local assessor, (who is a part of the assessment team), that there is no government regulation regarding recycling of MSW, and hence no government organisation is keeping a record of the amount of waste that is recycled.</p> <p>After validating the objective documentary evidences, assessing the prevailing waste management practice based on the local and sectoral knowledge of the assessment team, assessing the prevailing government rules and regulations and physical inspection during the validation site visit, the assessment team confirms that there is no recycling of incoming waste in the landfill site before or after the implementation of the CDM project activity. Furthermore, based on the above mentioned assessment, the assessment team concludes that recycling is not a well established practice in the host country and the implementation of the project does not affect any recycling activity.</p>
<p>The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is:</p> <ul style="list-style-type: none"> (a) Release of LFG from the SWDS; and (b) In the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln; <ul style="list-style-type: none"> I. For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or II. For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary. 	<p>The most plausible baseline scenario is business as usual, which is the release of LFG into atmosphere. Morocco's LAW NO. 28-00 RELATING THE MANAGEMENT AND DISPOSAL OF WASTES (Dahir No. 1-06-153 dated 30 Chaoual 1427 (22 November 2006), Official Gazette No. 5480 dated 7 December 2006)^{43/} was checked by the assessment team and it was confirmed that there is no host country regulation that mandates the PP to generate electricity or evaporate leachate by using the LFG generated in the project activity. Thus the most plausible baseline scenario is the release of LFG into the atmosphere.</p> <p>The proposed CDM project activity will include the generation of electricity using gas engines, the generated electricity will be supplied to the national grid of Morocco. In the absence of the project, an equivalent amount of electricity would have been produced in the power plants that are connected to the grid. The baseline scenario for the project activity has been further assessed under section 4.7 of this report.</p> <p>The project activity does not involve any heat generation equipment hence point (b) ii, is not applicable to the project activity. At the time of validation site visit conducted during 03/11/2008 to 04/11/2008 it was physically validated that there was no implementation/installation done for the proposed project activity at the designated landfill site. As on March 2014, the project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed. The captured LFG flaring system has also been installed and commissioned in the site on 20/01/2011, this was checked from the commissioning certificate of the flaring system dated 20/01/2011^{71/}. However the PP is yet to install any downstream captured LFG utilisation component of the project activity and procurement of the relevant equipments are yet to be done. This has been further supported by the self declaration letter^{86/} from the PP,</p>

	<p>dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014</p> <p>Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the actual project implementation and utilisation of LFG in the plant which will be checked by the verifying DOE at the time of verification of the project activity.</p> <p>Thus the assessment team is of the opinion that the project has met this applicability criterion.</p>
This methodology is not applicable:	
(a) In combination with other approved methodologies. For instance, ACM0001 cannot be used to claim emission reductions for the displacement of fossil fuels in a kiln or glass melting furnace, where the purpose of the CDM project activity is to implement energy efficiency measures at a kiln or glass melting furnace;	The project activity does not apply any other methodology other than ACM0001 ^{7/} Version 13.0.0. The PDD ^{1/} and the emission reduction calculation sheet ^{4/} were checked by the assessment team and this has been confirmed.
(b) If the management of the SWDS in the project activity is deliberately changed during the crediting in order to increase methane generation compared to the situation prior to the implementation of the project activity.	No management practice is envisioned to be changed and MSW would be dumped in the same manner it has been since 2004. The landfill is already a managed landfill site. This was checked by the assessment team during the validation site visit by interviewing plant personnel, and the assessment team concluded that the management of the SWDS in the project activity will not be changed deliberately during the crediting period in order to increase methane generation of the project activity.

Thus from the above assessment, it was concluded that the project activity meets all the applicability criteria of ACM0001^{7/}, version 13.0.0.

Further, the PP has referred the following tools, referenced in ACM0001, Version 13.0.0, for the identification of the baseline scenario and the emission reduction calculations -

- Emissions from solid waste disposal sites (Version 06.0.1)
- Combined tool to identify the baseline scenario and demonstrate additionality (Version 05.0.0)
- 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)
- Project emissions from flaring (Version 02.0.0)
- Tool to calculate the emission factor for an electricity system (Version 03.0.0)
- Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 02.0.0)

The PP has referred to the latest applicable tools as available on the UNFCCC website (<http://cdm.unfccc.int/Reference/tools/index.html>). The identification of the baseline scenario using "Combined tool to identify the baseline scenario and demonstrate additionality (Version 05.0.0)" has been discussed under section 4.7 of this report and the options & equations used for the calculation of ex-ante emission reductions, using the applicable tools as mentioned above have been further discussed under sections 4.8 and 4.9 of this report.

Discussion of CARs & CLs:

CL 03 was raised as follows:

1. The PP was requested to provide the evidences for the correct applicability of used methodology. The PP was requested to justify that, in the baseline scenario, there was total atmospheric release of the LFG; collection & destruction of LFG of the project site is not required by law or regulation. The PP was also requested to substantiate with exact reference that waste is dumped in secured landfills that generated LFG, which is not collected and destructed.
2. Further the PP was also requested to justify that the power would have been generated by existing or new fossil fuel based power plant in absence of the project activity.
3. Project description: Letter^{/48/} from the Ministry of National Planning to President of Fes Urban Commune dated 29/03/2005 indicated the selection of "old landfill" as a possible project for CDM among 5 landfill projects. Hence the PP was requested to clarify whether the older unmanaged landfill also forms part of the project activity.
4. The project description includes two sets of gas engines, one is of 375 kW and the other is 165 kW. The PP is requested to clarify which has been included in the project design and the reason for the second set of equipment.
5. The PP is requested to provide the specifications and source documentation for the flares (both open and closed) and evaporator. Further in section B.6 of the PDD, it is stated that the project activity employs an enclosed flare and there is no mention of the backup open flare.
6. Further, the PP was requested to justify the methodology applicability criteria on the following points:
 - i. Regarding criteria (a), the PP was requested to clarify whether the new LFG capture system under the Project Activity has been installed in a new or existing SWDS.
 - ii. Regarding criteria (b), it is mentioned that in Section A.1 of the PDD, that the project involves installation of enhanced landfill gas extraction system furthermore at the pre-project scenario some temporary arrangement was available for the burning of the landfill gas through an open pipe extended from the leachate collection system. However in section B.2, the PP has mentioned that there is no LFG capture system installed at the project site in the baseline. Thus the PP is requested to justify the inconsistent information.
 - iii. Regarding criteria (c) there is no justification found towards the use of the captured landfill gas in the leachate evaporation system. The PP is requested to justify the same.
 - iv. Regarding criteria (d) the PP was requested to provide any evidence/supportive statistics on the organic waste dumping in the SWDS.
 - v. Regarding the criteria related to the plausible baseline scenario, some more clarity would be required to justify the applicability in contrast to the burning of the landfill gas at pre-project scenario.
 - vi. The PP is requested to provide a declaration to support that management of the SWDS in the project activity will not be deliberately changed during the crediting period in order to increase methane generation compared to the situation prior to the implementation of the project activity.
7. The PP is also requested to clearly mention a description of the project components in the revised PDD.

In response, the PP provided the following information:

1. The waste is dumped at the landfill site and there is no regulatory requirement for active landfill extraction and flaring in Morocco. This is evident from Solid Waste Law, Decree No. 2-09-284 of 20 hijra 1430, Title VII^{/9/} "Controlled landfills and waste processing, beneficiation storage and disposal installations" that flaring of landfill gas is not mandatory requirement by the law.

This is also checked from the Solid Waste Law^{9/} that in the absence of the project activity no landfill gas will be collected and flared in the host country. Furthermore, the solid waste law^{43/} 28-00 was not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law, this was checked by the assessment team. The proposed decree for the implementation of the law states, when it comes to landfill gas, that the design should only: allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (Decree No. 2-09-284 of 20 hijra 1430) (December 8, 2009) establishing the administrative procedures and technical requirements for landfills; PART III: Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11.

The assessment team observed that, paragraph 'F of article 11 of decree dated 8th Dec 2009 under Act No. 28 states "to allow the installation, as practicable, of a degassing system to satisfy the minimal safety requirements of the site;". So as per this paragraph, it is required to install a degassing system to ensure safety conditions. However, the law was not in force at the time of decision making nor at the time of the project start date. Hence, it is accepted that in the baseline, there is no law requiring destruction of landfill gas.

2. The project activity includes the landfill gas collection and subsequent power generation and export to the national grid. In the baseline there was no gas collection and power generation from the landfill. It is evident from the additionality analysis that the power generation in the project activity would not have happened without the benefits of CDM. In that case, the same amount of power would have been generated by the carbon intensive national grid. The additionality demonstration by the PP was checked from the revised PDD, and it was found that the most plausible baseline scenario for the project activity is supply of electricity from the grid.
3. The older landfill was initially going to be included in the project activity, but the PP decided not to include it since the project validation and registration has taken so long that there is probably no more gas in the old landfill as it has not been covered over the years and a lot of burning took place. Therefore, only the new landfill is included in the project activity. The justification provided by the PP was found to be acceptable. This was also checked by the assessment team during the site visit of the project activity.
4. The project design includes using gensets modules of 375 KW as specified in Section A.3 of the revised PDD. The 165 KW module was considered to be used only as a temporary genset until more gas is available and the registration of the project is obtained. The cost of this temporary engine is not considered in the investment analysis. If more gas would not be available the sizing of remaining engines would be reviewed at a later stage after the project registration and if there are any changes, these can be considered as per the post registration process defined by CDM. This was accepted by the assessment team.
5. A copy of the quotation^{31/} from John Zinc Company LLC dated 02/03/2006 for flaring equipment. The specifications^{31/} of the Flare equipment were checked by the assessment team and the information as mentioned in the revised PDD was found to be consistent.

The leachate evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1, dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the leachate evaporator or any other heat generating equipment utilising captured landfill gas will not be installed as a part of the proposed project activity. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant during the verification stage.

6. Methodology applicability criteria :

- i. The landfill gas started receiving MSW from year 2004 onwards. Therefore, the project is located at the existing SWDS at the time of investment decision. The MSW keeps on coming since it started operation and gets fixed into the landfill cells. The revised PDD was checked by the assessment team and was found to be acceptable.
- ii. The pre project scenario includes a LFG venting system, which is nothing but extended vertical pipes. This system is used to give passage to the LFG so that it gets emitted into the atmosphere easily and is sparingly used to burn the LFG to address the safety or odour issues, if LFG gets accumulated. However, these cannot be considered as LFG capture system as these activity cannot utilize these for useful purposes like combustion in gas engines or flaring as these are very rudimentary and temporary measures. On the contrary a new state of the art LFG capture system is being used in the project activity that will collect the LFG for the intended purposes of using the LFG for electricity generation and flaring. The revised PDD was checked by the assessment team and was found to be acceptable.

The evaporator does not form a part of the project activity. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.

- iii. Earlier the PP had planned to install a leachate evaporation system as a part of the project activity, even though the PP did not claim any emission reduction for the burning of LFG in the leachate evaporation system. However, as per the revised PDD, version 15.1, dated 06/03/2014, the PP has confirmed that the evaporator does not form a part of the project activity. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.
- iv. The Delegate Management agreement^{18/} that was awarded to the PP to manage the landfill site confirms that there is no other treatment of the MSW. It is important to state here is that the purpose of the project activity is capture and use LFG as part of the proposed CDM project activity, which in no way, affects the existing waste management practice, which is to dump the MSW into the landfill cells.
- v. As communicated earlier, the data pertaining to actual methane combusted in the pipes through the extended pipe was estimated based on number of days it was recorded in landfill records. However, now 20% has been considered as conservative value and information in this regard has been updated in the CER and the revised PDD. This was checked by the assessment team and it was found to be conservative and also in line with the applied methodology, ACM0001, version 13.0.0, equation 15. Thus this was accepted by the assessment team.
- vi. The proposed CDM project does not intend to alter the dumping of MSW in the landfill cells. The existing practice will continue to put MSW in the cells and cover them as per Delegate

Management agreement^{/18/}. There is no attempt made by the PP to increase the methane generation in any manner but to capture the methane that is being generated and liberated to atmosphere. Therefore, the management of SWDS will remain same prior to or during the project activity.

7. The revised PDD has been updated to include the information with regards to all project components under section A.3 of the PDD, which was missed out when transferring the project from the VVM PDD template to the VVS PDD template.

Thus all the issues of CL 03 were satisfactorily addressed by the PP and the CL 03 was **closed**.

Opinion:

The DOE has assessed the requirements of ACM0001 version^{/7/} 13.0.0, in the context of the project activity and ensures the requirements stipulated in paragraph 73 of VVS version 05.0 are duly met. Referring to paragraph 76 of VVS, version 05.0, the assessment team confirms that the project activity meets all the applicability conditions of the applied methodology ACM0001 version 13. The assessment has been conducted by validating the documentation referred to in the PDD and by verifying that the documentation content is correctly quoted and interpreted in the PDD. The DOE has used its local and sectoral knowledge to verify the information from sources other than that used in the PDD, and have cross-checked the PDD against other publicly available sources^{/79/} to confirm that the project activity meets the applicability conditions of the methodology. The validation of the applicability criteria was done as per paragraphs 74-76 of VVS version 05.0 and was found to be satisfactory.

4.6 Project Boundary

The spatial extent of the proposed project boundary has been validated during the site visit and was found to be in line with the requirement of the methodology ACM0001 version^{/7/} 13.0.0. The proposed project activity will capture and flare LFG from the existing landfill site and also use it for generating power. Hence as per the definition of the project boundary as defined under applied methodology ACM0001^{/7/}, version 13.0.0, the project boundary of the project activity shall include the sites where the LFG is captured and, as applicable:

- Sites where the LFG is flared or used (e.g. flare, power plant, boiler, air heater, kiln or natural gas distribution network);
- Captive power plant(s) (including emergency diesel generators) or power generation sources connected to the grid, which are supplying electricity to the project activity;

Source		GHGs	Included ?	Justification/Explanation	DOE assessment
Baseline scenario	Emissions from decomposition of waste at the landfill site	CO ₂	No	It is not considered because it is part of the natural carbon cycle.	As per the applied Methodology, since CO ₂ would be part of both baselines as well as project emission the effect of the emission gets counter nullified and thus the non consideration of CO ₂ emission from decomposition of organic waste at SWDS can be ignored at both the baseline and project emission.
		CH ₄	Yes	Included as main component of LFG.	The major source of GHG from existing landfill site is CH ₄ , this has been accepted as checked during the onsite validation and with reference to the validated project equipment supply quotation from John Zinc ^{/31/} and Plastima ^{/33/} .
		N ₂ O	No	Not applicable	Accepted as the waste coming into the landfill are of municipal solid waste category only, thus accepted.
	Emission from electricity consumption	CO ₂	No	Not applicable as no electricity is being consumed from the grid or being generated (On site/ Offsite)	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
		CH ₄	No	Not applicable	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
		N ₂ O	No	Not applicable as above	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
	Emission from thermal energy generation	CO ₂	No	No thermal energy is produced in the baseline therefore excluded.	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
		CH ₄	No	Not applicable as above	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
		N ₂ O	No	Not applicable as above	There is no onsite electricity generation facility at existing Landfill site, thus it has been accepted based on site visit.
Project scenario	On-site fossil fuel consumption due to the project activity other than for electricity generation	CO ₂	Yes	There is no fossil fuel consumption expected, however included as a backup DG would be installed.	There would be fossil fuel consumption within the proposed project activity boundary for power generation through the on-site DG set, this has been accepted based on the review of the project concept and the design description in the project equipment specification ^{/45/} for 5 KVA DG set.
		CH ₄	No	Excluded for simplification	There is no expected onsite use of fossil fuel for purposes other than electricity generation within the proposed project boundary, this has been accepted based on the review of the project concept and the design description in the project equipments.
		N ₂ O	No	Excluded for simplification	There is no expected onsite use of fossil fuel for purposes other than electricity generation within the proposed project boundary, this has been accepted based on the review of the

					project concept and the design description.
Emissions from on-site electricity use	CO ₂	Yes	There is power import so included		Accepted. There would be CO ₂ emission from the project activity, as the project activity also includes the provision for electricity import from grid.
	CH ₄	No	Excluded for simplification		Accepted. There would be no CH ₄ emission from the project activity due to onsite electricity use. This was checked and was confirmed during the site visit, by the assessment team.
	N ₂ O	No	Excluded for simplification		Accepted. There would be no N ₂ O emission from the project activity due to onsite electricity use. This was checked and was confirmed during the site visit, by the assessment team.

The summary of sources of greenhouse gases within the project boundary and justification/explanation whether gases and sources were included or not, was discussed transparently in section B.3 of the final version of the PDD. The PDD clearly depicted in a flow diagram indicating all possible elements/ components of the project activity.

Discussion of CAR and CL:

CAR 04 was raised as follows-

The assessment team observed that the project boundary is neither clear nor in line with the applied methodology for the following points.

1. Baseline:
 - a) Emission from decomposition of waste at landfill site.
 - b) Emission from electricity consumption.
 - c) Emission from thermal energy generation in the baseline within the project boundary.
2. Project Activity:
 - a. Onsite fossil fuel consumption due to project activity other than for electricity generation
 - b. Emission from onsite electricity use.
3. The PP was also requested to provide the schematic diagram of the project activity.
4. In the table, under section B.3 of the PDD, column – ‘Baseline’; Row – Emission from thermal energy, for CO₂; it is said ‘Yes’ for column – ‘Included’. This is not in line with the justification provided. The PP was requested to correct the same.
5. ‘Biogas towards Leachate treatment’ flow stream is not shown in the figure 1 a. the PP was asked to justify.
6. In the project boundary diagram-
 - a) PP was requested to justify why bi-directional flow has been shown in “Auxiliary Electricity Consumption”,.
 - b) PP was requested to justify how electricity export can take place from “Auxiliary Electricity Consumption”?
 - c) PP was requested to justify why the Grid has been kept outside the project boundary?
7. Summary of GHG gases in the section B.3- of the PDD project boundary, is not matching with the applied methodology. PP was requested to justify the mismatch.

In response, the PP provided the following information:

1. The project boundary was revised for the Emissions from the decomposition of waste at the landfill site. The emissions of CO₂ from electricity consumption and the emissions of CO₂ from the thermal energy generation in pre-project scenario has been considered while estimating the baseline in the revised version of methodology. But since there was no electricity consumption in the baseline this component is zero.
2. In the project activity there will not be any use of fossil fuels onsite and only the electricity generated from the project activity will be used onsite. Therefore there are no project emissions from onsite fossil fuel consumption and electricity consumption, hence both these emissions has been considered as zero.
3. A schematic diagram of the project activity is also included in the revised version of the PDD, under section B.3 of the PDD. This was checked by the assessment team and was found to be correct.
4. The evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1 dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Thus the finding raised regarding the evaporator does not carry any significance in this project activity. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of validation of the project activity.
5. The evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1 dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Thus the finding raised regarding evaporator does not carry any significance in this project activity. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.
6. The PP has revised the PDD. The revised project boundary diagram was found to be correct by the assessment team. The auxiliary consumption has been correctly shown, and the grid has been included in the project boundary, this was checked by the assessment team and is in line with the requirement of ACM0001.
7. Addressing the CAR 04, the PP justified that the summary of GHG gases are consistent as per the project situation. The table in the methodology is indicative. Considering, the applicability conditions are met by the project activity, the same can be accepted. Thus this was accepted by the assessment team, issues raised in CAR 04 were satisfactorily addressed and CAR 04 was **closed**.

CAR 05 was raised as follows-

1. The PP was requested to explain and include the local grid where electricity will be exported. The project boundary should be clearly mentioned providing a clear picture of all components and facilities used to mitigate GHGs. The PP was requested to include all equipments and components which will be used in the project activity.
2. Further regarding the grid EF the following queries were raised by the assessment team-

- a) The PP was requested to clarify whether the EF of grid is being calculated or directly adapted from official sources.
- b) In case it is calculated as discussed in the PDD, the PP was requested to use “Tool to calculate the emission factor for an electricity system” as mentioned in the methodology. Calculation sheet along with evidentiary documents for the data sources must be submitted. Please incorporate the determination of Emission Factor for an electricity system and demonstrate that it is latest what was available at the time of validation (webhosting of the PDD).
- c) The PP was requested to clarify why it is mentioned that the EF will be determined according to methodology ACM0002 or AMS.ID. EF is determined using the tool^{/8/} as per the methodology ACM0001.
- d) In case it is adapted from the official source as mentioned in Annex 6 of the PDD version 03 dated 11th May 2010. The link provided as source of reference refers to another CDM project activity. The PP is requested to justify the applicability.

Responding to the CAR 05, the PP provided the following responses-

1. The PP revised the project boundary in the revised PDD, under section B.3 and this was checked by the assessment team and was found to be correct.
2. Regarding the grid EF

In the final version of the PDD, the PP has modified the EF calculation. The EF of the grid has been determined using “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”, version 01. As per this tool, Option A.2 of Scenario A has been considered. This has been included in section B.6.2 of the revised PDD. The application of this tool is also in line with the applied methodology ACM0001, version 13.0.0, Step B, page no 12/23. This was checked by the assessment team and found that the PP has met the requirements of the methodology.

Thus all the issues of the CAR 05 were satisfactorily addressed by the assessment team and CAR 05 was closed.

Opinion:

Based on the above assessment, the validation team hereby confirms that the identified project boundary and the selected GHG emission sources within the boundary as CH₄ emissions from decomposition of waste at the SWDS site in the baseline and CO₂ emissions from the onsite fossil fuel based electricity consumption due to the project activity are justified.

The validation of the project boundary was carried out as per paragraphs 83-85 of VVS, version 05.0^{/6/}. The validation team concludes that the description of the project boundary of the project activity is in line with the validation requirement of paragraph 82 of VVS, Version 05.0^{/6/}.

4.7 Baseline Selection

The Project's objective is to capture, utilise and destruct landfill gas (LFG) from the landfill site in order to generate electricity using gas engines and also to reduce the potential local impacts of odours, explosions and fire hazards associated with landfill gas, and to reduce the fugitive emissions of the greenhouse gas methane contained in the landfill gas which contributes to global climate change.

The baseline scenario determination for the proposed project activity has been carried out following the relevant provisions of the applied methodology ACM0001 ver.13.0.0 and the latest version of the Methodological Tool^{/8/} “Combined tool to identify the baseline scenario and demonstrate additionality”, version 5.0.0.

The prescribed steps are-

- STEP 0. Demonstration whether the proposed project activity is the First-of-its-kind
STEP 1. Identification of alternative scenarios;

STEP 2. Barrier analysis;
STEP 3. Investment analysis;
STEP 4. Common practice analysis.

STEP 0, STEP 1 and STEP 2 has been discussed in this section, while STEP 3 and STEP 4 have been discussed in section 4.7.1 of this report, as they pertain primarily to the additionality of the project activity.

Step 0: Demonstration that a proposed project activity is the First-of-its-kind:

This step is optional. The step is not applied as it is not possible for project participants to confirm the same from publicly available documents and internet research. However, there is no contradictory information available in public domain in this regard. This was found to be correct and was accepted by the assessment team.

Step 1: Identification of alternative scenarios:

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

The LFG alternatives as prescribed in the ACM0001 Version 13.0.0 have been examined in the table below:

LFG alternatives prescribed in ACM0001	Justification	Assessment
LFG1: The project activity implemented without being registered as a CDM project activity (i.e. capture and flaring or use of LFG);	The proposed project activity implemented without being CDM is economically not a viable option as confirmed in the section B.5. The alternative otherwise is plausible.	This can be an alternative but this is not financially feasible, the IRR sheet ^{5/} as submitted by the PP was checked. It is evident that the IRR of the project activity is 4.58%, which is below the benchmark value of 12%. Thus the justification as provided by the PP was found to be correct.
LFG2: Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, or to address safety and odour concerns;	The LFG generated at existing landfill site is managed but do not have any active gas collection system. The LFG collection to address the safety and odor concern is done via the pipeline that is connected to leachate treatment system in the baseline. The flaring in such system takes places on an average 10 days in an year to address the safety concern. Therefore, the alternative completely plausible scenario and historical existing practice.	The existing baseline scenario for the project activity is the capture of LFG and temporary burning of this gas for safety reasons. This was checked by the assessment team during the site visit and was found to be correct. Hence the assessment team is of the opinion that this can be a plausible alternative to the project activity.
LFG3: LFG is partially not generated because part of the organic fraction of the solid waste is recycled and not disposed in the SWDS;	All the waste that landfill receives is dumped in the landfill only and there is no other method at project site for waste treatment. This is not plausible in the	The proposed project activity involves installation of a new LFG capture and utilisation system in the new Fes landfill site which is the first controlled landfill built in Morocco, opened in April 2004 and receives municipal solid waste from entire urban district of Fes, Morocco. The

	context of the project.	<p>assessment on the appropriateness of the baseline alternative LFG3 has been conducted related to prevailing municipal solid waste management/disposal practices in the urban district of Fes, Morocco in absence of the newly built Fes landfill site as well as the proposed landfill gas recovery and utilisation project activity at the Fes landfill site.</p> <p>The assessment approach adopted by the assessment team was to validate the existing status or provision of the recycling of organic fraction of the expected incoming municipal solid waste at Fes landfill site as per the physical observation/ verification during validation site visit at the project site, local knowledge of the assessment team and the documentation referred to by the PP in the PDD along with verifying whether the content of the referred documentation was correctly quoted and interpreted in the PDD, following the requirement of paragraph 76 of VVS, version 05.0.</p> <p>In order to do so, firstly the assessment team has cross verified the information related to prevailing municipal solid waste management/disposal practices in the urban district of Fes, Morocco from the third party document 'Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998. This is noteworthy that this Solid Waste Management Feasibility Study Report dated September 1998 is related to the construction of new Fes landfill site and not exclusive to the proposed landfill gas recovery and utilisation project activity at the Fes landfill site. The assessment team has confirmed that the PP has appropriately justified the applicability criteria and this was in line with the validation fact and figures presented under third party prepared feasibility study report. The 'Fes Solid Waste Management Feasibility Study Report' dated September 1998 has mentioned that recycling cannot be an option for treating the organic waste based on techno-economic feasibility of the recycling process. Secondly, during the site visit the assessment team has</p>
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		<p>interviewed Fes landfill site personnel as well as carried out physical inspection of the Fes landfill site along with proposed project area and confirmed that there was no such prevailing practice related to recycling of the organic waste in the absence of the newly built Fes landfill site as well as the proposed project activity at the landfill site. Thus reducing the quantity of organic waste recycled as a result of implementation of the proposed project activity, does not arise. This has been discussed in section 4.5 of the validation report. Therefore the assessment team has followed the validation requirement as per the first part of the paragraph 76 of VVS, version 05.0, which states <i>"The DOE shall determine whether the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein. This shall be done by validating the documentation referred to in the PDD and by verifying that the documentation content is correctly quoted and interpreted in the PDD."</i></p> <p>Finally, this issue of prevailing municipal solid waste management/disposal practice at urban district of Fes, Morocco was also cross checked and confirmed with the local assessor involved for the assessment team, who has sound knowledge of the prevailing practice for this type of project in the host country and also has information regarding relevant regional rules and regulations prevailing in the host country. Thus the assessment team has followed the validation requirement of the later part of paragraph 76 of VVS, version 05.0, which states, <i>"If the DOE, based on local and sectoral knowledge, is aware that comparable information is available from credible sources other than that used in the PDD, then the DOE shall cross-check the PDD against other sources to confirm that the project activity meets the applicability conditions of the methodology."</i> After confirmation from the local assessor, the assessment team concluded that the project activity has met the applicability</p>
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		<p>criteria (d) of the methodology. However this third cross checking approach followed to confirm the compliance with applicability criteria, was not explicitly mentioned in the earlier submitted validation report; dated 03/10/2013.</p> <p>The primary source for checking the compliance with the requirement of methodology applicability criteria (d) is the “Fes Solid Waste Management Feasibility Study Report”, dated September 1998, prepared by Sadat International Inc which has ruled out recycling of organic waste as an option for treating municipal solid waste. Furthermore another publicly available article “Country Report on the Solid Waste Management in Morocco”, dated July 2010 (traceable at: http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf) was checked by the assessment team. From the above mentioned validated public domain report the assessment team has cross verified that in the entire host country, Morocco, as on 2009, out of total Municipal Solid Waste generated constituted 65% of organic waste and only 10% of the total municipal solid waste (~33% of the recyclable part) has been recycled as the waste management approach. However the recycled components are mainly the non-organic part, (as confirmed from page 9 of the said public domain report), whereas 28% and 62% of the total municipal solid waste generated has been land filled and open-dumped respectively.</p> <p>This information was also further cross checked from publicly available independent sources, such as from the World Bank published interview of Mr. Jaafar Sadok Friaa, Senior Environmental Specialist as the Project Task Team Leader of World Bank approved Municipal Solid Waste Sector Development Policy Loan (http://go.worldbank.org/IWWXXI4MC0). In the published extract of the interview conducted during April 2009, Mr. Jaafar Sadok Friaa, has clearly indicated that in Morocco, landfill is the most appropriate</p>
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		<p>solution for managing municipal solid waste disposal.</p> <p>Thus the assessment team has concluded that the information provided in the PDD is correct and consistent with the independent sources of information available, as per the validation requirement of paragraph 76 of VVS, version 05.0. Furthermore the opinion of the local assessor and sectoral expert for sectoral scope 13 (both are part of the assessment team) has been taken into consideration for cross checking the information provided in the revised PDD, version 15.1, dated 06/03/2014.</p> <p>This same information was also checked from the report^{/80/} "Support to DG Environment for development of the Mediterranean De-pollution Initiative "HORIZON 2020"". The report^{/80/} states that out of the 10 land fill sites in Morocco, only one site provides treatment to incoming waste in the form of compacting (page 144 of the report^{/80/}). The local assessor for the host country, (who is also a part of the assessment team), also confirmed that no such treatment practice as recycling of organic waste, is prevailing in the region where the project activity is located (i.e., the host country).</p> <p>An assessment of prevailing government rules and regulations regarding recycling of organic waste was carried out by the assessment team. The Household Waste Management National Program (HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM) was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report On The Solid Waste Management In Morocco^{/78/}. One aim of HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM is only to promote the recycling of waste, but about it does not discuss any mandate in this regard^{/78/}. It was also confirmed by the assessment team local assessor for the host country, that there is no government regulation regarding recycling of organic part of the waste.</p> <p>Thus the assessment team is of the opinion that recycling of organic waste cannot be an alternative for LFG</p>
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		destruction.
LFG4: LFG is partially not generated because part of the organic fraction of the solid waste is treated aerobically and not disposed in the SWDS;	<p>All the waste that landfill receives is dumped in the landfill only and there is no other method at project site for waste treatment.</p> <p>This is not plausible in the context of the project.</p>	<p>As discussed under assessment of alternative LFG3 above, similar approach was also used for the assessment of alternative scenario LFG4.</p> <p>Aerobic treatment of organic waste has been ruled out by the PP as an alternative for LFG destruction. The PP has confirmed that less than 1% of waste is being composted in the host country. In urban areas, waste is collected (82% collection efficiency) and is being dumped in the nearby land filling sites (10 operational sites). This information was checked from Country Report On The Solid Waste Management In Morocco^{78/}. The report further confirms that since 1960, 10 composting units were installed in Morocco, and as of now, all the units are shut down due to numerous technical and economical constraints. Thus the assessment team is of the opinion that the aerobic treatment of organic part of the waste cannot be an alternative for LFG destruction.</p> <p>An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried out by the assessment team. The Household Waste Management National Program was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report On The Solid Waste Management In Morocco^{78/}. The above referred report^{78/} does not discuss the aerobic treatment of organic waste. It was also confirmed by the assessment team local assessor for the host country, that there is no government regulation regarding aerobic treatment of the organic part of the waste.</p> <p>In addition, the fact that in Morocco, land filling is the preferred option, was also confirmed from the World Bank published interview^{79/} of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank. Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has</p>

		<p>stated that “<i>The solid waste Law as well as the National Municipal Program have selected <u>land filling as the most appropriate solution toward improving the current disposal practices.</u> This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....</i>”. Thus the assessment team is of the opinion that aerobic treatment of organic waste cannot be an alternative for LFG destruction. It was also confirmed by the local assessor for the host country, thus this alternative is not plausible in the context of the project activity.</p>
<p>LFG5: LFG is partially not generated because part of the organic fraction of the solid waste is incinerated and not disposed in the SWDS.</p>	<p>All the waste that landfill receives is dumped in the landfill only and there is no other method at project site for waste treatment.</p> <p>This is not plausible in the context of the project.</p>	<p>As discussed under assessment of alternative LFG3 above, similar approach was also used for the assessment of alternative scenario LFG5.</p> <p>Incineration has been ruled out as an alternative by the PP. This was supported by the Fes Solid Waste Management Feasibility Study^{/12/} conducted by Sadat International Inc³, dated September 1998. The feasibility study^{/12/} rules out incineration on the basis of technical and economical aspects associated with incineration process. The study report also states that incineration is highly energy intensive and hence it cannot be taken up as an alternative to the LFG destruction. The feasibility study was checked by the assessment team and the justification provided was found to be acceptable.</p> <p>An assessment of the prevailing practice of organic waste was carried out by the assessment team. No information regarding incineration of municipal solid waste could be traced in the host country. Incineration is adopted only for industrial hazardous waste & medical waste and these types of waste are not a part of municipal solid waste. This information was confirmed from the Country Report On The Solid Waste Management In Morocco^{/78/}.</p> <p>An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried</p>

		<p>out by the assessment team. No government rules or regulations regarding incineration of the organic part of the municipal solid waste could be traced. It was also confirmed by the local assessor for the host country, that there is no government regulation regarding incineration of the organic part of the waste.</p> <p>In addition, the fact that in Morocco, land filling is the preferred option for MSW, was also confirmed from the World Bank published interview^{79/} of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank. Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has stated that "The solid waste Law as well as the National Municipal Program have selected <u>land filling as the most appropriate solution</u> toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....". Thus the assessment team is of the opinion that incineration of organic waste cannot be an alternative for LFG destruction. This was also confirmed by the local assessor for the host country, thus this alternative is not plausible in the context of the project activity.</p>
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Therefore, with reference to the paragraph 91- 93 of VVS version 05.0 the assessment team has confirmed that the plausible alternative for LFG under the project activity is-

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

LFG2: Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements, or to address safety and odour concerns. This scenario corresponds to the continuation of the current situation. Since there is currently no controlled capture and destruction of methane at the landfill sites, and no regulation will require such capture and destruction in the foreseeable future, the release of most of the landfill gas directly into the atmosphere would continue.

The PP has correctly used the methodology ACM0001^{7/}, version 13.0.0, for choosing the alternatives for LFG under the project activity. The analysis conducted by the PP was found to be corrected and was accepted by the assessment team.

Alternatives for electricity generation as per ACM 0001^{/7/}, Version 13.0.0 has been discussed as below-

Alternatives as per ACM0001 ^{/7/} Version 13.0.0	Justification	Assessment
E1: Electricity generation from LFG, undertaken without being registered as CDM project activity;	<p>The proposed project activity implemented without being CDM is economically not a viable option as confirmed in the section B.5 of the PDD, version 15.1, dated 06/03/2014 (final version). The project participant has the choice to manage the landfill as per the existing contractual requirements without considering generating the electricity by any means. There is no mandatory or compulsory requirement to generate electricity for any use.</p> <p>The alternative otherwise is plausible.</p>	This can be an alternative but this is not financially feasible, the IRR sheet ^{/5/} as submitted by the PP was checked and the justification as provided by the PP was found to be correct and accepted.
E2: Electricity generation in existing or new renewable or fossil fuel based captive power plant(s);	<p>There are no existing or new captive power plants at the project site neither there is need to generate electricity for any captive purposes. The power to run the landfill operations is drawn from the grid.</p> <p>Therefore, the alternative is not plausible.</p>	This was checked by the assessment team during the validation site visit. The power to run the landfill operations is drawn from the grid. This was also confirmed during the validation site visit by the assessment team. Further, plant personnel were interviewed during the site visit and it was concluded that there are no existing or new captive power plants at the project site and there is no need of electricity generation from a renewable or fossil fuel based captive power plant. Thus this cannot be a plausible alternative for electricity generation. This was accepted by the assessment team.
E3: Electricity generation in existing and/or new grid-connected power plants.	<p>The electricity that is generated from the project activity is fed to the national grid and therefore in the absence of project an equivalent amount of electricity would have been generated in the power plants that are connected to grid. Further, this alternative does not incur any cost for the PP.</p> <p>Therefore, the alternative is plausible.</p>	In the absence of the project activity an equivalent amount of electricity would have been generated in the power plants that are connected to grid. Thus this can be a plausible alternative for electricity generation and was accepted.

Therefore, with reference to the paragraph 91- 93 of VVS version 05.0 the assessment team has confirmed that the plausible alternative for electricity generation are-

E1: Electricity generation from LFG, undertaken without being registered as CDM project activity;

E3: Electricity generation in existing and/or new grid-connected power plants.

The PP has correctly used the methodology ACM 0001^{77/}, version 13.0.0, for choosing the alternatives of electricity generation. The analysis conducted by the PP was found to be corrected and was accepted by the assessment team.

As per the description of the revised PDD, version 15.1, dated 06/03/2014, the project activity does not involve any heat generation component. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Hence no alternatives for heat generation has been discussed in the PDD or assessed in this validation report. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.

Step 1b: Consistency with mandatory applicable laws and regulations

From the above assessment conducted, the assessment team has concluded that the most plausible baseline alternatives for the project activity are-

LFG1, LFG2, E1, E3.

All these alternatives comply with the existing regulations and policies of the host country and currently there are no legal and regulatory requirements in Morocco that would require the capture or use of landfill gas. This was checked from the LAW NO. 28-00 RELATING THE MANAGEMENT AND DISPOSAL OF WASTES (Dahir No. 1-06-153 dated 30 Chaoual 1427 (22 November 2006), Official Gazette No. 5480 dated 7 December 2006)^{43/}. Therefore all possible scenarios described above would comply with national and local regulations. This was also confirmed by the assessment team during the site visit by interviewing plant personnel.

Step 2. Barrier analysis;

The alternatives identified above do not face any barrier other than what is presented in the investment analysis in section B.5.

Therefore, the plausible baseline scenarios are:

- Combination of LFG1+E1, i.e., 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.
- Combination of LFG2+E3, i.e., continuation of current situation at the Fes landfill.

Further from the investment analysis the assessment team concluded that the combination of options LFG1+E1 shows that it is not an economically feasible option and therefore, this was rightly excluded from further consideration in the PDD.

Therefore, the only remaining option is the combination of alternatives LFG2 + E3, which is the continuation of current practice that do not require any investment, and therefore the assessment team is of the opinion that this combination is the baseline scenario of the project activity.

Thus the assessment of the identification of baseline scenario was done with reference to the paragraph 90- 95 of VVS version, 05.0 and the identification of baseline for this project activity was found to be correct.

Discussion of CAR & CLs:

CAR 06 was raised as follows-

The PP was requested to provide the following evidences for the following points for baseline establishment:

1. The waste is being dumped on the open landfill site, where in no methane collection is being done.

2. The alternative waste disposal options are significantly more expensive than land-filling, and there is very limited or no experience with such technologies in Morocco.
3. The Fes sanitary has the legal mandate to dispose of solid waste in the municipal area.
4. There are no regulations and/or contractual requirements requiring active landfill gas extraction and flaring to reduce landfill gas emissions applicable in Morocco.
5. The extraction and flaring of landfill gas is not common practice in Morocco.

The closure of CAR 06:

While responding to the CAR 06, the PP has provided the following justification-

1. The current operation of the Fes landfill involves the disposal and daily cover of waste; however there is no active gas collection and/or flaring system. The daily cover consists of permeable material allowing drainage of leachate to the bottom of the landfill and escape of the landfill gas to the atmosphere.

From LAWNO.28-00^{/43/} RELATING THE MANAGEMENT AND DISPOSAL OF WASTES, Title VII "Controlled landfills and waste processing, beneficiation storage and disposal installations", it is evident that that flaring of landfill gas is not mandatory requirement by the law.

Furthermore, the solid waste law^{/43/} 28-00 was not applicable until 22/11/2011 as per Title I, Chapter 3, Article 9 of this law. The proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: "F. Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (Decree No. 2-09-284 of 20 hja 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills. This was checked by the assessment team and was found to be correct.

2. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc., in 1998 concluded that alternative waste disposal options such as incineration are significantly more expensive than land filling, and therefore recommended land filling as the appropriate waste disposal technology for Fes. The feasibility report was checked by the assessment team. Other alternatives for waste disposal like incineration, bio-methanation, and composting, require sound collection systems which are difficult to establish in developing countries. Thus this was accepted by the assessment team.
3. The law No. 78-00 known as the communal charter promulgated in the Dahir 1-02-297 dated Rajeb 1423 (October 3, 2002), gives the communes (article 39), including Fes, the legal mandate to manage and dispose of solid waste in their municipal areas. Commune Urbaine Fes was found to be the owner of the solid waste generated in its municipal area and also bears the responsibility for its proper disposal. This was checked by the assessment team and was found to be correct.
4. The existing 28-00 Solid Waste Law does not require active landfill gas extraction and flaring. Furthermore, the contract agreement between the Commune Urbaine de Fes and the project developer does not require active landfill gas extraction and flaring.

This is evident from Title VII "Controlled landfills and waste processing, beneficiation storage and disposal installations" of LAWNO.28-00 RELATING THE MANAGEMENT AND DISPOSAL OF WASTES^{/10/} that flaring of landfill gas is not mandatory requirement by the law. This is also evident from the referred document that in the absence of the project activity no landfill gas will be collected and flared in the host country. The draft laws and its decree was reviewed by the assessment team and found that there is no law imposing landfill gas flaring.

5. PP modified the PDD, a common practice analysis as per "Guidelines on common practice" Version 2.0 has been done in the revised PDD, which demonstrate the project is not a common practice in the Host country Morocco. This was checked by the assessment team and was found to be correct.

Thus all the issues related to CAR 06 was successfully addressed by PP, which was reviewed by the assessment team and CAR 06 was closed.

Opinion:

Hence, it has been concluded that the approved baseline methodology ACM 0001^{/7/}, version 13.0.0 and “Combined tool to identify the baseline scenario and demonstrate additionality”^{/8/} have been correctly applied to identify the most reasonable baseline scenario and reasonably represents what would occur in the absence of the proposed CDM project activity. The assessment team confirmed that:

- a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources.
- b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- 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 PDD;
- e) The approved baseline methodology has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

The assessment team, drawing on its knowledge of the sector confirmed that all applicable CDM requirements have been taken into account in the identification of the baseline scenario for the proposed project activity, as well as relevant national and/or sectoral policies and circumstances have been taken into consideration. The validation of the baseline scenario identification and description was carried out as per the paragraph 89-93 of VVS, Version 05.0. The assessment team concluded that the baseline identification of the project activity meets the requirement of paragraph 88 of the VVS, Version 05.0.

4.7.1 Additionality of a project activity

As per the provisions of the applied methodology ACM0001 version, 13.0.0, and the latest version of “Combined tool to identify the baseline scenario and demonstrate additionality”^{/8/} (version 5.0.0) was used to conduct and demonstrate the additionality of the project activity.

In order to demonstrate the additionality of the proposed project, the methodology recommended under ACM0001 version 13.0.0, and the latest version of “Combined tool to identify the baseline scenario and demonstrate additionality” (Version 05.0.0) has been referred. Steps 0, 1, and 2 have been discussed in section 4.7 of this report. Step 3: Investment Analysis and Step 4: Common Practice Analysis have been further used for demonstrating the additionality of the project activity in section 4.7.4 and section 4.7.6 respectively of this report.

The validation team has checked all the assumptions and justifications presented in the final PDD for investment analysis while carrying out the assessment on project additionality. Detailed discussions on the assessment of the project additionality are presented in section 4.7.4 of this report. All data, rationales, assumptions, justifications and documentation provided by the Project Participants to support demonstration of additionality were found to be reliable and credible as described in section 4.7.4 below.

Discussion of CAR & CL:

CL 07 was raised as follows-

It was not clear why version 03 additionality tool^{/8/} was referred on page 18 of the PDD. The PP was also requested to clarify why step 0, which is not a part of the additionality tool version 5.2 has been discussed on page 20 of the PDD.

Responding to the CL 07, the PP revised the PDD and updated the additionality tool^{/8/} applied in the PDD, accordingly all the steps were also revised to make it in line with the latest version of the “Combined tool to identify the baseline scenario and demonstrate additionality”^{/8/}. This was checked and was accepted by the assessment team and CL 07 was **closed**.

4.7.2 Prior Consideration of the Clean Development Mechanism

The project start date and the prior consideration for the project activity has been assessed in line with the requirements of the Glossary of CDM terms, version 07 and EB 70, annex 07 and CDM Project Standard version 05.0.

The PP has considered the date of purchase order placed for blowers, flare and pre-treatment equipment for the biogas i.e. 24/01/2008 as the start date of project activity. By entering into the contract for the project development, the Project Participant committed the financial expenditure for the project activity. This was the first real action made by the Project Participant and thus validated as a start date of the project activity. This was considered as the start date for the project activity in accordance with EB 70 Annex 02 which defines the start date of a CDM project activity as: "the earliest date at which either the implementation or construction or real action of a project activity begins".

Thus the project start date has been found appropriate as per the definition of start date provided under Glossary of CDM terms, version 07 and EB 70, annex 07.

Validation of Prior Consideration of CDM:

The CDM project chronology and supporting documentary evidence was reviewed and prior CDM consideration for the proposed project activity has been demonstrated in the following milestone activities as shown in the below table, as per the guidelines of CDM Project Standard, EB 70, Annex 02. The project falls under the category, for which start date of project activity is prior to 02/08/2008 as per the Clean Development Mechanism Project Standard, version 050 as the start date of the project is 24/01/2008 which is prior to 02/08/2008. The assessment of serious CDM consideration as provided by PP is demonstrated below-

Date	Event	Assessment
June 26, 2003	Meeting between Project Participant and Ministry of Territorial Development, Water and Environment	Letter ^{/22/} from the CUF dated 21 st June 2003 (and its true copy with translation in English dated 08 th June 2009) was checked by the assessment team which confirms the meeting between the PP and Ministry of Territorial Development, Water and Environment, Morocco regarding implementation of project pertaining to CDM. Prior to this, a letter to Mr. President of Fes Urban Community from Ministry of Territorial Development, Water And Environment, Morocco for a call for proposition of project that may benefit from the advantages of CDM. This was checked from the true ^{/73/} and translated copy ^{/72/} dated 8 th June 2009 of letter dated 16 th May 2003. This shows that PP had an awareness of the CDM prior to the project activity start date and this is in line with the requirement of paragraph 108 (a) of VVS version 05.0.
November 4, 2004	Project Participants attended workshop on CDM by the Ministry of Territorial Development, Water and Environment	Invitation Letter ^{/14/} dated 4 th November 2004, sent by Ministry of Territorial Development, Water and Environment to Mr. President of Fes Urban Commune for participation in CDM Workshop was checked from the copy of original letter. A true translated copy ^{/47/} (translated on 8 th June 2009) of the letter dated 4 th November 2004 was also checked by the assessment team. This

		shows that the PP had an awareness of the CDM prior to the project activity start date and this is in line with the requirement of paragraph 108 (a) of VVS version 05.0.
March 29, 2005	Offer by the Ministry of Territorial Development, Water and Environment to assist in the development of the project	<p>Letter^{/48/} dated 29th March 2005, sent by Ministry of National Planning, Water and Environment to the PP in order to provide technical assistance in development of the CDM project was checked by the assessment team. The letter states that the project was identified as one of the project to be developed as CDM project.</p> <p>Further the translated copy^{/48/} (translated on 17th May 2010) of the letter dated 29th March 2005 was also checked by the assessment team. This shows that the PP had an awareness of the CDM prior to the project activity start date and this is in line with the requirement of paragraph 108 (a) of VVS version 05.0.</p>
May 11, 2005	Funding of PIN by the Ministry of Territorial Development, Water and Environment	<p>Letter^{/50/} dated 11th May 2005 sent by Ministry of Territorial Development, Water and Environment to PP confirming the selection of CDM consultant in order to assist in the CDM project development was checked by the assessment team.</p> <p>A true translated copy^{/51/} (translated on 8th June 2009) of the letter dated 11th May 2005 was also checked by the assessment team. This shows that the PP had an awareness of the CDM prior to the project activity start date and this is in line with the requirement of paragraph 108 (a) of VVS version 05.0.</p>
July 5, 2006	The CUF requested to Ministry of Interior for seeking permission to pursue the project under CDM	Letter ^{/17/} from the CUF to Ministry of Interior dated 5 th July 2006 was sent for grant of approval to develop the project activity and acquire CDM status for carbon revenue as an amendment to the initial contract (which was signed for development & operation/management of controlled landfill). Original ^{/17/} and true translated copy of the letter ^{/65/} provided by the PP (translated on 8 th June 2009) was checked by the assessment team.
August 4, 2006	Approval of project by the Ministry of Interior (Project investment decision with CDM consideration)	<p>ADDENDUMNO.2 TO AGREEMENT NO.1/2002^{/34/} of the Delegated Management Agreement of Fes Controlled Landfill for the City of Fes was checked by the assessment team. The addendum has described that the project (biogas capture and flare) will be developed as a CDM project and CER revenues will be generated.</p> <p>This addendum was signed and approved by the Ministry of the Interior date 04/08/2006 to go ahead with the project. This is the investment decision date for the project activity. This was further checked by the assessment team from the translated version of the agreement^{/34/} as submitted by the PP. Thus the assessment team</p>

		is of the opinion that the PP had an 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. Thus the decision to proceed ahead with the project is in line with the requirement of paragraph 108 (a) of VVS version 05.0.
May 3, 2007	Power agreement negotiations	Letter ^{/54/} from the president of CUF dated 3 rd May 2007 to National Office of Electricity in Fes Boulemane Region requesting a power agreement negotiation meeting was checked by the assessment team. A translated copy ^{/55/} of the letter dated 8 th June 2009 as provided by the PP was checked by the assessment team.
October 20, 2007	Power agreement negotiations	A follow up letter ^{/74/} was sent by president of CUF, dated 20 th Nov 2007 to National Office of Electricity in Fes Boulemane Region. A true translated copy of the letter as provided by the PP was checked by the assessment team.
January 24, 2008	Start of project activity	Purchase order ^{/30/} for Biogas treatment installation (Purchase order No.INFO012/2008), dated 24/01/2008 was checked by the assessment team. Thus the project start date was confirmed, this is also in line with the definition of project start date as mentioned in EB 70, Annex 07, which states that the start date of the project activity is the earliest date at which either the implementation or construction or real action of a CDM project activity begins. The purchase order placed indicates the commitment of the PP to implement the CDM project activity and is considered as an implementation activity. As per paragraph 106 of VVS version 05.0, the start date of the project activity was accepted by the assessment team.
13 June 2008	Old Host Country Approval by DNA	Letter of Approval ^{/76/} issued from host country DNA dated 13/06/2008 was checked in original during the site visit by the assessment team. The original LoA was replaced by LoA dated 29 December, 2009 (which includes both PPs). See further down for information.
24 July 2008	Contracting DOE for CDM validation of the project	Validation Services Agreement between SGS United Kingdom Limited and Ecomed Gestion des Dechets dated 24/07/2008 ^{/79/}
19 August to 17 September 2008	Webhosting of PDD	The project activity was published for global stake holders comments. This was checked from the UNFCCC website: http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html This indicates the start of validation activity of the project. Thus the assessment team is of the opinion that real and continuing actions were taken to secure CDM status for the project activity. This is in line with the requirement of

29 December, 2009	New Host Country Approval by DNA	<p>paragraph 108 (b) of VVS version 05.0</p> <p>Letter of Approval^{12/} dated 29/12/2009 was checked by the assessment team and was found to be authentic.</p> <p>The authenticity of LoA^{12/} was also cross checked from the DNA of Morocco via email communication^{177/} dated 13/09/2012. The DNA of Morocco confirmed the issuance of the LoA, dated 29/12/2009 to the project activity. Further the status of the project was also checked from the DNA website^{44/} (http://www.minenv.gov.ma/PDFs/Portefeuille_MD_P.pdf), which has listed the project as under “validation” project. A screen shot^{63/} of the website has been included in the section 7 of this report.</p> <p>Thus the assessment team is of the opinion that real and continuing actions were taken to secure CDM status for the project activity. This is in line with the requirement of paragraph 108 (b) of VVS version 05.0.</p>
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With reference to paragraph 106 of VVS, version 05.0, the assessment team validated the start date of the project activity from the Purchase order for biogas treatment installation (Purchase order No.INFO012/2008), dated 24/01/2008, and the assessment team is of the opinion that the start date of the project activity is before 2nd August 2008.

With reference to the requirement of paragraph 108 (a) of VVS, version 05.0, based on the verified objective documentary evidences (letter from CUF dated 21st June, 2003^{22/} and MoM dated 26th June, 2003^{13/}) for meeting between Project Participant and Ministry of Environment, and subsequent evidences related to written communications between government agencies of Morocco (viz. Ministry of Territorial Development, Water and Environment, Govt. of Morocco; Ministry of National Planning, Water and Environment, Govt. of Morocco; Ministry of Interior, Govt. of Morocco) and CUF (CDM Workshop invitation letter dated 4th November 2004^{14/}, letter dated 29th March 2005^{48/}, letter dated 11th May, 2005^{50/} and 5th July 2006^{17/}) assessment team concluded that the PP had an awareness of the CDM prior to the project activity start date 24/01/2008.

Further with reference to the requirement of same paragraph 108 (a) of VVS, version 05.0, the assessment team concluded that that the benefits of the CDM were a decisive factor in the decision to proceed with the project, from the ADDENDUMNO.2 TO AGREEMENT NO.1/2002^{34/} of the Delegated Management Agreement of Fes Controlled Landfill for the City of Fes, signed and approved by Ministry of the Interior, Govt. of Morocco dated 04/08/2006.

With reference to the requirement of paragraph 108 (b) of VVS, version 05.0, the assessment team concluded that that real and continuing actions were taken to secure CDM status for the project in parallel with its implementation. This was checked and confirmed from the events like getting host country approval letter (old) dated 13th June 2008, webhosting of the PDD at the UNFCCC website for global stakeholder’s comments (<http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html>) and subsequent issuance of the new host country approval letter, dated 29th December 2009.

The real and continuing actions taken to secure CDM status was further cross checked by interviewing plant project personnel (details of persons interviewed are summarized in section 6 of the report) during the site visit by the assessment team, with reference to the requirement to the paragraph 109 of VVS version 05.0. Thus the assessment team is of the opinion that the requirement of paragraph 108 (b) of VVS, version 05.0 has been met by the project activity.

With reference to paragraph 110 (a) of VVS version 05.0, the assessment team finally concluded that continuing and real actions were taken to secure CDM status for the project activity as there is less than two years of a gap between the documented evidence to ensure real and continuing actions taken to secure CDM status.

Discussion of CAR & CL:

CAR 08 was raised as follows:

The PP was requested to provide the documentary evidences for the project start date in line to the report of EB 41, para 67. The PP was also requested to clarify why section C.1.1 of the PDD reads 'estimated start date'.

Further the PP was requested to justify that the CDM benefits were considered necessary in the decision to undertake the project as a CDM project activity. The PP was also requested to demonstrate that CDM was considered before the project start date.

Addressing the CAR 08, the PP provided the following response-

CDM was seriously considered before the start date of project activity. The Commune Urbaine de Fes (CUF) held a meeting on June 26, 2003 with the Ministry of Environment regarding the CDM for Fes Landfill. On November 2004, the CUF, based on an invitation from the Ministry of Environment, attended a workshop organized by the Ministry and UNDP for the development of CDM projects. On March 29, 2005, the Ministry of Environment offered assistance to the CUF for the development of a PIN for the project, and on May 11, 2005, the project was one of the nine projects for which the Ministry funded.

In January 2006, the CUF asked Ecomed to conduct a feasibility study and economical analysis of the project and on July 5, 2006 requested an amendment to the landfill operation contract to explore the gas extraction and flaring within the framework of CDM. Ecomed submitted a PDD to the Moroccan DNA on February 3, 2008 and received an approval on June 13, 2008.

In addition, the CUF and Ecomed started negotiations since 2007 with the National Office of Electricity, Morocco for the sale of potential power that can be obtained from the landfill. Several meetings were held and correspondences exchanged (May 3, 2007 and October 20, 2007) between the parties and a power agreement was still in negotiations (April 16, 2009). The project participants have been for a long time aggressively pursuing the implementation of this project under CDM. The delays are mainly due to administrative procedures and power agreement negotiations. The detailed chronologies of events have been assessed by the assessment team, and this has been already discussed above.

Further the PP was requested to clarify regarding the start date of project activity, as there was some inconsistencies observed regarding the start date of the project activity. Addressing this, the PP confirmed that the start date of the project activity is 24/01/2008; this is the date on which PO for blower was issued by the PP. The documentary evidence submitted by the PP was checked and was found to be correct. This was accepted by the assessment team and CAR 08 was **closed**.

CL 15 was raised as follows:

The PP was requested to provide the supportive document, in line with the EB 41 para 67 for the starting date of the project.

Further the PP was also requested to justify why the assessment period of the project activity has been considered as 15 years only, considering that the project life time is 20 years. The PP is requested to justify the assessment period for the project activity as per para 3 of EB 62, Annex 5. CL open.

Providing response to the CL 15, the PP provided the below response-

The start date of the project activity is January 24, 2008 when an actual purchase order to buy the first set of gas equipment was placed. This was checked from Purchase order for gas equipment^{/30/}. This is also in line with the project start date as per EB 70, Annex 07, which states project start date as the earliest date at which either the implementation or construction or real action of a CDM project activity or CPA begins

The project operational life can be up to Dec 2031, as per the landfill contract and based on the assumption that gas engine may operate for 15-20 years. However, the assumption that gas engines runs for approximately up to 60,000 hours without undergoing major overhaul. In fact EB 50 Annex 15 prescribes only 50,000 hours for gas based generators. Considering the LFG gas is more detrimental to gas engines as compared to other gas e.g. natural gases, the operational life time of the gas engines would be significantly less. On the other hand, if 50,000 as prescribed by EB 50 Annex 15 is considered the operational life of gas engines would be much less than 15 years. Therefore, the considered life time as 15 years is conservative and it also does not take into account the cost associated with major overhauls and also considers a salvage value.

The response provided by the PP was found to be correct. The life time of gas engines were checked from publicly available source (<http://www.clarke-energy.com/service/upgrades-repair-and-overhaul/>). This says the gas engines needs a complete overhaul after 60,000 hours of operation. This was further cross checked from EB 50, Annex 15, which suggests the operation hours of a gas engine as 50,000. Considering that 15 years of life time is a conservative approach, this was accepted by the assessment team.

Moreover, the period of the assessment i.e. 15 years is reasonable in context to the current project activity, considering the fact that the PP has considered 10 % salvage and the IRR remains below the benchmark, even if with a 25% salvage value, the IRR still remains below the benchmark. Hence, the assessment period of 15 years is suitably justified by the PP and same is found to be satisfactory. Thus CL 15 was **closed**.

Opinion:

The assessment team concluded that the start date of the project activity is before 2 August 2008 and prior to the date of publication of the PDD for global stakeholder consultation. The assessment team also concluded that the PP had an 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 and real and continuing actions were taken to secure CDM status for the project in parallel with its implementation. Validation of the prior consideration of CDM was carried out as per the paragraph 106-111 of VVS, version 05.0. On the basis of the assessment as described above, the assessment team is of the opinion that the project activity meets the requirement of paragraph 105 of VVS, version 05.0.

4.7.3 Identification of alternatives

The identification of alternatives has been discussed under the section 4.7 - "Baseline Selection", of this report.

4.7.4 Investment analysis

The Combined tool to identify the baseline scenario and demonstrate additionality^{8/}, version 5.0.0 has been applied to identify the most plausible baseline scenario and to demonstrate the additionality of the proposed project. The PP has opted for Investment analysis. Investment analysis has been conducted to compare the economic or financial attractiveness of the alternative scenarios remaining after Step 0, Step 1 and Step 2. The investment analysis determines whether the proposed project activity is not economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

The investment analysis is conducted according to the "Combined tool to identify the baseline scenario and demonstrate additionality" (Version 05.0.0) and the "Guidelines on the Assessment of Investment Analysis" (version 05). Therefore, the following sub-steps have been undertaken:

Determine appropriate analysis method:

Alternative 1 (LFG2+E3), the status quo, do not have any cost or revenue, therefore, no investment analysis was performed for this alternative.

Alternative 2 (LFG1+E1), landfill gas capture and flaring and utilization for electricity generation, involves substantial investment and revenues through the sale of electricity, in the absence of CDM. Hence, simple cost analysis cannot be applied. The investment comparison analysis is not used as the identified baseline scenario leaves project participants to invest and not to invest. Therefore, the benchmark analysis (Option III) will be used for this alternative, which is appropriate in the context of the project activity. This is also in line with EB 62, Annex 5, paragraph 19.

Benchmark analysis:

Identification of the financial indicator:

Equity Internal Rate of Return (Equity IRR) was considered as the most appropriate, and the most suitable for the project type and decision context. Therefore, Equity IRR was chosen as the financial indicator based on which the project developer made the investment decision. The selection of financial indicator was found to be in line with the paragraph 27 of "Methodological tool: Combined tool to identify the baseline scenario and demonstrate additionality", version 5.0.0.

Identification of the benchmark:

The cost of equity (K_e) is selected as the benchmark in accordance to the "Guidelines on the Assessment of Investment Analysis" (EB 62, Annex 05, Version 05), "Required/expected returns on equity are appropriate benchmarks for an equity IRR". For this purpose, the default values for the approximate expected return on equity for different project types and host countries as provided in the relevant guidance have been used.

As per the guidance, in situations where an investment analysis is carried out in real terms, project participants can convert the real term values provided in the table below to real values by adding the inflation rate. However, the investment analysis has been presented on real terms only therefore conservatively no inflation has been added to the benchmark. Therefore, the benchmark for post tax equity IRR (real cost of equity) has been considered 12% as prescribed in the EB 62 Annex 5 for the type of project in Morocco. Moreover, during the investment decision date Aug 4, 2006 same value was used by the project participants based on commercial expectations. Therefore, in the webhosted PDD a discount rate of 12% was used for determining project NPV. The considered benchmark is consistent with the assumption on the date of investment decision and start date as well and it is also conservative and equal to the default value prescribed in EB 62 Annex5.

The benchmark value considered was found to be correct as it is in line with EB 62, Annex 05, paragraph 8 of Appendix. The correctness of the assumption with regard to this project activity was further checked from EB 73, Annex 08, which states that "The default values for the expected return on equity as adopted by the Board at its sixty second meeting are based on long term historical returns and therefore may also be applied by projects with a start date prior to the sixty-second meeting of the Board." Thus the benchmark value adopted by the PP as per EB 62, Annex 05 was accepted by the assessment team.

Validation of Investment Analysis:

Capital Expenditures:

The project activity's main capital goods, include the gas collection pipes, the gensets, the flares and the gas blowers and pre-treatment systems. The project participants have obtained quotes from vendors for all of these components during the feasibility study before the time of decision making. The costs of each of these capital expenditures, was validated as shown in the table below-

Designation	Total Cost MAD (DH)	Assessment
Blowers and Gas Pretreatment	1,310,690	The Blower and gas pre-treatment cost was checked from the Quotation ^{21/} by technology supplier Edgeboro International, Inc., dated 03/03/2006 provided by the PP as "CAPEX_Blowers and Gas Preatreat Quote from EII 2006". The information as mentioned in the

Designation	Total Cost MAD (DH)	Assessment
		PDD and the IRR calculation sheet ^{/5/} was found to be consistent. This was further cross checked from actual purchase details ^{/30/} , dated 24/01/2008. It was found that the cost as per actual is higher than the estimated cost at the time of decision making. It is acceptable considering the fact that there are almost 23 months gap between the quotation from technology supplier and the actual date of purchase. Also the assumption of the PP for calculating IRR is on the conservative side. It was also confirmed that the quotation, dated 03/03/2006 was available to the PP, at the time of decision making, hence this is in line with the requirement of EB 62, Annex 5, paragraph 6. Thus this information was accepted by the assessment team.
Flare	1,370,656	The cost of flaring devices was checked from the quotation ^{/31/} by John Zinc Company LLC provided by PP as CAPEX_Flare, dated-02/03/2006 and was found to be consistent with PDD and IRR sheet ^{/5/} . Thus this information was accepted by the assessment team.
Gensets (3MW)	40,160,221	The cost of genset was checked from the quotation ^{/56/} by Kraft Power Corporation as provided by the PP as CAPEX_Genset Quote from Kraft 2006, dated 02/02/2006. The price mentioned in the quote was found to be consistent with the PDD and the IRR sheet ^{/5/} . Thus this information was accepted by the assessment team.
HDPE Pipes	1,620,288	The cost of HDPE pipes were checked from the quotation ^{/33/} provided by the equipment supplier Plastima to the PP, dated 03/01/2006. This was found to be consistent with the values as mentioned in the PDD and the IRR sheet ^{/5/} of the project activity. This information was available to the PP at the time of decision making, hence this is in line with the requirement of EB 62, Annex 5, paragraph 6. Thus this information was accepted by the assessment team.
TOTAL	44,461,855	Thus the input parameter considered in the IRR calculation sheet ^{/5/} was verified from the quotations provided by the PP of different component and was found to be acceptable. The costs were also cross checked with the available actual purchase orders. The input parameters considered by the PP is valid and was available at the time of decision making, which is in line with the requirement of EB 62, Annex 5, paragraph 6. Thus this was accepted by the assessment team.

Operating Expenditures:

The operating expenditures of the project activity which included Repairs and Maintenance cost, Insurance Cost, Overheads & Administration cost etc were validated as shown below-

Designation	Amount	Assessment
Repairs and Maintenance cost	0.077 DH/kWh	The repair and maintenance cost was verified from the quotation by ELEDIGIS ^{/40/} , dated 01/03/2006, provided by PP. This was available to the PP at the time of decision making. Thus the Repairs and Maintenance cost was accepted by the assessment team.
Overheads & Administration cost	1.00 DH	This based on company rates at available at the time of decision making. This was checked from the assumption value provided by the PP and was found to be acceptable by the assessment team.

Corporate Tax Rate	35.00%	The Corporate tax rate at the time of decision making date in 2006 is 35% as confirmed by the Moroccan Finance Law ^{42/} No. 35-05 for fiscal year 2006, Official Bulletin No. 5382-bis Article 20, Chapter III, page 990. This was checked by the assessment team and was found to be correct.
Auxiliary Consumption	3.00%	The auxiliary consumption was checked from the quotation provided by the equipment supplier, dated 02/02/2006. In the quotation it is mentioned that the auxiliary consumption is 2% to 3%. Thus the assumption made was found to be correct. This information was also available to the PP at the time of decision making; hence the same was accepted by the assessment team.

Financing terms:

The debt to equity ratio for the project was selected as 50/50 as the default value based on guidance in Annex 5 of EB 62. The loan tenure and moratorium were selected based on a proposal from the bank. These data and their sources are shown in the table below.-

Designation	Amount	Assessment
Debt :Equity	50:50	Considering there are no projects in Morocco and no publicly available information available in this regard the PP choose to apply a 50:50 D/E ratio. The paragraph 18 of EB 62, Annex 5 also allows the use of default D/E as 50-%50%, and this is similar to the project activity assumption. This was found to be correct by the assessment team, hence this was accepted.
Interest rate	7.19%	The interest rate was checked and confirmed from the "Loan and rates quote" ^{59/} from SGMDB Bank dated 06/02/2006. This was the latest information available to the PP at the time of decision making for implementing the project activity. The interest rate as mentioned in the PDD was found to be consistent with the quote provided by the bank. This was accepted by the assessment team.
Tenure	60 Months	The tenure of Loan was checked and confirmed from the "Loan and rates quote" ^{59/} from SGMDB Bank. The tenure as mentioned in the PDD and the IRR sheet ^{5/} was found to be consistent with the quote provided by the bank. Further the moratorium has been assumed as 1 year, this was further checked from the "Loan and rates quote" ^{59/} from SGMDB Bank dated 06/02/2006. This was accepted by the assessment team.
Selling cost/Tariff	0.38 MAD/kWh	The selling cost of electricity has been sourced from Energy Prices, 2006 of Morocco. This was further cross checked from the letter ^{37/} from National Office of Electricity (dated 28/02/2008) to PP.. The actual selling cost was found to be consistent with the assumption made in the IRR sheet ^{5/} . Hence this was accepted by the assessment team. The applicable tariff rate was further checked from a fax communication ^{64/} received from National Office of Electricity (grid utility) dated 2nd July 2012 that clearly confirms that the average tariff for first 5 years is 0.45 DH/kWh, and after that 0.37 DH/kWh. The best tariff is expected in the first 5 years which is 0.45 DH/kWh and that is 11.8% increase from the

Designation	Amount	Assessment
		considered tariff and this variation has already been covered under sensitivity analysis of the project. Considering the fact that the 0.38 DH/kWh was available at the time of decision making, this was accepted by the assessment team.
Standard availability for biogas engines	85%	It was based on assumption based on experience and informal discussion with the suppliers and knowledge. The value is relatively on higher side as the availability of gas engine is highly dependent on the stability of fuel, which is LFG here and is not so easy to obtain. However, as indicated in the sensitivity section of the PDD, the IRR does not cross the benchmark even if a theoretical value of 100% is considered in its place. Thus this value was accepted by the assessment team.
Standard electrical efficiency of biogas engine	38%	<p>The efficiency was considered from another gas engine i.e., Jenbacher standard 1 MW, which is nearly 3 times to that of proposed gas engine. It is a known fact that the efficiency of lower size gas engine would be lower. Therefore, for the purpose of estimation of financial indicator it was assumed at that point of time. The actual efficiency is not specified in the product brochure either.</p> <p>Further, the latest Tool to calculate emission factor of an electricity system Version 3 prescribes a default gas engine efficiency as 39% for the size between 200kW to 400kW (page 34). Therefore, we understand that the assumption that was made by the PP at the time of the investment decision truly reflects the conservativeness. However, in order to further alleviate the doubt on conservativeness the parameter has been put to sensitivity as well. There it can be seen that the IRR does not go beyond 6.42% even if the efficiency is put as 100%..</p>

Assessment period –

In the proposed CDM project activity, the PP has considered the financial assessment period of 15 years since the operation lifetime of the gas engine i.e. running hour of the gas engine has been considered on a conservative side i.e. 60,000 hours and the supportive evidence i.e. the weblink^{62/} also confirm the running hours of the same, moreover, the EB 50, annex 15 prescribes only 50,000 running hours for gas engine, which is less than the running hour considered in the project activity. Also, the period of the assessment i.e. 15 years is reasonable in context to the current project activity, considering the fact that the PP has considered 10 % salvage and even if with a 25% salvage value, the IRR still remains below the benchmark. Hence, the assessment period of 15 years is suitably justified by the PP and same is found to be satisfactory.. This is as per the “Guidelines on the Assessment of Investment Analysis” Version 5 (EB 62, Annex 5) paragraph 3 which suggests a minimum of 10 years and a maximum of 20 years assessment period should be considered. The assumption made by the PP was found to be correct against the “Guidelines on the Assessment of Investment Analysis” Version 5 (EB 62, Annex 5).

Salvage Value:

The salvage value has been considered as 10%, which is reasonable for this kind of project equipments where the deterioration is even higher. The salvage value is an assumption made by the PP. The depreciation rate has been considered as 6.0% based on useful operational life of 15 years and using standard SLM formulae. The IRR of the project activity is still below the benchmark. The recovery cost of capture system is negligible once it is put in the cell as it cannot be extracted and the properties of LFG damage the gas engines more often than any other power generation equipments. Considering the salvage value is taken after the end of life, the value to be reasonable, conservative and justified.

Loan Repayment Period:

Loan repayment periods of 5 years for the project activity and the moratorium period is 1 year. This was checked from the bank letter^{/59/}, dated 06/02/2006.

It is noteworthy that the assessment are unable to provide the cross checking of the input values which are available at the time of investment decision, since this is the first landfill recovery project with power generation in the host country i.e. Morocco and the only one project which was in place prior to the project is only a methane avoidance project without any power generation and is currently under validation stage at with the UNFCCC. There is no registered project as yet in Morocco under this methodology. This was further confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/projsearch.html>). Further, the PP has not placed full purchase order for the implementation of the project as it the project is under the process of registration. This issue has been discussed under CAR 09, in section 4.7.4 of this report. However it was confirmed that all the input parameters have been sourced from quotation of technology suppliers or from publicly available source. These input parameters were available to the PP at the time of decision making and are valid with respect to this project activity. This is in line with the paragraph 6 of EB 62, Annex 5. Thus the input parameters were accepted by the assessment team.

IRR Calculation:

The IRR calculations based on above assumptions including input assumption available during investment decision has resulted in equity IRR of 4.58%, against the identified benchmark of 12% (using EB, 62, Annex 5 and EB 73, Annex 08. Further, while calculating equity IRR only the portion of investment costs which is financed by equity have been considered as the net cash outflow, the portion of the investment costs which is financed by debt has not be considered a cash outflow. This is in line with the requirement of EB 62, Annex 05, paragraph 10. Thus the IRR calculation was found to be correct by the assessment team.

Sensitivity Analysis:

In the sensitivity analysis, the return on equity is subjected to sensitivities in key project assumptions. Following EB62 annex 5 guidance, only those values that constitute for more than 20% of the total project costs or total project revenues should be subjected to a reasonable variation. Key assumptions that qualify for this has been provided in the PDD, subjected to sensitivities of +/- 10%. The impact of the sensitivity analysis on the overall equity IRR of the project activity are presented below:

Variable	Sensitivity		
	-10%	0%	10%
Capital Cost	6.26%	4.58%	3.20%
Electricity Sales Price	2.30%	4.58%	6.82%
Electricity Generation	2.72%	4.58%	6.43%
O&M Cost	3.57%	4.58%	5.47%
Efficiency of gas engine	4.98%	4.58%	4.18%
Benchmark	12.0%		

Based on the outcome of the sensitivity analysis it was concluded that even after the sensitivity analysis the equity IRR for this project activity will not cross the benchmark. It is extremely unlikely that any of the key assumptions will exceed +/- 10% sensitivities and therefore we conclude that the sensitivity analysis confirms that the project activity is financially unattractive without considering the benefits of CDM.

Analysis of threshold value:

The PP further conducted an analysis to find the threshold limit, i.e, the minimum variation at which the equity IRR of the project activity touches the benchmark value of 12%. The analysis which was further checked by the assessment team is depicted below-

Parameter	Threshold limit	DOE Assessment
Capital Cost	-34.3%	The equity IRR of the project activity touches the benchmark value of 12% if the capital cost of the project activity reduces by a margin of -34.3%. This is a most unlikely scenario considering the constantly increasing inflation rate. Further all the input parameters are based on the quotations from the technology supplier. The sensitivity analysis has been done for a variation of $\pm 10\%$, and it was concluded that the equity IRR for the project still remains below the benchmark value of 12%.
Electricity Tariff	34.8%	The equity IRR of the project activity touches the benchmark value of 12% if the electricity tariff of the project activity increases by 34.8%. This is a unlikely scenario considering National Office of Electricity has fixed tariff for electricity generating projects. This was further checked and confirmed from the letter ^{19/} from National Office of Electricity, dated 2 nd July 2012, which shows that the tariff for first 5 years is 0.45 DH/kWh and from 6 th year onwards it is 0.37 DH/kWh. Considering the fact that the tariff rate ^{37/} of 0.38 DH/kWh was available to PP at the time of decision making, PP has considered 0.38 DH/kWh value for the investment analysis. This was found to be correct and the assessment team is of the opinion that a variation of 34.8% is unlikely in this project activity.
Electricity Generation	42.3%	The equity IRR of the project activity touches the benchmark value of 12% if the electricity generation increases by 42.3%. This much of variation in electricity generation is a highly unlikely scenario, as the electricity generation is based on LFG generated and the rated capacity of the gas engine installed. The LFG generated has been calculated based on the FOD calculations. Further the specification of the gas engine installed at the project site was checked by the assessment team from the genset quotation from Kraft Power Corporation. Thus it was concluded by the assessment team that a variation of 42.3% in the electricity generation is unlikely.
O&M Cost	-199.9%	The equity IRR of the project activity touches the benchmark value of 12% if the O&M cost goes down by a margin of 199.9%. This is unlikely that there will be this much variation in the O&M cost. Further the O&M cost was checked from the quotation dated 01/03/2006, provided by the service provider and was found to be consistent with the assumed value in the IRR sheet and the PDD.
Efficiency of gas engine	No value	The PP has considered the efficiency of the gas engines as 38%. The equity IRR for the project activity does not touch the benchmark value even if the efficiency of the gas engine becomes 100%, which is unrealistic for any engine. Further $\pm 10\%$ sensitivity has been carried out for the efficiency of the gas engine and this has been demonstrated in the revised PDD.

Based on the outcome of the sensitivity analysis it was concluded that even after the sensitivity analysis the equity IRR for this project activity does not cross the benchmark. Furthermore, following additional analysis was also undertaken and it is demonstrated that the equity IRR does not cross the benchmark if;

- The equity portion is changed from 50% to any other % i.e., 10% - 100%
- The availability of gas engines is increased from 85% to 100%
- The auxiliary load of gas engines and transmission losses are ignored
- The LFG recovery rate is increased from 60% to 100%
- The salvage value is considered from 10% to 100%
- The overheads and administrative cost considered 0

Thus, it has been clearly demonstrated through the sensitivity analysis that the proposed CDM project activity is not financially attractive and hence, it is found additional. The IRR sheet has been checked and verified by the assessment team including the financial expert as well as by the Sectoral expert and was found to be satisfactory.

Discussion of CAR & CL:

CAR 09 was raised as follows-

1. The PP was requested to provide with all supportive documents for assumptions used to calculate the NPV/IRR.
2. The PP was requested to provide documentary evidence of the electricity tariff for the particular region for which calculation has been done.
3. The PP was requested to provide documentary evidences for any debt & rate of interest considered any for the project activity. Proof of project benchmark.
4. The choice of start date is as per the invoice of import. However the PP is requested to provide a copy of the actual purchase order issued by the PP to the equipment supplier.
5. There are two sets of quotations issued by the supplier of pipes dated 31/01/2006 and 12/08/2009. The PP is requested to clarify why there were two such quotations with a price variation in the range of 30%.
6. The quotes have been issued to one Global Environmental Sustainability Inc. the PP is requested to clarify if these quotes are applicable to the current project activity as well.
7. The quote from Kraft Power Corporation states that the enquiry was received through verbal communication on 06/10/2006 whereas the letter itself is dated 02/02/2006. The PP is requested to clarify.
8. For the following documents it could not be ascertained that the letters were issued by the stated authority as they were not from their letterheads:
 - a. Letter from ONE regarding the price of power purchase dated 02/02/2006
 - b. Letter from Societe Generale Marocaine de Banques dated 06/02/2006
9. Copy of the fax document submitted from Ste Eledigis for the O&M price of Mercedes generator is undated and hence the PP is requested to confirm the date of issue.
10. The exchange rate considered between USD and MAD is 8.5666. However, the value applicable at the time of investment decision needs to be provided.
11. The PP has considered a price of 1 million MAD for overheads and administration costs, and has cited company rates as the source. The PP is requested to provide the supportive document for this.
12. The cost of insurance has been provided as a flat rate, whereas the PP has used a percentage estimate. The PP is requested to provide the source document.
13. The corporate tax value used is inconsistent between the PDD and the IRR spreadsheet.
14. Please justify why 12% cost of equity has been considered and how it is appropriate considering that the EB 62, annex 5 was not available at the time of investment decision. The PP requested to provide the source of considered benchmark and justify the availability of the same at the time of decision making, suitability and comparability of the same. Also, the PP is requested to submit the benchmark used at the time of decision making. Also clarify how the salvage value is calculated.
15. Please provide the source and justify the approach for the inflation forecast value of 2.09% as mentioned in the PDD.
16. The PP is requested to kindly justify whether considered D/E ratio is in line with requirement set out in para 18 of EB62 Annex 5. The project activity involves debt as well as equity component. In this context the PP is requested to justify how equity IRR is a suitable indicator for the investment analysis?
17. The PP is requested to clarify why the loan repayment has not been considered as an expense while calculating the equity IRR in line with para 10 of EB 62, Annex 5. Also clarify why there is no escalation is considered in tariff rate.
18. The PP is requested to kindly correct the tax calculation considering the depreciation allowed as expenses to calculate the income tax.
19. The PP is requested to kindly correct the Equity IRR calculation as loan repayment has not been considered as an expense in doing so please refer para 10 of EB62 Annex 5.
20. The PP is requested to justify that the analysis is conducted in real terms as revenue stream and cost has been kept constant through out the analysis.

21. The sensitivity analysis done in the IRR sheet is not reproducible. The PP to take corrective action. The PP is also requested to mention threshold limits against each considered parameter under sensitivity.
22. As per combine tool to demonstrate the baseline & additionality, The PP needs to apply the latest version of the "Guideline on the common practice" as available at UNFCCC website.
23. Common Practice Analysis:
 - a. It is not clear why the PP has considered the point (b) of Measure for project activity. Also, the PP was requested to clarify why they had not provided the justification against applicable measure.
 - b. The PP was requested to justify, how the heat generation and flaring is considered as Output as per definition of Output mentioned in "Guidelines on common practice" Version 2.0?
 - c. The PP was requested to justify why the PP has not defined the Different technologies for proposed CDM project activity as per definition of Different technologies "Guidelines on common practice" Version 2.0?
 - d. The PP was requested to justify how the value of F is zero in calculation of factor $F = 1 - \frac{N_{diff}}{N_{all}} = 1 - 0/0 = ?$
 - e. The PP was requested to check this statement for factor calculation is correct or not?
24. The PP was requested correctly specify the "start date of CDM project activity" instead of "project start activity".
25. Biogas generation from leachate generated has not been taken as a source of emission. The PP was requested to justify the same.

While addressing the CAR 09, the PP provided the following response-

1. The Spreadsheet for NPV/IRR was submitted by the PP along with the supportive documents. This was checked by the assessment team.
2. The electricity tariff used is the tariff published by the National Electricity Office. The tariff is fixed for the whole country. It states that the national grid would purchase green power from any independent producer at a rate equal to 50% of the sale price of electricity by the grid. The current sale price of electricity by the grid is 0.7649 dh/kWh. Thus the effective tariff for sell of electricity to the grid by independent producer is 0.38 DH/kWh. This was further checked from the letter from National Electricity Office to the PP, dated 28/02/2008 and the tariff was found to be consistent.
3. The rates used in the NPV/IRR sheet were obtained from the SGMDB. The bank letter dated 06/02/2006 was checked by the assessment team and it was found that the interest rate of 7.19% as mentioned in the bank letter has been correctly sourced in the IRR sheet.
4. A copy of the purchase orders, dated 24/01/2008 for the project equipments has been submitted by the PP. All the project components are not yet purchased as the project is not yet registered, hence all the purchase orders are not yet available with the PP. The start date of the project activity is based on the purchase order date 24/01/2008. This was found to be acceptable by the assessment team.
5. The quotation from the supplier of pipes in 2006 was higher as the PP obtained only a 20% discount for this particular project. PP was able to negotiate in 2009 additional discounts from the supplier for other projects due to the volume of business the PP was doing with the supplier. For this project, the quotation of 2006 was used in the IRR analysis, as this was the value available to them during the decision making time. The justification provided by the PP was found to be acceptable as it meets the requirement of EB 62, Annex 05.
6. Some quotes were provided for this project activity directly to Global Environmental Sustainability Inc. as the consultant who prepared the PDD for the project. The quotes are applicable to the current project activity as it is not mandatory that quotes shall be in the name of the PP only. The justification provided by the PP was found to be acceptable by the assessment team.
7. The PP stated that there was a typo error in the quotation from the Kraft Power Corporation. The actual date of the quotation is 02/02/2006. This was found to be acceptable by the assessment team.

8. The PP confirmed that the documents were issued by the stated authorities. Furthermore, the data provided in the documents were public information as asserted by the following documents.
 - a. The energy rate used in the IRR analysis is based on the standard government rates that the grid is offering to all power producers even to nowadays. This was accepted by the assessment team, as the translated copy was provided by Sworn Translator, Accredited to the Courts.
 - b. The commercial interest rate provided by the bank is the same published interest rate by the Moroccan National bank (Bank Al Maghreb) for 2008. The documentary evidence submitted by PP was checked and was accepted by the assessment team.
 9. The fax document from Ste Eledigis for the O&M price has been submitted by the PP, and the document is dated 01/03/2006. This was checked by the assessment team and was found to be acceptable.
 10. The PP stated that the Exchange Rates on at the time of decision making was taken from the website <http://www.oanda.com/currency/historical-rates/>. This was checked by the assessment team and was found to be correct. The exchange rate considered here was valid at the time of decision making of the project activity.
 11. In response to the CAR 09, the PP provided a breakup of the overheads and administration costs of the company. This was checked by the assessment team and was found to be acceptable.
 12. The PP has revised the IRR sheet and has removed the insurance cost considered earlier. This was found to be a conservative approach and was accepted by the assessment team.
 13. The Corporate tax rate at the time of decision making date in 2006 is 35% as confirmed by the Moroccan Finance Law No. 35-05 for fiscal year 2006. Official Bulletin No. 5382-bisArticle 20, Chapter III, page. 990, Article 20: Tax rate" The rate of tax on companies is set to: A-35%
- The Tax Rate of 35% was checked from the Moroccan Finance Law^{/42/} No. 35-05 for fiscal year 2006, Official Bulletin No. 5382-bisArticle 20, Chapter III, page 990. The assumption by the PP was found to be correct.
14. As indicated in the web hosted PDD (Version 4, dated 01/07/2008) that the initial financial indicator was NPV where discount factor was assumed as 12% (page 23). However, during the course of the validation, the financial indicator has been converted into equity IRR analysis and default return on equity has been chosen as the benchmark from EB 62, Annex 05, which is also incidentally same. Therefore, the selection of value is reasonably justified. The salvage value has been considered as 10%, which is reasonable for this kind of project equipments where the deterioration is even higher. The recovery cost of capture system is negligible once it is put in the cell as it cannot be extracted and the properties of LFG damage the gas engines more often than any other power generation equipments. Considering the salvage value is taken after the end of life, the value was found to be reasonable, conservative and justified.
 15. The inflation rate has been removed from the revised IRR sheet, this was found to be conservative by the assessment team.
 16. Considering there are no projects in Morocco and no publicly available information available in this regard. The paragraph 18 of guidance allows the use of default D/E as 50-%50%, and same is applied.

The risks of equity investor are better reflected by the equity IRR and therefore are used. The equity IRR as per standard accounting practices can be obtained for both type of projects, purely equity or mix of equity and debt. The justification provided by the PP was found to be acceptable by the assessment team.

17. The interest payments were calculated but due to miss linking of formulae same got excluded. The error in the spreadsheet has been corrected and the revised PDD contains the correct equity IRR that complies with the EB requirements. The negotiations with the National Electricity Office grid

revealed that the price will be fixed. Further a sensitivity analysis has been done on the tariff rate to reflect any future variations. The PP has clearly justified the non consideration of the escalation on the tariff rate and demonstrated that the tariff is fixed and same this information was available at the time of investment decision. Also, the PP has provided documentary evidence to support this justification by providing a fax communication received from National Electricity Office (grid utility) dated 2nd July 2012 that clearly confirms the conservativeness of the investment analysis.

18. The depreciation has been now correctly treated in the income tax calculations. This was checked by the assessment team and was found to be correct.
19. The interest payments were calculated but due to miss linking of formulae the same got excluded. The error in the spreadsheet has been corrected and the revised PDD, which contains the correct equity IRR that complies with the EB requirements.
20. It is the choice of the PP that financial indicator of the project activity is calculated on real terms that are without adjusting for any inflation, which is conservative. The default return on equity then becomes 12% as compared to real equity IRR of 4.58%, which is far below the benchmark.
21. The spreadsheet has been revised to show the result of sensitivity analysis, by changing the values in the variation column, the results that are typed in the sensitivity table can be obtained. The threshold or breaching values have been now included in the revised PDD. The revised IRR sheet of the project activity was checked. The PP has correctly put the sensitivity analysis. This was checked by the assessment team and was accepted.
22. The latest guidance on common practice has been used, which is incorporated in the version 5 of combined tool for baseline and additionality. The revised PDD was checked and was found to be correct.
23. (a) the PP has stated that, considering the project activity will export power to the grid, which is why it is covered under point (b) and considering the project activity also involves flaring i.e., point (c) when surplus gas is available or gas engines are not able to use it, is also found applicable. This was found to be correct and was accepted by the assessment team. The common practice analysis in the PDD (final version) has been revised accordingly with proper justification.

(b) The PDD has been revised by the PP, only the electricity generation has been mentioned as the output of the project activity. This was found to be correct in regards to the project scenario of the project activity. This was accepted by the assessment team.

(c) The technologies that use the same energy source/fuel (in this case LFG) as the proposed CDM project activity has been considered similar to the project activity while others are considered to be different. Therefore, power generation using LFG as a source has been considered similar to the project. The PDD has been updated by the PP, this was checked by the assessment team and was found to be acceptable.

(d) The value of F is considered 0 because the expression 0/0 is mathematically undefined. Taking note of the interpretation given for F, it indicates that this number is for the penetration of the technology using the same technology as that of proposed CDM project activity. Considering in this case, there is no technology found that is similar to project activity in the country there is no penetration. This understanding would get defeated if the value of F is shown as 1 considering 0/0 is equal to 0, which is mathematically not correct and also in the context of the underlying definition of F. The justification provided by the PP was found to be correct and was accepted by the assessment team.

(e) The statement in the PDD in this regard is correct as the value of F is considered to be 0. If something undefined (0/0) is subtracted from 1, as per the expression given, it can also not be understood to be 1. Mathematically, an undefined value is not equal to 0. Moreover, it is only one of the options the other criteria i.e. $N_{all} - N_{diff}$ is clearly equal to 0 and does not exceed the value of 3, is good enough to demonstrate that project is not a common practice. The justification provided by the PP was found to be correct and was accepted by the assessment team.
24. The revised PDD was checked by the assessment team. section B.5 has been updated with proper correction. This was accepted by the assessment team.

25. Technically the leachate is generated from the MSW that is dumped in the landfill. The first order decay expression already considers the basis that how much methane can be generated from such dumped quantity MSW depending upon its characteristics. The leachate is only a result of decay of MSW quite like LFG from the same quantity. The leachate once out of landfill will be sent to leachate evaporator system therefore there is no probability that it will be able to generate methane. Lastly, the applied methodology or tool does not prescribe emissions, if they are occurring or not, from leachate to be taken into account. The justification provided by the PP was found to be correct and was accepted by the assessment team.

Opinion:

The above mentioned assessment of the investment analysis has been carried out as per the requirement of VVS, Version 05.0, paragraph 117- 122. The validation team is of the opinion that the investment analysis satisfies all the relevant requirements of Guidelines on the assessment of investment analysis (EB 62 Annex 5):

- All input values used in the analysis have been checked against the documentary evidences mentioned in section 4.7.4 above. The values have been found to be valid and applicable at the time of the investment decision taken by the PP. In addition, the values mentioned in the excel spreadsheet and the PDD have been consistently applied in all calculations. Thus, it satisfies the requirements of paragraph 6 of EB 62 Annex 5.
- The PP has submitted all versions of the excel spreadsheets; and all assumptions, links and formulae used in the sheet are readable; calculations are transparent and reproducible; all cells are viewable and unprotected. Thus, it satisfies the requirements of paragraph 8 of EB 62 Annex 5.
- The PP has selected the default value as mentioned in EB 62, Annex 5 as the benchmark, which is appropriate, as the financial indicator selected is equity IRR. Thus, it satisfies the requirements of paragraph 12 of EB 62 Annex 5.
- The PP has used debt: equity as 50:50. It satisfies the requirements of paragraph 18 of EB 62 Annex 5.
- The PP has presented the results of the sensitivity analysis in the PDD and the excel spreadsheet. The analysis is reproducible in the spreadsheet. Thus, it satisfies the requirements of paragraph 20 of EB 62 Annex 5.
- The sensitivity analysis appropriately covers a range from +10% to -10% and hence satisfies the requirements of paragraph 21 of EB 62 Annex 5.

4.7.5 Barrier analysis

As per the requirement of “Combined Tool to demonstrate baseline and additionality” version 5.0.0 the PP has demonstrated the additionality of the project based on Step 3 i.e. investment analysis and thus barrier analysis has not been demonstrated. Please refer to section 4.7.4 for detailed discussion.

4.7.6 Common practice analysis

The PP has demonstrated the common practice analysis for the project activity by using “Guidelines on common practice” Version 2.0 (EB 69, Annex 08).

1. The entire host country has been considered as applicable geographical area; this was checked by the assessment team and was found to be in line with paragraph 1 of EB 69, Annex 08.
2. Measure (for emission reduction activities) is a broad class of greenhouse gas emission reduction activities possessing common features. Four types of measures are currently covered in the paragraph 2 of EB 69, Annex 08.

The proposed CDM project activity is covered under point (b) and (c) of paragraph 2 of EB 69, Annex 08. Considering the project activity will export power to the grid, hence it is covered under point (b) of paragraph 2 of EB 69, Annex 08. Further, considering the project activity also involves flaring when

surplus gas is available or gas engines are not able to use it, hence point (c) of paragraph 2 of EB 69, Annex 08 is also applicable to this project activity. The applicability of types of measures as mentioned in the point (b) and (c) of paragraph 2 of EB 69, Annex 08 was checked from Fes Solid Waste Management Feasibility Study^{12/} conducted by Sadat International Inc and also from the gas engine quotation^{56/} from Kraft Power dated 02/02/2006 and quotation^{31/} for flaring devices from John Zink Company LLC, dated 02/03/2006. This was further cross checked by the assessment team during the validation site visit by interviewing the plant personnel.

3. Output as defined in paragraph 3 of EB 69, Annex 08 is goods/services produced by the project activity including, among other things, heat, steam, electricity, methane, and biogas unless otherwise specified in the applied methodology. In the proposed CDM project activity the output is electricity generation using LFG. This was checked by the assessment team from the gas engine quotation^{56/} from Kraft Power dated 02/02/2006. This was further cross checked from the letter^{37/} from National Electricity Office, dated 28/02/2008, stating the terms for the purchase of power from the project activity.
4. Different technologies are technologies that deliver the same output and differ by at least one of the following (as appropriate in the context of the measure applied in the proposed clean development mechanism (CDM) project activity and applicable geographical area):
 - (a) Energy source/fuel (example: energy generation by different energy sources such as wind and hydro and different types of fuels such as biomass and natural gas);
 - (b) Feed stock (example: production of fuel ethanol from different feed stocks such as sugar cane and starch, production of cement with varying percentage of alternative fuels or less carbon-intensive fuels);
 - (c) Size of installation (power capacity)/energy savings:
 - (i) Micro (as defined in paragraph 24 of decision 2/CMP.5 and paragraph 39 of decision 3/CMP.6);
 - (ii) Small (as defined in paragraph 28 of decision 1/CMP.2);
 - (iii) Large.
 - (d) Investment climate on the date of the investment decision, inter alia:
 - (i) Access to technology;
 - (ii) Subsidies or other financial flows;
 - (iii) Promotional policies;
 - (iv) Legal regulations;
 - (e) Other features, inter alia:
 - (i) Nature of the investment (example: unit cost of capacity or output² is considered different if the costs differ by at least 20 %).

The technologies that use the same energy source/fuel (in this case LFG) as the proposed CDM project activity, have been considered similar to the project activity while others are considered to be different. Therefore, power generation using LFG as a source has been considered similar to the project. This was found to be correct and in line with the paragraph 4 of EB 69, Annex 08 and was accepted by the assessment team.

5. Step 1: calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

The designed capacity of the project activity is 3 MW therefore applicable output range considered is 1.5 MW to 4.5 MW. The power generation capacity of the project activity was checked from the gas engine quotation^{56/} from Kraft Power dated 02/02/2006. Thus the applicable range considered by the project activity was found to be in line with the requirement of paragraph 5 of EB 69, Annex 08 and was accepted by the assessment team.

6. Step 2: identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:
- (a) The projects are located in the applicable geographical area;
 - (b) The projects apply the same measure as the proposed project activity;
 - (c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;
 - (e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
 - (f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

In the PDD the PP has stated that in the entire host country, the project applying the same measure (as specified above under Measure) that are using LFG as source to generate electricity and delivering comparable quality output (i.e. electricity) in the capacity 1.5 MW to 4.5 MW and that have started commercial operation prior to the start date of 24/01/2008 (as the publication of CDM PDD occurred at later date on 19/08/2008), there is not a single project that is similar to the project activity. The grid emission factor sheet^{68/} containing Moroccan power sector data that is provided by PP was checked by the assessment team and it was found that there are no LFG based power plants exists in Moroccan national boundary until year 2008, which is even after the project start date. This information was further cross checked from the grid emission factor calculation sheet of the registered CDM project, UNFCCC ref no 8946 (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1355978226.77/view>) which has listed all the grid connected power plants for the year 2008 and it was confirmed that there is no grid connected LFG based power generation project within the applicable range (1.5 MW to 4.5 MW) in the entire host country Morocco.

7. Step 3: within the projects identified in Step 2, the PP has identified those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all} as per the paragraph 7 of EB 69, Annex 02. The value of N_{all} in the case of proposed CDM project activity is '0' as there are no project that uses similar technology to deliver comparable quality output in the applicable capacity range of 1.5 MW to 4.5 MW in the host country.
8. Step 4: Within similar projects identified in Step 3, the PP has identified those projects that apply technologies that are different to the technology applied in the proposed project activity, as per the paragraph 8 of EB 69, Annex 08. Their number N_{diff} has been noted. Considering the value of N_{all} itself is '0', there is no other plant that needs to be differentiated, therefore, N_{diff} is also '0'. This was found to be correct by the assessment team.
9. Step 5: calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Therefore, considering both N_{diff} and N_{all} are '0' the value of F is redundant and it can be concluded that the number of similar type of projects is '0' as N_{all} itself is 0, and there is no technology that is similar to the project activity and has propagated in the host country.

10. The proposed project activity is a "common practice" within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3.

As confirmed above that neither the value of F is greater than 0.2 nor $N_{all} - N_{diff}$ is greater than 3. Therefore, the assessment team is of the opinion that the project activity is not a common practice and therefore additional. Further the assessment team noted that the demonstration of common practice is in line with the version 2.0 of "Guidelines on common practice". Thus the assessment team concluded that the project activity is additional and would not have come up without CDM benefit.

Discussion of CAR & CLs:

CAR 10 was raised as follows-

The PP was requested to justify the following-

- The PP is requested to clarify the statement "All landfill sites in Morocco except Oulja landfill are open and unmanaged dumps. There are two other projects into the validation stage on UNFCCC site."
- How it has been concluded that the project activity is first of its kind.
- All landfill in Morocco are open and unmanaged.

Addressing the CAR 10, the PP provided the following response-

- A study by the Mediterranean Environmental Assistance Program (METAP) of the World Bank indicates that there are 182 open and unmanaged landfill sites in Morocco. The study also indicates that only 1% of the solid waste in Morocco is disposed of in landfills while 95% of waste is disposed of in open dumps. In addition, there is no regulation in place to collect and flare the LFG from these landfills. This is evident from the document Copies of solid waste law^{9/}, Attachment A-2. The solid waste law 28-00 is not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law. The proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: "Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (Decree No. 2-09-284 of 20 hijra 1430, Article 11, point F (dated December 8, 2009)). Therefore, as a matter of fact the collection of LFG is not the common practice in the host country. Further the PP has included one common practice analysis in the revised PDD. This was checked by the assessment team and it was concluded that the project is not a common practice in the host country.
- The PP has not opted for this option. The step is not applied as it is not possible for project participants to confirm the same from publicly available documents and internet research. This was accepted by the assessment team.
- The study report by Mediterranean Environmental Assistance Program (METAP) of the World Bank, states that most of the landfill in host country (95%) are unmanaged an only 1% are controlled has been provided along with this response. This was checked from the study report on Solid Waste Management by Mediterranean Environmental Technical Assistance Program. It is found MSW generated in Morocco is disposed in open dump yards and there is no legal framework enforced that requires the landfill gas to be destroyed.

Opinion:

The validation of the common practice was carried out as per the paragraph 129 of VVS, Version 05.0^{6/}. The assessment team is of the opinion that the proposed project activity is not regarded as "common practice" as per EB 69 Annex 8, hence the proposed project activity is additional as per EB70 Annex 08.

4.8 Application of Baseline Methodology and Calculation of Emission Factors

The requirements of approved methodology ACM0001, "Consolidated baseline and monitoring methodology for landfill gas project activities", version 13.0.0 along with the latest versions of the relevant applicable methodological tools have been applied correctly by the project participant for determination methodological choice of emission reduction calculation algorithms in the PDD. It is found that the equations (and notations) to compute the emission reductions are consistent with provisions of ACM0001 version 13.0.0 and the following applicable methodological tools:

- Emissions from solid waste disposal sites (Version 06.0.1)
- Combined tool to identify the baseline scenario and demonstrate additionality (Version 05.0.0)
- 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)
- Project emissions from flaring (Version 02.0.0)
- Tool to calculate the emission factor for an electricity system (Version 03.0.0)
- Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 02.0.0)

The methodological choices for *ex-post* emission reductions and *ex-ante* calculation of emission reductions along with detailed description on the algorithms and values used are transparently described under sections B.6.1 and B.6.3 of the final PDD.

Baseline Emissions Calculation:

The equation for determining baseline emissions has been adopted as per equation 1 of the applied methodology as described below:

$$BE_y = BE_{CH_4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$$

Where:

- BE_y = Baseline emissions in year y (in tCO_2e)
- $BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (in tCO_2e)
- $BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (in tCO_2e)
- $BE_{HG,y}$ = Baseline emissions associated with heat generation in year y (in tCO_2e)
- $BE_{NG,y}$ = Baseline emissions associated with natural gas use in year y (in tCO_2e)

There is no natural gas component in the proposed CDM project activity therefore $BE_{NG,y}$ has been ignored as this is not relevant. Further, there are no baseline emissions on account of heat generation in the project activity, therefore no baseline emissions are required to be calculated for $BE_{HG,y}$.

Thus, in the case of project activity, the equation gets trimmed as under, this was found to be correct in context of this project activity:

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

Step A: Baseline emissions of methane from the SWDS ($BE_{CH_4,y}$) (As per Methodology ACM 0001, version 13)

The following equation applied to determine baseline emissions of methane from the SWDS ($BE_{CH_4,y}$) has been correctly adopted as per equation 2 of applied methodology:

$$BE_{CH_4,y} = (1 - OX_{top_layer}) \times (F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4}$$

Where:

- $BE_{CH_4,y}$ = Baseline emissions of LFG from the SWDS in year y (in tCO_2e)
- OX_{top_layer} = Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
- $F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4)
- $F_{CH_4,BL,y}$ = Amount of methane in the LFG that would be flared in the baseline in year y (tCH_4)
- GWP_{CH_4} = Global warming potential of CH_4 (tCO_2e/tCH_4)

Determination of OX_{top_layer} :

As per methodology ACM 0001, version 13, OX_{top_layer} is fraction of methane that would be oxidized in the top layer of the SWDS in the baseline scenario. Under the project activity, this effect is reduced as, a part of the LFG is captured and does not pass through the top layer of the SWDS. This oxidation effect is also accounted for in the methodological tool "Emissions from solid waste disposal sites".

A value of 0.1 is recommended in the methodology to be applied for this parameter, which is consistently adopted for the proposed project activity. The same has been applied by the PP both in the PDD^{1/} and the ER sheet^{4/} as mentioned in the methodology and hence found appropriate.

Determination of $F_{CH_4, BL, y}$:

In the pre-project scenario methane from the existing landfill site was released to the atmosphere and there is no regulatory or contractual requirements in the host country to destroy the methane generated from the landfill, thus as per the provision of applied methodology ACM0001, version 13, the situation at the start of the project activity has been correctly identified as Case 1 (No requirement of destroy methane; No existing LFG capture system) to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory or contractual requirements, or to address safety and odour concerns. The default value for "Amount of methane in the LFG that would be flared in the baseline in year y " has been correctly adopted as per the applied methodology:

$$F_{CH_4, BL, y} = 0$$

Step A.1: Ex post determination of $F_{CH_4, PJ, y}$

During the crediting period, $F_{CH_4, PJ, y}$ is determined as the sum of the quantities of methane flared and used in power plant(s), as follows:

$$F_{CH_4, PJ, y} = F_{CH_4, flared, y} + F_{CH_4, EL, y}$$

Where:

$F_{CH_4, PJ, y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH ₄ /yr)
$F_{CH_4, flared, y}$	=	Amount of methane in the LFG which is destroyed by flaring in year y (t CH ₄ /yr)
$F_{CH_4, EL, y}$	=	Amount of methane in the LFG which is used for electricity generation in year y (t CH ₄ /yr)

$F_{CH_4, EL, y}$ & $F_{CH_4, HG, y}$ are determined using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (EB 61, Annex 11) and monitoring the working hours of the power plant(s), so that no emission reduction are claimed for methane destruction during non-working hours. This is taken into account by monitoring the hours that the equipment utilising the LFG is operating in year y ($O_{p, h, y}$).

The following requirements apply:

- For the gaseous stream the tool shall be applied to the LFG delivery pipeline to each item of electricity generation or heat generation equipment j , or the natural gas distribution system. $F_{CH_4, EL, y}$ and $F_{CH_4, HG, y}$ are then calculated as the sum of mass flows to each item of electricity generation or heat generation equipment j ;
- CH₄ is the greenhouse gases for which the mass flow should be determined;
- The simplification offered for calculating the molecular mass of the gaseous stream is valid (equations 3 or 17 in the tool);
- The mass flow should be calculated on an hourly basis for each hour h in year y ;
- The mass flow calculated for hour h is 0 if the equipment is not working in hour h ($O_{p, h, y}$ =not working), the hourly values are then summed to a yearly unit basis.

Determination of $F_{CH_4,EL,y}$, and $F_{CH_4,flared,y}$ as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”

The project participants intend to monitor the mass flow of the LFG and the volumetric fraction of CH_4 in the LFG on a dry basis. Therefore, Option A of the tool shall be applied in the project activity. In addition, Option B of the tool shall be applied when it cannot be demonstrated that the LFG is measured dry, as per the requirements of the tool:

Option A

Option A is applicable where the volumetric flow of the LFG is measured on a dry basis. In order to demonstrate that the LFG gaseous stream is dry, the project participants will:

Demonstrate that the temperature of the gaseous stream (T_t) is less than 60°C (331.15 K) at the flow measurement point. This is in line with the point (b) of Option A of EB 61, Annex 11.

If in a particular time interval it cannot be demonstrated that the gaseous stream is dry, then the flow measurement shall be assumed to be on a wet basis, and Option B shall be applied for the relevant time interval. This was found to be correct and in line with EB 61, Annex 11.

The mass flow of CH_4 shall be determined as follows:

$$F_{CH_4,t} = V_{t,db} * v_{CH_4,t,db} * \rho_{CH_4,t}$$

With

$$\rho_{CH_4,t} = \frac{P_t * MM_{CH_4}}{R_u * T_t}$$

Where:

$F_{CH_4,t}$	= Mass flow of greenhouse gas i in the gaseous stream in time interval t (kg gas/h)
$V_{t,db}$	= Volumetric flow of the gaseous stream in time interval t on a dry basis (m ³ dry gas/h)
$v_{CH_4,t,db}$	= Volumetric fraction of greenhouse gas i in the gaseous stream in a time interval t on a dry basis m ³ gas /m ³ dry gas)
$\rho_{CH_4,t}$	= Density of greenhouse gas i in the gaseous stream in time interval t (kg gas /m ³ gas i)
P_t	= Absolute pressure of the gaseous stream in time interval t (Pa)
MM_{CH_4}	= Molecular mass of greenhouse gas i (kg/kmol)
R_u	= Universal ideal gases constant (Pa.m ³ /kmol.K)
T_t	= Temperature of the gaseous stream in time interval t (K)

The equation #5 & #6 of “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 2, EB 61 Annex 11, which is required to be used to the mass flow of greenhouse gas in the proposed CDM project activity will involve gas flow meter which will directly monitor the volumetric flow rate of the gaseous stream. The context of the LFG flow meter to be deployed has been confirmed by the assessment team through interviewing plant personnel during validation site visit and found consistent. Further, $v_{CH_4,t,db}$ will be measured using continuous gas analyzer operating in dry-basis. This was also confirmed by the assessment team through interviewing plant personnel during validation site visit and found consistent.

Option B

The mass flow of greenhouse gas i ($F_{CH_4,t}$) is determined as defined under option A above. The volumetric flow of the gaseous stream in time interval t on a dry basis ($V_{t,db}$) is determined by converting the measured volumetric flow from wet basis to dry basis as follows:

$$V_{t,db} = V_{t,wb} / (1 + v_{H_2O,t,db})$$

Where:

$V_{t,db}$ = Volumetric flow of the gaseous stream in time interval t on a dry basis (m^3 dry gas/h)
 $V_{t,wb}$ = Volumetric flow of the gaseous stream in time interval t on a wet basis (m^3 wet gas/h)
 $v_{H_2O,t,db}$ = Volumetric fraction of H_2O in the gaseous stream in time interval t on a dry basis ($m^3 H_2O/m^3$ dry gas)

This was checked against EB 61, Annex 11 and assessment team confirmed that the PP has correctly used the equation #7 of the EB 61, Annex 11.

The volumetric fraction of H_2O in time interval t on a dry basis ($v_{H_2O,t,db}$) is estimated according to following equation;

$$v_{H_2O,t,db} = \frac{m_{H_2O,t,db} * MM_{t,db}}{MM_{H_2O}}$$

Where:

$v_{H_2O,t,db}$ = Volumetric fraction of H_2O in the gaseous stream in time interval t on a dry basis ($m^3 H_2O/m^3$ dry gas)
 $m_{H_2O,t,db}$ = Absolute humidity in the gaseous stream in time interval t on a dry basis (kg H_2O /kg dry gas)
 $MM_{t,db}$ = Molecular mass of the gaseous stream in time interval t on a dry basis (kg dry gas/kmol dry gas)
 MM_{H_2O} = Molecular mass of H_2O (kg H_2O /kmol H_2O)

This was checked against EB 61, Annex 11 and assessment team confirmed that the PP has correctly used the equation #8 of the EB 61, Annex 11 for the calculation of Volumetric fraction of H_2O in the gaseous stream in time interval t on a dry basis ($m^3 H_2O/m^3$ dry gas). The molecular mass of H_2O as mentioned in section B.6.2 of the PDD has been referred from EB 62, Annex 11. This was found to be correct by the assessment team.

The absolute humidity of the gaseous stream ($m_{H_2O,t,db}$) has been determined using Option 2 (Simplified calculation without measurement of the moisture content) as specified in the Determination of the absolute humidity of the gaseous stream section of the tool (EB 61, Annex 11). The PP has clearly demonstrated their choice for the calculation of this parameter in the PDD, this was found to be in line with the requirement of EB 61, Annex 11 (page 3). The molecular mass of the gaseous stream ($MM_{t,db}$) is determined using following equation;

$$m_{H_2O,t,db,Sat} = \frac{P_{H_2O,t,Sat} * MM_{H_2O}}{(P_t - P_{H_2O,t,Sat}) * MM_{t,db}}$$

Where:

$m_{H_2O,t,db,Sat}$ = Saturation absolute humidity in time interval t on a dry basis (kg H_2O /kg dry gas)
 $P_{H_2O,t,Sat}$ = Saturation pressure of H_2O at temperature T_t in time interval t (Pa)
 T_t = Temperature of the gaseous stream in time interval t (K)
 P_t = Absolute pressure of the gaseous stream in time interval t (Pa)
 MM_{H_2O} = Molecular mass of H_2O (kg H_2O /kmol H_2O)
 $MM_{t,db}$ = Molecular mass of the gaseous stream in a time interval t on a dry basis (kg dry gas/kmol dry gas)

This was checked by the assessment team and was found to be in line with equation #4 of EB 61, Annex 11. Further, the molecular mass of the gaseous stream ($MM_{t,db}$) has been calculated as per following equation;

$$MM_{t,db} = \sum_k (v_{k,t,db} * MM_k)$$

Where:

$MM_{t,db}$ gas)	= Molecular mass of the gaseous stream in time interval t on a dry basis (kg dry gas/kmol dry gas)
$V_{k,t,db}$	= Volumetric fraction of gas k in the gaseous stream in time interval t on a dry basis (m^3 gas k/m^3 dry gas)
MM_k	= Molecular mass of gas k (kg/kmol)
k	= All gases, except H_2O , contained in the gaseous stream (e.g. N_2 , CO_2 , O_2 , CO , H_2 , CH_4 , N_2O , NO , NO_2 , SO_2 , SF_6 and PFCs).

The determination of the molecular mass of the gaseous stream ($MM_{t,db}$) requires measuring the volumetric fraction of all gases (k) in the gaseous stream. However as a simplification, the volumetric fraction of only the gases k that are greenhouse gases and are considered in the emission reduction calculation in the underlying methodology, must be monitored and the difference to 100% may be considered as pure nitrogen. This parameter has been considered as a monitored parameter under section B.7.1 of the PDD. The monitoring aspect of this parameter was checked by the assessment team and was found to be in line with the requirement of EB 61, Annex 11. The monitoring of this parameter has been further discussed under section 4.9 of this report. Further the molecular mass of gas k (kg/kmol) as mentioned in section B.6.2 of the PDD has been referred from EB 61, Annex 11. This was checked by the assessment team and was found to be correct.

Amount of methane destroyed by flaring ($F_{CH_4,flared,y}$)

$F_{CH_4,flared,y}$ is determined as the difference between the amount of methane supplied to the flare(s) and any methane emissions from the flare(s), as follows:

$$F_{CH_4,flared,y} = F_{CH_4,sent_flare,y} - \frac{PE_{flare,y}}{GWP_{CH_4}}$$

Where:

$F_{CH_4,flared,y}$	= Amount of methane in the LFG which is destroyed by flaring in year y (t CH_4 /yr)
$F_{CH_4,sent_flare,y}$	= Amount of methane in the LFG which is sent to the flare in year y (t CH_4 /yr)
$PE_{flare,y}$	= Project emissions from flaring of the residual gas stream in year y (t CO_2e /yr)
GWP_{CH_4}	= Global warming potential of CH_4 (t CO_2e /t CH_4)

This was checked by the assessment team and was found to be correct as per the equation #4 of ACM 0001, version 13.

$F_{CH_4,sent_flare,y}$ is determined directly using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", as prescribed in ACM 0001, version 13, page no 8 and as assessed above. This was checked by the assessment team and was found to be correct.

$PE_{flare,y}$ is determined using the methodological tool "Tool to determine project emissions from flaring gases containing methane". If LFG is flared through more than one flare, as is the case in the project activity as there is 1 open flare for back up purposes, which might be used in exigencies, then $PE_{flare,y}$ is the sum of the emissions for each flare determined separately. This was checked by the assessment team and was found to be consistent with ACM 0001, version 13, page no 8/23. Further the PP has demonstrated the calculation of $PE_{flare,y}$ in the section B.6.1.

Assessment of the Calculation for the emission from the flare ($PE_{flare,y}$):

Step 1: Determination of the methane mass flow rate in the residual gas

The "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" has been appropriately used by PP to determine the parameter $F_{CH_4,m}$ and thus this is in line with the requirement of EB 68, Annex 15.

As per the tool, EB 68, Annex 15, while determining the parameter the following requirements shall apply:

- The gaseous stream tool shall be applied to the residual gas;
- The flow of the gaseous stream shall be measured continuously;

- CH₄ is the greenhouse gas i for which the mass flow should be determined;
- The simplification offered for calculating the molecular mass of the gaseous stream is valid (equations 3 and 17 in the tool); and
- The time interval t for which mass flow should be calculated is every minute m .

This was checked by the assessment team and was found to be consistent with EB 68, Annex 15.

$F_{CH_4,m}$, which is measured as the mass flow during minute m , shall then be used to determine the mass of methane in kilograms fed to the flare in minute m ($F_{CH_4,RG,m}$). $F_{CH_4,m}$ shall be determined on a dry basis. As per the "Tool to determine mass flow of a greenhouse gas in a gaseous stream" the project participants should document in the PDD which option is applied. $F_{i,t}$ should be calculated following the steps/guidance described for each option. The revised PDD, section B.6.1 was checked by the assessment team and was found to be correct.

Option Flow of gaseous stream Volumetric fraction

Option	Flow of Gaseous Stream	Volumetric Fraction
A	Volume flow – dry basis	Dry or wet basis
B	Volume flow – wet basis	Dry basis
C	Volume flow – wet basis	Wet basis
D	Mass flow – dry basis	Dry or wet basis
E	Mass flow – wet basis	Dry basis
F	Mass flow – wet basis	Wet basis

The project activity has selected Option A according to the above table, based on the idea that the gas stream will be demonstrated to be dry else and Option B shall be applied for the relevant time interval. Further the approach to calculate $F_{i,t}$ has been assessed by the assessment team and has been described in details under step A.1.

Step 2: Determination of flare efficiency

The project activity uses the enclosed flare^{/11/} as part of the proposed project activity however a backup open flare would also be used. This was checked by the assessment team from Quotation of Blowers and Flare^{/21/} dated 03/03/2006 and Quote from John Zinc dated 02/03/2006. This was also confirmed by the assessment team during validation site visit by interviewing plant personnel and the information was found to be consistent as described in the PDD. the PP has applied the following methods to calculate flare efficiency, as appropriate:

Open flare

In the case of open flares, the flare efficiency in the minute m ($\eta_{flare,m}$) is 50% when the flame is detected in the minute m (Flamem), otherwise $\eta_{flare,m}$ is 0%. This was checked by the assessment team and was found to be consistent with EB 68, Annex 15.

Enclosed flare

In the case of enclosed flares, project participants may choose between the following two options to determine the flare efficiency for minute m ($\eta_{flare,m}$):

Option A: Apply a default value for flare efficiency.

Option B: Measure the flare efficiency.

The PP has chosen to use Option A, and the choice has been clearly mentioned in section B.6.1 and this is in line with EB 68, Annex 15. The appropriateness of the flare efficiency default value applied for the proposed project has been validated with reference to the design specifications provided by the Flare Manufacturer (John Zinc Company, LLC). The Flare dimensions is : $W*L*H = 2229 * 8298 * 7434$ (in mm). The effective height of the stack has been given by the manufacturer as 6630 mm. The Width (synonymous with diameter in this case) has been prescribed as 2229 (in mm), therefore the height of the flare is around 3 times to that of its diameter. This information was checked from the design specification^{/10/}

provided by the flare manufacturer. Therefore, it has been accepted that the enclosed flare that is installed in the project activity is a “low height flare” as per the methodological tool ‘Project emissions from flaring’ Version 2.0.0.

Option A: Default value

The flare efficiency for the minute m ($\eta_{flare,m}$) is 80% (after adjustment as required by the tool ‘Project emissions from flaring’ Version 2.0.0) when the following two conditions are met to demonstrate that the flare is operating:

- (1) The temperature of the flare (TEG_m) and the flow rate of the residual gas to the flare (FRG_m) is within the manufacturer’s specification for the flare ($SPEC_{flare}$) in minute m ; and
- (2) The flame is detected in minute m ($Flame_m$).

Otherwise $\eta_{flare,m}$ is 0%. This was checked by the assessment team and was found to be consistent with EB 68, Annex 15.

Step 3: Calculation of project emissions from flaring

Project emissions from flaring are calculated as the sum of emissions for each minute m in year y , based on the methane mass flow in the residual gas ($F_{CH_4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$), as follows:

$$PE_{flare,y} = GWP_{CH_4} \times \sum_{m=1}^{525600} F_{CH_4,RG,m} \times (1 - \eta_{flare,m}) \times 10^{-3}$$

Where:

$PE_{flare,y}$	=	Project emissions from flaring of the residual gas in year y (tCO ₂ e)
GWP_{CH_4}	=	Global warming potential of methane valid for the commitment period (tCO ₂ e/tCH ₄)
$F_{CH_4,RG,m}$	=	Mass flow of methane in the residual gas in the minute m (kg)
$\eta_{flare,m}$	=	Flare efficiency in minute m

This was checked by the assessment team and was found to be correct as per the equation #15 of EB 68, Annex 15.

Step A.1.1 (of ACM 0001, Version 13.0.0): Ex ante estimation of $F_{CH_4,PJ,y}$

An *ex ante* estimate of $F_{CH_4,PJ,y}$ is required to estimate baseline emission of methane from the SWDS in order to estimate the emission reductions of the proposed project activity in the CDM-PDD, as per ACM 0001, version 13. It is determined as follows:

$$F_{CH_4,PJ,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} / GWP_{CH_4}$$

Where:

$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH ₄ /yr)
$BE_{CH_4,SWDS,y}$	=	Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (t CO ₂ e/yr)
η_{PJ}	=	Efficiency of the LFG capture system that will be installed in the project activity
GWP_{CH_4}	=	Global warming potential of CH ₄ (t CO ₂ e/t CH ₄)

This was checked by the assessment team and was found to be correct as per the equation #5 of ACM 0001, version 13. $BE_{CH_4,SWDS,y}$ is determined using the methodological tool “Emissions from solid waste disposal sites”. The following guidance should be taken into account when applying the tool:

- f_y in the tool shall be assigned a value of 0 because the amount of LFG that would have been captured and destroyed is already accounted for in equation 2 of this methodology;
- In the tool, x begins with the year that the SWDS started receiving wastes (e.g. the first year of SWDS operation); and
- Sampling to determine the fractions of different waste types is not necessary because the waste composition can be obtained from previous studies.

This was checked by the assessment team and was found that the PP has correctly adopted the guidance provided in ACM 0001, version 13, page no 9/23. The amount of methane generated from disposal of waste at the SWDS is calculated based on a first order decay (FOD) model, as prescribed in EB 66, Annex 46. This was checked by the assessment team and was found to be correct. The model differentiates between the different types of waste j with respective constant decay rates (k_j) and fractions of degradable organic carbon (DOC_j). The model calculates the methane generation occurring in year y (a period of 12 consecutive months) or month m based on the waste streams of waste types j ($W_{j,x}$ or $W_{j,i}$) disposed in the SWDS over a specified time period (years or months).

In cases where at the SWDS methane is captured (e.g. due to safety regulations) and flared, combusted or used in another manner that prevents emissions of methane to the atmosphere, the emissions are adjusted for the fraction of methane captured (f_y).

The amount of methane generated from disposal of waste at the SWDS is calculated for year y ($BE_{CH_4,SWDS,y}$) using equation (1) of the methodological tool 'Emissions from the solid waste disposal sites' Version 06.0.1 as prescribed by the ACM0001 Version 13.0.0. This was checked by the assessment team and was found to be correct.

The basis selected in the proposed CDM project activity is yearly and the same has been documented in the PDD as per the requirement of EB 66, Annex 46. The specific time period (the consecutive years x or months i) in which waste disposal is considered in the calculation is from year 2004, for application A, that starts when the SWDS starts receiving waste.

Application A: The CDM project activity mitigates methane emissions from a specific existing SWDS.

Methane emissions are mitigated by capturing and flaring or combusting the methane. The methane is generated from waste disposed in the past, including prior to the start of the CDM project activity. In these cases, the tool is only applied for an *ex-ante* estimation of emissions in the CDM-PDD. The emissions will then be monitored during the crediting period using the applicable approaches in the relevant methodologies (e.g. measuring the amount of methane captured from the SWDS).

The emissions are calculated as per the Methodological Tool "Emissions from solid waste disposal sites", version 06.0.1 as follows:

$$BE_{CH_4,SWDS,y} = \phi \cdot (1 - f_y) \cdot GWP_{CH_4} \cdot (1 - OX) \cdot \frac{16}{12} \cdot F \cdot DOC_{f,y} \cdot MCF_y \cdot \sum_{x=1}^y \sum_{jx} W_{jx} \cdot DOC_j \cdot e^{-k_j(y-x)} \cdot (1 - e^{-k_j})$$

Where, for the yearly model:

$BE_{CH_4,SWDS,y}$ = Baseline, project or leakage methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (t CO₂e / yr)

x = Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period ($x = 1$) to year y ($x = y$).

y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)

$DOC_{t,y}$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
 $W_{j,x}$ = Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
 ϕ_y = Model correction factor to account for model uncertainties for year y
 f_y = Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
 GWP_{CH_4} = Global Warming Potential of methane
 OX = Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste)
 F = Fraction of methane in the SWDS gas (volume fraction)
 MCF_y = Methane correction factor for year y
 DOC_j = Fraction of degradable organic carbon in the waste type j (weight fraction)
 k_j = Decay rate for the waste type j (1 / yr)
 j = Type of residual waste or types of waste in the MSW

This was checked by the assessment team and was found to be correct as per the equation #1 of EB 66, Annex 46.

Determining the parameters required to apply the FOD model

Table below summarizes how the parameters required in this tool can be determined. This includes the use of default values, one time measurements or monitoring throughout the crediting period. The selection of the option that can be used depends on whether the tool is used for application A or B.

Table: Overview of the option to determine parameters for application A

Parameter	Application A
ϕ	Default value as per methodological tool 'Emissions from solid waste disposal sites' Version 06.0.1
OX	Default value
F	Default value
DOC_{f_y}	Default value
MCF_y	Default value, based on SWDS type
k_i	Default value
$W_{i,x}$	Estimated once
DOC_i	Default value
f_y	Estimated once

Determining the model correction factor (ϕ_y)

The model correction factor (ϕ_y) depends on the uncertainty of the parameters used in the FOD model. If project or leakage emissions are being calculated, then $\phi_y = \phi_{\text{default}} = 1$. If baseline emissions are being calculated, then project participants may choose between the following two options to calculate ϕ_y :

Option 1: Use a default value

Use a default value: $\phi_y = \phi_{\text{default}}$.

Default values for application A is prescribed as 0.75, which has been considered in case of project activity. Though, there is no difference between dry or wet/humid for this type of application. Option 1 has been selected by the PP, as per the choice given in the referred tool therefore, Option 2 has not been discussed further in the PDD. This was checked by the assessment team and was found to be correct. Further the assessment team confirms that the default value of ϕ_y considered in the project activity is correct and consistent with the prescribed default value in EB 66, Annex 46.

Determining the amounts of waste types j disposed in the SWDS ($W_{j,x}$ or $W_{j,i}$)

Where *different* waste types j are disposed or prevented from disposal in the SWDS (for example, in the case of MSW), it is necessary to determine the amount of different waste types ($W_{j,x}$ or $W_{j,i}$). In the case that only one type of waste is disposed (for example, in the case of a residual waste), then $W_{j,x} = W_x$ and $W_{j,i} = W_i$ and the following procedures do not need to be applied (e.g. waste sampling is not required). The requirements pertaining to application A has been discussed in the PDD, as relevant to proposed CDM project activity, which was found to be correct and was accepted by the assessment team.

Application A

Calculation of $W_{j,x}$ is based on information from the public bid for SWDS management from administration. This information was checked by the assessment team from the “waste characterization campaign” conducted by ECOVAL, dated February, 2008 and the information as provided by the PP was found to be consistent. The source referred by the PP was also in line with the requirement of the tool (EB 66, Annex 46), which states, further historic information on amounts, composition and origin of the waste might be found in SWDS administration documents (e.g. contracts with clients and invoices to clients) or obtained from old business plans or business evaluations, thus this information was accepted by the assessment team.

Waste composition & degradable organic content – DOC_j	Food	Paper Cardboard	Wood	Textile	Garden waste	Plastic, metal glass, other inert
Waste composition ($W_{j,x}$)	50.3%	7.4%	0.0%	5.7%	7.8%	28.8%

Determining the fraction of DOC that decomposes in the SWDS ($DOC_{f,y}$)

Application A

$DOC_{f,y}$ is considered as a default value ($DOC_{f,y} = DOC_{f,default}$) provided in the tool ‘Emission from solid waste disposal sites’ Version 06.0.1 (EB 66, Annex 11) page 11. This was checked by the assessment team and was found to be correct.

Waste composition & degradable organic content – DOC_j	Food	Paper Cardboard	Wood	Textile	Garden waste	Plastic, metal glass, other inert
Fraction of degradable organic content in the waste type j – DOC_j	15%	40%	43%	24%	20%	0%

Procedure to determine the methane correction factor (MCF_y)

Application A

The MCF is selected as a default value ($MCF_y = MCF_{default}$) provided in the tool as per the state of landfill site. The existing SWDS is anaerobic managed solid waste disposal site, where there is controlled placement of waste (i.e. waste is directed to specific cell open at that point of time, a degree of control of scavenging and degree of control of fires too). The waste directed to cells is levelled using earth movers, compacted to reduce the volume and then finally covered with soil. Therefore, in the context of the project activity MCF_y is considered to 1.0. This was checked by the assessment team and was found to be correct, as per EB 66, Annex 46, as the site is an anaerobically managed solid waste disposal sites. This was checked by the assessment team during the validation site visit.

Step A.2 (of ACM 0001, version 13.0.0): Determination of $F_{CH_4, BL, y}$

This step provides a procedure to determine the amount of methane that would have been captured and destroyed (by flaring) in the baseline due to regulatory or contractual requirements, or to address safety and odour concerns (collectively referred to as *requirement* in this step). The four cases in table below are distinguished as per methodology ACM0001 Version 13.0.0

Table: Cases for determining methane captured and destroyed in the baseline

Situation at the start of the project activity	Requirement to destroy methane	Existing LFG capture and destruction system
Case 1	No	No
Case 2	Yes	No
Case 3	No	Yes
Case 4	Yes	Yes

Case 1: No requirement to destroy methane exists and no existing LFG capture system

In this situation:

$$F_{CH_4, BL, y} = 0$$

There is no requirement to destroy methane getting generated from landfill site either in the existing contract, or in the law. This was checked by the assessment team from Delegated Management Agreement^{/18/}, dated December 2001 & Solid Waste Law^{/43/} N 28-00 (relating the management and disposal of wastes) and was found that there is no requirement to destroy methane getting generated from landfill site. This was further cross checked and confirmed by the assessment team during validation site visit, by interviewing plant personnel. However, in order to address the local safety and fire hazards, approximately for 10 random days in a year the LFG is allowed to burnt through extended pipes. There also exists a rather rudimentary LFG capture system, which are simply the vertical pipes that allow easy passage for LFG to get liberated into atmosphere and reduces pressure beneath the cell. This was checked by the assessment team during validation site visit, and the description as mentioned in the PDD was found to be correct. Therefore, Case 1 is not exactly applicable in the context of the project activity, this was accepted by the assessment team.

Case 2: Requirement to destroy methane exists and no existing LFG capture system

This case has not been pursued further as there is no requirement to destroy methane in the host country, as explained under Case 1, above. This was checked by the assessment team from Delegated Management Agreement^{/18/}, dated December 2001 & Solid Waste Law^{/43/} N 28-00 and was found that there is no requirement to destroy methane getting generated from landfill site. This was further cross checked and confirmed by the assessment team during validation site visit, by interviewing plant personnel.

Case 3: No requirement to destroy methane exists and a LFG capture system exists

In this situation:

$$F_{CH_4, BL, y} = F_{CH_4, BL, sys, y}$$

- If the amount of methane captured with the existing system can be monitored separately from the amount captured under the project, and the efficiency of the existing system is not impacted on y the project system during the crediting period(s), then $F_{CH_4, BL, sys, y}$ is determined as follows:

$$F_{CH_4, BL, sys, y} = F_{CH_4, sent_flare, y}$$

Where:

$$F_{CH_4, BL, sys, y} = \text{Amount of methane in the LFG that would be flared in the baseline in year } y \text{ for the case of an existing LFG capture system (t CH}_4\text{/yr)}$$

$$F_{CH_4, sent_flare, y} = \text{Amount of methane in the LFG which is sent to the flare in year } y$$

(t CH₄/yr)

$F_{CH_4, sent_flare, y}$ is determined using the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” and applying the requirements described in Step A.1, where the gaseous stream the tool shall be applied to is the pipeline collecting LFG from the existing LFG capture system.

As there is neither any requirement to destroy methane nor there is any incentive to monitor the LFG coming out of it, there is no practice of monitoring the same. Furthermore, there is no flare installed at project site in the absence of the project activity, the occasional burning of LFG takes place only randomly 10 times in a year and through the extended pipes only to address the safety concern, this was confirmed by the assessment team during the validation site visit as mentioned above. Therefore this situation is not relevant and possible in case of the project activity.

- If there is no monitored data available, but there is historic data on the amount of methane that was captured in the year prior to the implementation of the project activity, then in this situation:

$$F_{CH_4, BL, sys, y} = F_{CH_4, hist, y}$$

In determining $F_{CH_4, hist, y}$ it is assumed that the fraction of LFG that was recovered in the year prior to the implementation of the project activity will be the same fraction recovered under the project activity:

$$F_{CH_4, hist, y} = \frac{F_{CH_4, BL, x-1}}{F_{CH_4, x-1}} \cdot F_{CH_4, PJ, y}$$

Where:

- $F_{CH_4, hist, y}$ = Historical amount of methane in the LFG which is captured and destroyed (t CH₄/yr)
- $F_{CH_4, BL, x-1}$ = Historical amount of methane in the LFG which is captured and destroyed in the year prior to the implementation of the project activity (t CH₄/yr)
- $F_{CH_4, x-1}$ = Amount of methane in the LFG generated in the SWDS in the year prior to the implementation of the project activity (t CH₄/yr)
- $F_{CH_4, PJ, capt, y}$ = Amount of methane in the LFG which is captured in the project activity in year y (t CH₄/yr)

$F_{CH_4, x-1}$ shall be estimated using the methodological tool “Emissions from solid waste disposal sites”. The guidance and requirements described in Step A.1.1 for applying the tool shall be followed. The year y in the tool is equivalent to the year prior to the implementation of the project activity.

As explained earlier that there is no monitored data available for methane that is destroyed in the absence of the project activity other than that it occurred on 10 random days in a year on an average based on plant records. Therefore, this approach is not suitable in the proposed CDM project activity.

- If there is no monitored or historic data on the amount of methane that was captured in the year prior to the implementation of the project situation, then:

$$F_{CH_4, BL, sys, y} = 0.2 \times F_{CH_4, PJ, y}$$

The project participants choose to apply this. Therefore Case 3 and the choice prescribed above are appropriate for the project activity as there is no monitored data available with the PP. The choice of the PP was found to be correct in context with the project activity and was accepted by the assessment team.

Case 4: Requirement to destroy methane exists and LFG capture system exists

As explained above, considering there is no requirement for destruction of methane therefore this Case has not been pursued further. This was checked by the assessment team during validation site visit. This was further cross checked and confirmed by the assessment team by interviewing plant personnel. Further, Delegated Management Agreement^{18/}, dated December 2001 & Solid Waste Law^{43/} N 28-00 was checked by the assessment team and was found that there is no requirement to destroy methane getting generated from landfill site. Thus the assessment team confirmed that this case 4 is not applicable to the project activity. Thus the assessment team concluded that the PP has correctly applied the case 3, as per the applied methodology ACM 0001, version 13.

Step B of ACM 0001, version 13.0.0: Baseline emissions associated with electricity generation ($BE_{EC,y}$)

The baseline emissions associated with electricity generation in year y ($BE_{EC,y}$) are calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool:

- The electricity sources k in the tool correspond to the sources of electricity generated identified in the selection of the most plausible baseline scenario; and
- $EC_{BL,k,y}$ in the tool is equivalent to the net amount of electricity generated using LFG in year y ($EG_{PJ,y}$).

As demonstrated in section B.4 of the PDD, the most plausible baseline for the net electricity that is generated from the project activity is its generation in the existing and/or new grid connected power plants.

Therefore, as per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", Version 01, EB 38, Annex 7, the Scenario A is relevant in case of project activity as the power generated from the project activity after taking care of onsite consumption would be fed to national grid. This was checked by the assessment team and was found to be correct approach as per EB 39, Annex 7.

$$BE_{EC,y} = \sum_k EC_{BL,k,y} \times EF_{EL,k,y} \times (1 + TDL_{k,y})$$

Where:

$BE_{EC,y}$	=	Baseline emissions from electricity consumption in year y (tCO_2/yr)
$EC_{BL,k,y}$	=	Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y (MWh/yr)
$EF_{EL,k,y}$	=	Emission factor for electricity generation for source k in year y (tCO_2/MWh)
$TDL_{k,y}$	=	Average technical transmission and distribution losses for providing electricity to source k in year y
k	=	Sources of electricity consumption in the baseline

The parameter $EC_{BL,k,y}$ & $TDL_{k,y}$ are monitored parameters, the monitoring aspects of this two parameter has been assessed and discussed under section 4.9 of this report.

Determination of the emission factor for electricity generation ($EF_{EL,k,y}$)

The determination of the emission factors for electricity generation ($EF_{EL,k,y}$) depends on which scenario (A, B or C) applies to the source of electricity consumption. Since, the project is qualified for Scenario A, as assessed above the approach prescribed for the same are discussed below;

Scenario A: Electricity consumption from the grid

In this case, project participants may choose among the following options:

Option A1: Calculate the combined margin emission factor of the applicable electricity system, using the procedures in the latest approved version of the .Tool to calculate the emission factor for an electricity system. ($EF_{ELk,y} = EF_{grid,CM,y}$).

Option A2: Use the following conservative default values:

- A value of 1.3 tCO₂/MWh if
 - (a) Scenario A applies only to project and/or leakage electricity consumption sources but not to baseline electricity consumption sources; or
 - (b) Scenario A applies to: both baseline and project (and/or leakage) electricity consumption sources; and the electricity consumption of the project and leakage sources is greater than the electricity consumption of the baseline sources.
- A value of 0.4 tCO₂/MWh for electricity grids where hydro power plants constitute less than 50% of total grid generation in 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production, and a value of 0.25 tCO₂/MWh for other electricity grids. These values can be used if
 - (a) Scenario A applies only to baseline electricity consumption sources but not to project or leakage electricity consumption sources ; or
 - (b) Scenario A applies to: both baseline and project (and/or leakage) electricity consumption sources; and the electricity consumption of the baseline sources is greater than the electricity consumption of the project and leakage sources.

The project participant has selected Option A2 and considered the default values as indicated in EB 39, Annex 7. This choice of option has been included in section B.6.2 of the revised PDD, which was checked by the assessment team and was found to be correct. The PP has opted for the default value of 0.4 tCO₂/MWh. The applicability of this value was also found to be correct as hydro power plants constitute less than 50% of total grid generation in average of the five most recent years, This was checked from official website of ONEE- Electricity Sector (<http://www.one.org.ma/FR/pages/interne.asp?esp=2&id1=10&id2=75&t2=1>). This information was further cross checked from the information available in the Ministry of Energy & Mines website:

(<http://www.mem.gov.ma/ChiffresCles/Energie/CHIFFRES%20CLES%20SECTEUR%20ENERGIE%202011.pdf>). This was found to be correct and was accepted by the assessment team. The application of this tool is also in line with the applied methodology ACM 0001, version 13.0.0, Step B, page no 12/23.

Step C of ACM 0001, version 13.0.0: Baseline emissions associated with heat generation (BE_{HG,y})

Step C is not applied here as the project activity does not involve any heat generation process using the captured LFG, in the baseline scenario. Hence no emission reduction has been claimed under this step.

Step D of ACM 0001, version 13.0.0: Baseline emissions associated with natural gas use (BE_{NG,y})

Step D is not being applied here as these are not relevant in case of project activity and there is no natural gas system that is being displaced at the project site. This was checked by the assessment team during validation site visit by the assessment team and was the approach used by the PP was found to be correct. Thus this was accepted by the assessment team.

Project emissions

Project emissions are calculated as follows:

$$PE_y = PE_{EC,y} + PE_{FC,y}$$

Where:

- PE_y = Project emissions in year y (t CO₂/yr)
- PE_{EC,y} = Emissions from consumption of electricity due to the project activity in year y (t CO₂/yr)
- PE_{FC,y} = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr)

The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) shall be calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. When applying the tool:

- $EC_{PJ,k,y}$ in the tool is equivalent to the amount of electricity consumed by the project activity in year y ($EC_{PJ,y}$); and
- If in the baseline a proportion of LFG is destroyed ($F_{CH4,BL,y} > 0$), then the electricity consumption in the tool ($EC_{PJ,y}$) should refer to the net quantity of electricity consumption (i.e. the increase due to the project activity). The determination of the amount of electricity consumed in the baseline shall be transparently documented in the CDM-PDD.

However, as explained earlier, the combustion in the baseline occurred through the extended pipes and did not require any electricity. Therefore this approach is not relevant in case of the project activity. This was found to be correct and was accepted by the assessment team.

The project emissions from fossil fuel combustion for purposes other than electricity generation ($PE_{FC,y}$) shall be calculated using the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”. When applying the tool:

- Processes j in the tool correspond to the sources of fossil fuel consumption due to the project activity other than for electricity generation or and any on-site transportation by trucks or cars;
- If in the baseline a proportion of LFG is captured and flared ($F_{CH4,BL,y} > 0$), then the fossil fuels consumption used in calculation ($FC_{ij,y}$) should refer to the net of that consumed in the baseline. The determination of the amount of fossil fuels consumed in the baseline shall be transparently documented in the CDM-PDD. This was found to be correct and was accepted by the assessment team.

No project emissions are expected from the project activity. However, any energy consumption that is utilized from grid, in the event gas engines are not working and flares need to run, same will be accounted as all import from the grid is included as monitored parameter $EG_{EC,y}$ (Amount of electricity consumed by the project activity in year y). The monitoring aspects of this parameter has been discussed under section 4.9 of this report. The captive DG set is kept for the project activity and will be monitored for the project emissions as per the tool. However, it is not envisaged at the moment as power can be drawn from the grid, which will be already recorded, as indicated above. This was checked by the assessment team during validation site visit. Thus project emission calculation was found to be correct and was accepted by the assessment team.

Leakage:

No leakage effects have been considered as per the provision of methodology ACM0001, version 13.0.0 and the same approach is found consistent, thus accepted.

Emission reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y	=	Emission reductions in year y (t CO ₂ e/yr)
BE_y	=	Baseline emissions in year y (t CO ₂ e/yr)
PE_y	=	Project emissions in year y (t CO ₂ e/yr)

The *ex-ante* estimation of the emission reduction has been carried out by the PP based on the above algorithms which were checked and found to be appropriately done and thus accepted. It is noteworthy that the *ex-ante* baseline emission reductions has been computed based on the *ex-ante* determined expected “Total methane equivalent generation in crediting year”. The expected methane generation during the proposed crediting period has been computed *ex-ante* based on the First Order Decay model considering amount of waste deposited in the landfill site during historical years in calendar year format

However, in the *ex-post* scenario, the actual emission reduction calculation would be based on the amount of methane flared and captured which is a monitored parameter. The emission reduction spreadsheet is given with this document explaining in detail the calculation of the ex-ante emission reductions was checked by the assessment team, and sectoral expert's opinion was taken for the calculation of emission reductions. The assessment team concluded that the PP has correctly calculated the ex-ante emission reduction of the project activity.

Following values of the parameters were considered by the PP at the *ex-ante* calculation which was checked by the assessment team, as discussed below:

Parameter and Description	Value	Source and Means of Validation
OX_{top_layer} (Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline)	0.1	Adopted from " <i>Emissions from solid waste disposal sites</i> " Default value adopted from Methodological Tool " <i>Emissions from solid waste disposal sites</i> " Version 06.0.1, EB 66 Annex 46 and found to be correct and thus accepted
$F_{CH_4,BL,x-1}$ (Historical amount of methane in the LFG which is captured and destroyed in the year prior to the implementation of the project activity)	20%	Default value as per ACM0001 Version 13.0.0. The value is prescribed for Case 3 "No requirement to destroy methane exists and a LFG capture system exists" of Step A.2 of ACM0001 Version 13.0.0. This was found to be correct and conservative in the context of the project activity. As there was not any specific LFG capture system, but the burning took place on an average 10 days per year through an open pipe extended from the leachate collection system. Thus this assumption was found to be appropriate and was accepted by the assessment team.
GWP_{CH_4} (Global warming potential of CH_4)	25	Adopted as per the IPCC default data for GWP for CH_4 , for the first commitment period. Taking note of the para 5 of CMP7 (page 24) under Common Metrics, which directs to the Fourth Assessment Report by the IPCC, where the GWP for CH_4 has been stated as 25, it has been used, as applicable Checked with http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2_s2-10-2.html ³¹⁷ and found to be correctly adopted and thus accepted. This is also in line with EB 69, Annex 03, paragraph 2. Thus this was accepted by the assessment team.
$fd_{CH_4,HG,j,default}$	1	This has been considered as per ACM0001 Version 13.0.0. The values for boilers and air heaters are based on default values provided in the 2006 IPCC Guidelines (Tier 3 approach for Chapter 2: Stationary Combustion of Volume 2: Energy Use). This value was found to be correct in the context of the project activity.
$P_{i,n}$ (Density of greenhouse gas i (i.e. CH_4) in the gaseous stream at normal conditions)	0.716	Adopted as per "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", Methane density at normal temperature and pressure (273.15 K and 101325 Pa) The value has been adopted from the Tool to determine

Parameter and Description	Value	Source and Means of Validation
		the mass flow of a greenhouse gas in a gaseous stream EB 61 Annex 11 and found to be consistent and thus accepted.
Φ_{default} (Model correction factor to account for model uncertainties for year y)	0.75 for baseline emissions 1.00 for project or leakage emissions, if any	Adopted as per default value for the model correction factor (Application A, Dry conditions) provided under Methodological Tool for "Emissions from solid waste disposal sites" version 06.0.1. The applied value has been chosen considering the application A, which is project activity and dry conditions. Though, there is no difference in the value when humid or wet is chosen. Checked and found to be correctly adopted from "Emissions from solid waste disposal sites" version 06.0.1 (EB 66 Annex 46) and thus accepted
F (Fraction of methane in the SWDS gas)	0.5	Default value is as per Methodological Tool "Emissions from solid waste disposal sites" The methodological Tool was checked and the value has been correctly adopted.
OX (Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste))	0.1	Adopted as per default value from IPCC 2006 guidelines for National Greenhouse Gas Inventories, as specified under Methodological Tool for "Emissions from solid waste disposal sites" version 06.0.1. IPCC 2006 guidelines for National Greenhouse Gas Inventories and "Emissions from solid waste disposal sites" version 06.0.1 (EB 66 Annex 46) was checked and the value was found to be correctly adopted.
$\text{DOC}_{\text{f,default}}$ (Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y)	0.5	Adopted as per default value from IPCC 2006 guidelines for National Greenhouse Gas Inventories, as specified under Methodological Tool for "Emissions from solid waste disposal sites" version 06.0.1. IPCC 2006 guidelines for National Greenhouse Gas Inventories and "Emissions from solid waste disposal sites" version 06.0.1 (EB 66 Annex 46) was checked and the value was found to be correctly adopted.
$\text{MCF}_{\text{default}}$ (Methane correction factor)	1	Adopted as per default value from IPCC 2006 guidelines for National Greenhouse Gas Inventories, as specified under Methodological Tool for "Emissions from solid waste disposal sites" version 06.0.1 for the category "unmanaged solid waste disposal sites – deep". IPCC 2006 guidelines for National Greenhouse Gas Inventories and "Emissions from solid waste disposal sites" version 06.0.1 (EB 66 Annex 46) was checked and the value was found to be correctly adopted.
DOC_j (Fraction of degradable	Default values for Fraction of	Adopted as per default value from IPCC 2006 guidelines for National Greenhouse Gas Inventories (Tables 2.4 and

Parameter and Description	Value	Source and Means of Validation
organic carbon in the waste type <i>j</i> (weight fraction)	degradable organic carbon in the waste type <i>j</i> (% wet type)	2.5), as specified under Table 4 of Methodological Tool for “Emissions from solid waste disposal sites” version 06.0.1. IPCC 2006 guidelines for National Greenhouse Gas Inventories ^{67/} and “Emissions from solid waste disposal sites” version 06.0.1 (EB 66 Annex 46) was checked and the value was found to be correctly adopted.
K_j (Decay rate for the waste type <i>j</i>)	Default values for the decay rate for the different waste types <i>j</i> (Category: Tropical, Dry)	Adopted as per default value from IPCC 2006 guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 3.3), as specified under Table 5 of Methodological Tool for “Emissions from solid waste disposal sites” version 06.0.1. IPCC 2006 guidelines for National Greenhouse Gas Inventories, “Emissions from solid waste disposal sites” version 06.0.1 (EB 66 Annex 46) was checked and the value was found to be correctly adopted.
η_{PJ} (Efficiency of the LFG capture system that will be installed in the project activity)	60	The expected efficiency of the LFG capture system is not likely to exceed 60%. The assumption at the time of investment decision was 60% and therefore same has been used in contrast to 50% prescribed as default by ACM0001, Version 13.0.0. The value was checked and found to be appropriately used and thus accepted.
EF_{grid,y} or EF_{EL,k,y} (CO ₂ emissions intensity of the baseline source of electricity displaced, which in this case corresponds to electricity provided from the ONE grid connected to the project site, tCO ₂ e/MWh.)	0.4 tCO ₂ e/MWh	The PP has applied Option 2 under Scenario 1 of EB 39, Annex 07. This was found to be correct as per the requirement of ACM 0001, version 13. The applicability of this value was also found to be correct as hydro power plants constitute less than 50% of total grid generation in average of the five most recent years, This was checked from official website of ONE- Electricity Sector (http://www.one.org.ma/FR/pages/interne.asp?esp=2&id1=10&id2=75&t2=1). This information was further cross checked from the information available in the Ministry of Energy & Mines website (http://www.mem.gov.ma/ChiffresCles/Energie/CHIFFRES%20CLES%20SECTEUR%20ENERGIE%202011.pdf). This was found to be correct and was accepted by the assessment team.

The values adopted *ex-ante* basis were checked and found to be correct and consistently adopted as per the requirement of Tool and Methodology applied. Corresponding calculations were carried out based on excel spreadsheets. The parameters and equations presented in section B.6.1 of the PDD and further documentation have been compared with the information and requirements presented in the methodology and respective tools. The equation comparison has been made explicitly following all the formulae presented in the calculation records submitted by project participant. The assessment team concluded that the calculation of the baseline emissions followed the procedures described in the methodology ACM0001 Version 13.

Discussion of CAR & CLs:

CAR 11 was raised as follows-

1. The PP was requested to provide the spread sheet used for the ER calculations and was further requested to provide the following information-
 - a) Source for waste characterization used in sheet 'DOC-Waste analysis'
 - b) 3% destruction of LFG in the baseline
 - c) Quantity of waste processed in the past and support the figures taken for future estimate
 - d) details of gas engines to be installed
 - e) assumption for auxiliary and in house consumption for project activity
 - f) considered emission factor for grid (how it is in line to Tool to determine emission factor for an electricity system'
 - g) Power purchase agreement
 - h) Basis for considering MCF as 0.8
2. The PP was requested to include an explanation on ignoring $BE_{HG,y}$ and $BE_{NG,y}$.
3. The PP was requested to provide the source document for the:
 - a) gas engine availability considered (85%) and transmission losses
 - b) 38% engine efficiency, specifically as it is for Jenbacher engines and not for the engine under consideration
 - c) Source document for density if methane considered.
4. There is no method defined to estimate the quantity of methane that would be destroyed being used in the leachate evaporation system.
5. The equations adopted to estimate $F_{CH4, sent_flare,y}$ have not been defined in the PDD.
6. The equations used to determine $BE_{EC,y}$ have not been defined in the PDD.
7. The equations used to determine $F_{CH4, EL,y}$ have not been defined in the PDD.
8. The value used for η_{PJ} is inconsistent between PDD (which states it as 75%) and that used in the ER sheet (which uses 60%). The PP has referred to EPA's document for the assumed 75%. However it gives a range of 60%-85%; hence the PP is requested to demonstrate how 75% is more conservative.
9. The source document for auxiliary consumption provided by the PP is from Ener G, which states this value for 165 kW engines. The PP is requested to confirm if this is applicable to the 375 kW electricity gensets as well.

Responding to the CAR 11, the PP provided the following response:

1. The PP provided the ER sheet^{4/} and also provided the following documents-
 - a) Waste characterisation campaign conducted by ECOVAL in February 2006 in order to determine the composition of the waste and it was found that the PP has correctly sourced the waste components from the study report. This was accepted by the assessment team.
 - b) The value has been considered as 20% now as per procedures and the PDD has been revised. This is as per the default value as mentioned in the applied methodology ACM 0001, Version 13.0.0, Case 3, equation 15 "If there is no monitored or historic data on the amount of methane that was captured in the year prior to the implementation of the project situation". This was found to be correct and was accepted by the assessment team.
 - c) The waste quantities used in the calculations are based on the actual waste quantities received at the landfill for the first two years and the projected quantities based on the contract with the city of Fes for future years. In article 23 of the agreement no. 01/2002, waste quantities and its rates for 10 years are mentioned, and in article 26, rate determination for surplus waste is discussed. The estimated waste disposal in the controlled landfill is calculated from the actual historic disposal and tonnage quantities predicted for 1st ten years.
 - d) The details of the gas engine specification was checked from the quotation provided by Kraft Power Corporation and also from ENER-G has been checked by the assessment team.
 - e) The assumption for in house and auxiliary consumption was checked from technical specification provided by the PP and was found to be acceptable.
 - f) In the final revised PDD, the PP has modified the EF. The EF of grid has been determined using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01. As

per this tool, Option A.2 of Scenario A has been considered, This has been included in section B.6.2 of the revised PDD. The application of this tool is also in line with the applied methodology ACM 0001, version 13.0.0, Step B, page no 12/23. This was checked by the assessment team and was found that the PP has met the requirements of the methodology.

- g) The PP provided one letter from National Electricity Office, dated 28/02/2008, with whom the PP has signed the PPA. This was checked by the assessment team and was found to be correct.
 - h) There was a typo in the project participant's response of 10/05/2006 about the MCF factor. The correct value used in the ER calculations is 1.0 is for controlled landfill. The MCF factor is taken as 1 for controlled landfill, which is in accord with the tool "Emissions from solid waste disposal sites".
2. The PP has revised the PDD and the parameters $BE_{HG,y}$ and $BE_{NG,y}$ are now shown, and the justification for the exclusion of Baseline emissions associated with heat generation ($BE_{HG,y}$) and Baseline emissions associated with natural gas use ($BE_{NG,y}$) has been shown in the PDD. This was checked by the assessment team and was accepted.
3. 85% availability is standard assumption used in similar projects. It can be crosschecked with other registered projects too. Furthermore, even if availability is increased to 100% which is a theoretically maximum value, the equity IRR does not crosses the benchmark. This efficiency is standard assumption based on experience. However, even if this value is increased to 100%, which is not possible, the equity IRR does not go beyond 7.77%. The source of methane density at NTP is applied methodology and tool.
- The density of methane was verified from the tool "Project Emission from Flaring", version 2.0.0 (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v2.0.pdf>) and was found to be correct.
4. As per the revised PDD, version 15.1 dated 06/03/2014, no leachate evaporation system will be installed as a part of the project activity. This was checked by the assessment team and was accepted. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.
5. The PP has revised the PDD and the equations adopted to estimate $F_{CH4, sent_flare,y}$ have not been defined in the PDD. This was checked by the assessment team and was found to be correct.
6. The PP has included the equations used to determine $BE_{EC,y}$ in the revised PDD, this was checked and was found to be correct.
7. The PP has stated that the parameter $F_{CH4,EL,y}$ will be calculated per the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream". This was found to be in line with ACM 0001, Version 13.0.0, page no 7/23. This was accepted by the assessment team.
8. The error in the PDD has been corrected. The value of η_{PJ} has been assumed to be 60%. However the applied methodology ACM 0001, version 13.0.0, "Flaring or use of landfill gas" (<http://cdm.unfccc.int/methodologies/DB/EYUD9R1ZAUZ2XNZXD3HQB18OK3VWIV>) suggests a default value of 50%. The PP has justified that the expected efficiency of the LFG capture system is likely not to exceed 60% based on the experience. The assumption at the time of investment decision was 60% and therefore same has been used in contrast to 50% prescribed as default by ACM0001 V 13.0.0. This was accepted, considering that the assumed value is on conservative side.
9. The PP has considered a auxiliary consumption value of 3%. This was checked from the quotation provided for the gas genset from Kraft Power Corporation. Thus this was accepted by the assessment team.

Thus all the issues raised in CAR 11 were satisfactorily addressed by the PP and the same was found to be acceptable by the assessment team, hence CAR 11 is closed.

CAR 12 was raised as follows-

The PP was requested to provide information regarding the auxiliary power consumption in the project activity. The PP was also requested to clarify why the amount of onsite fossil fuel consumption (eg. diesel consumption) has not been considered.

The PP was further requested to clarify- how the project activity will meet its power requirement in phase 1 when there will be flaring and no electricity generation. Also explain how the power requirements will be met during complete blackout.

Responding to CAR 12, the PP replied that all auxiliary power of the project activity will be met by landfill gas engine. The PP further clarified that the power requirement during blackout would be met by a 5Kva diesel generator set. The DG set would supply power to essential loads i.e. computer, scales and lightings. For start up of the power plant, grid electricity would be used and the same has been taken care in the emissions reduction as the PP is claiming the emission reductions on net electricity exported to the grid only.

As informed by the PP, power requirements in case of emergency will be met through DG set for electricity requirement of administrative building having connected load of 2000W as mentioned in the attached document. This will be less than 1% of the total annual emission reductions. As per VVS, Version 05.0^{6/} para 87, this need not be included in the project emission calculation. Hence this was accepted by the assessment team and CAR 12 was closed.

CL 13 was raised as follows-

Abbreviations used for a number of monitoring parameters are not in line with the applicable methodology. PP was requested to justify.

Further the following points were also raised-

In section B.7.1 of the PDD

- a) Monitoring parameters $MG_{PR,y}$ as per ACM0001 is not included as monitoring parameter
- b) Monitoring parameter $fv_{i,h}$ on page 48 of the revised PDD is not described as per the tool
- c) Monitoring parameters as per "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" are not included.

Also, the PP was requested to clarify how in case of thermal treatment methane in the LFG will be completely destroyed, and how this can be monitored.

The closure of CL 13:

Responding to CL 13, the PP revised the PDD and all abbreviations are now in line to the applied methodology and tools. Further, the PP took the below mentioned corrective actions-

- a) Monitoring parameters $MG_{PR,y}$ as per ACM0001 was included as monitoring parameter
- b) Monitoring parameter $fv_{i,h}$ in the revised PDD is described as per the tool
- c) Monitoring parameters as per "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" are included in the revised PDD.

Also, The monitoring parameters of methane avoidance tool that are required to calculate $MG_{PR,y}$ are added in the revised PDD.

The PP also added that the LFG that will be sent to the leachate evaporator will be burned at the evaporator's burner at 1800 °F (as per the manufacturer's specifications) and thus completely destroyed. The evaporator is also equipped with a continuous mass flow meter to monitor the quantity of LFG being combusted at the evaporator. Thus the response provided by the PP was found to be satisfactory and the same was accepted by the assessment team. Thus, CL 13 was closed.

CAR 19 was raised as follows-

Section B.6.1 of the PDD - Explanation of methodological choices,

- a) Equation 7 on page 23 of the PDD is erroneously mentioned. The PP was requested to correct this.
- b) For determination of project emission from flaring, not all of the steps (equations) as per the tool are not included; the determination of volumetric flow rate and the determination of hourly efficiency are missing. The PP was requested to take a corrective action.
- c) If the emission factor of the grid was calculated as per tool, the PP was requested to justify, why all the steps were not shown in the PDD.

Section B.6.2 of the PDD:

- a) The PP was requested to mention references of all the default values adopted for the emission reduction calculation.
- b) Parameters which are to be monitored as per tools included in the methodology ACM0001 version 11 are not included in the PDD- ("Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site"; "Tool to determine project emissions from flaring gases containing methane"; and other tools as included). The PP was requested to justify in this regard.
- c) It is stated in the PDD that there will be no project emission from electricity consumption and fossil fuel consumption for heat generation. The PP was requested to clarify whether it is technically possible in case of emergency, and when there will be no grid connection for import for the project activity.
- d) The PP was requested to discuss if there can be any uncertainty in calculation of emission reduction due to heat generation for leachate evaporation technology.

Further the PP was requested to address the following issues-

1. The PP was requested to update the steps to calculate project emission from flaring as per the tool, version 2.0.0. The PP was also requested to update all other tools used in the PDD and refer to their latest versions.
2. The assessment for the usage of both the primary and backup flare could not be traced in PDD. The PP was requested to justify.
3. The PP is requested to justify, why only one year Methane generation data has been considered for calculating $F_{CH_4,BL,y}$.
4. Also it is observed in the submitted PDD that 'hourly' reference (Ex: Exhaust Gas Temperature) has been given with regard to the tool to calculate "Project emission from flaring", but in the latest version of the tool 'minute' wise description is provided. Hence the PP is requested to update the PDD accordingly.
5. The PP was requested to justify the application of value 1.0 to the parameter MCF.
6. The PP was requested to provide documentary evidences to justify the % value of waste considered in the project activity.
7. The PP was requested to justify, why is the parameter 'Wj,x' not included in the list of monitoring parameters
8. The PP was requested to clarify if there is any other residual waste added apart from the municipal solid waste.
9. The PP was requested to clarify as to why the present referred enclosed flare does not come under the category of 'Low height flares'
10. With reference to the applied methodology, 'Management of SWDS', ' $\eta_{HG,PJ,j,y}$ ', are missing from the monitored parameter list of the PDD. The PP was requested to justify.
11. The terminologies like ' $LFG_{total,y}$ ', ' $LFG_{flare,y}$ ' which are given in the list of monitoring parameters are not updated as per the latest version of the methodology.

12. Referring to step A.1 of the methodology, while estimating the ex-post determination of ' $F_{CH_4,PJ,y}$ ', why does the heat generation part not considered in the PDD when leachate evaporation is a part of the project activity. The PP is requested to clarify.
13. As per the 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version-01, the PP should document transparently in the PDD as to which sources of electricity consumption were calculated with this tool and, for each source, which scenario (A, B or C) applies. The same was not found in the submitted PDD. The PP is requested to clarify
14. As per the 'Tool to determine the mass flow of a greenhouse gas in a gaseous stream' version-02, The PP should document in the CDM-PDD as to which calculation option is applied to calculate the parameter ' $F_{i,t}$ ' (mass flow of a greenhouse gas 'i' in a gaseous stream). The same was not found in the submitted PDD. The PP was requested to clarify.
15. The PP was requested to provide the supporting document for 'Efficiency of LFG capture system' which is taken as 60% in the present project activity
16. While determining Determination of $F_{CH_4,BL,y}$, the PP has stated that the project scenario comes under Case 1, "Case 1: No requirement to destroy methane exists and no existing LFG capture system". However from the description of the project activity it is evident that the landfill site had LFG capture and flaring arrangements were already installed. The PP is requested to justify the mismatch in information.

Addressing CAR 19, the PP provided the following response-

In section B.6.1 of the PDD:-

- a) The PDD was revised, this was checked by the assessment team and was found to be correct.
- b) The PP has revised the PDD, section B.6.1 and the tool has been updated. This was checked by the assessment team and was found acceptable.
- c) In the final version of the PDD, the PP has modified the EF calculation. The EF of grid has been determined using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01. As per this tool, Option A.2 of Scenario A has been considered; This has been included in section B.6.2 of the revised PDD. The application of this tool is also in line with the applied methodology ACM 0001, version 13.0.0, Step B, page no 12/23. This was checked by the assessment team and was found that the PP has met the requirements of the methodology.

In section B.6.2 of the PDD:

- a) The PP has revised the PDD to include references of all the adapted values. This was checked by the assessment team and was found acceptable.
- b) The PP has included all the monitoring parameters in the revised PDD, under section B.1. This was checked by the assessment team and was found acceptable.
- c) The statement concerning project emissions has been corrected in the revised PDD, under the section B.6.2, and the approach to calculate such emissions have been clearly described. This was checked by the assessment team and was found acceptable.
- d) The evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1 dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Thus the finding raised regarding evaporator does not carry any significance in this project activity.. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED

confirming the current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.

Further,

1. The PP has updated the steps in the revised PDD, under section B.6.1. This was checked by the assessment team and was found to be correct.
2. The information has been further updated in section B.6.1 of the revised PDD. The primary flare is enclosed flare and open flare is only for back up and exigencies. However, both will be monitored. The revised PDD was checked and was found to be acceptable. Further monitoring parameters $Flame_m$, $T_{EG,m}$ and $SPEC_{flare}$ has been also included in the monitoring section, under B.7.1 of the revised PDD. This was checked and was found to be correct by the assessment team.
3. The methane generation data has been considered based on all the years starting from 2008. The revised ER sheet^{4/} was checked and was found to be acceptable.
4. The information has been updated in the revised PDD. This was checked and was found to be correct by the assessment team.
5. The PP has used a default value for MCF. The tool to calculate "Emissions from solid waste disposal sites" has been referred for the MCF value. The PP has considered a default value of 1, as the site is a "anaerobic managed solid waste disposal sites" as per the applied tool. This was also seen by auditor during the site visit. Further, the management of land fill is not going to change in future. Thus the justification provided by the PP was accepted by the assessment team.
6. The waste characterization campaign conducted by ECOVAL in February 2006, was submitted by the PP. This was checked by the assessment team and it was found that the % value mentioned in the PDD is consistent with the study report. This was accepted by the assessment team.
7. The project activity comes under the application A of methodological tool "Emissions from solid waste disposal sites", as this project mitigates methane emissions from a specific existing SWDS. Hence the parameter, 'Wj,x' not included in the list of monitoring parameters. The justification provided by the PP was found to be correct.
8. The PP has provided one declaration, dated 10/06/2013, stating that the land fill site includes waste mainly composed of food waste, paper and cardboard, wood, textile, garden waste and inorganic waste. No other type of waste is mixed with this landfill waste. The declaration was checked by the assessment team and was found to be acceptable.
9. The flare quotation from Zohn Zinc was checked by the assessment team. The dimension of the flame enclosure is "10'-0" diameter x 40'-0" overall height". Thus this comes under the definition of "Low height flare" of methodological tool, "Project emissions from flaring", (Version 02.0.0). Thus the assumption made in the PDD while determining flare efficiency was found to be correct.
10. The PP has correctly inserted "Management of SWDS" in the revised PDD, whereas $\eta_{HG,PJ,j,y}$ is not applicable in the context of the project activity, as it does not involve any emission reduction from any heat generating equipment. The revised PDD was checked and was found to be acceptable.
11. The information has been updated in the revised PDD now. The revised PDD was checked and was found to be acceptable.
12. The evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1 dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Thus the finding raised regarding evaporator does not carry any significance in this project activity.. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014.

Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity..

13. The PP has revised the PDD, section B.6.1. The PP has applied the "Scenario A: Electricity consumption from the grid" and the applicable steps have been demonstrated in the revised PDD. This was checked and was found to be acceptable.
14. The PP has revised the PDD and the same information has been correctly updated in the revised PDD. The project participants intend to monitor the mass flow of the LFG and the volumetric fraction of CH₄ in the LFG on a dry basis. Therefore, Option A of the tool shall be applied in the project activity. In addition, Option B of the tool shall be applied when it cannot be demonstrated that the LFG is measured dry, as per the requirements of the tool. This was checked and was found to be acceptable.
15. The assumption was based on the experience of the PP. However, the value prescribed as 50% is not considered for conservativeness. In any case, the actual ERs would be based on ex-post monitoring and not on this value. The justification provided by the PP was found to be acceptable.
16. The PP has updated the revised PDD. There is no requirement to destroy methane getting generated from landfill site either in the existing contract or in the law. However, in order to address the local safety and fire hazards, approximately for 10 random days in a year the LFG is allowed to burnt through extended pipes. There exists a rather rudimentary LFG capture system, which are simply the vertical pipes that allow easy passage for LFG to get liberated into atmosphere and reduces pressure beneath the cell and this cannot be considered as LFG capture system. Hence equation 15 under case 3 of ACM 0001, version 13.0.0 was deemed to be the most appropriate option for calculating $F_{CH_4, BL, y}$. This was checked and was found to be acceptable and CAR 19 was closed.

CAR 21 was raised as follows-

1. Paragraph 30 of the CDM Project Standard states "*Project participants shall provide a description of the proposed CDM project activity or PoA that provides an understanding of the nature of the project and its implementation.*" However project description under section A.1 of the PDD does not provide any indication on the implementation status or projected implementation timeline/ commissioning for the proposed project activity at the landfill site. The PP was requested to clarify and modify the section A.1 of the PDD accordingly.
2. The description on the consideration of emission reduction due to the use of LFG in the leachate evaporation system is not found to be transparent. The description mentioned in section A.1 (page 2), section B.2 (page 11) and section B.4 (page 17) of PDD, version 13 is not consistent. The PP was requested to clearly and consistently describe the emission reduction scenario related to the leachate evaporation system- both for the case of methane avoidance and heat generation.
 - i. **Section A.1 (page 2):** "*Therefore, as part of the project activity, any emissions reductions that are occurring on account of combustion of LFG (methane avoidance) in the leachate evaporator system will be claimed by the project participant but there are no fuels being replaced here as currently there is no leachate evaporator system that can be considered part of the baseline or current situation.*"
 - ii. **Section B.2 (page 11):** "*Since, the leachate evaporation system is not existing in the baseline and is actually part of the project activity, it has been conservatively considered that no emission reductions are claimed for the amount of heat generated in the project activity.*"
 - iii. **Section B.4 (page 17):** "*Therefore, there are no emission reductions occurring on account of usage of LFG in the evaporation system as it does not replace any fossil fuel. Therefore, the emission on account of methane avoidance are going to be claimed as it would be done for LFG combusted in the flare system.*"
3. "Determination of the emission factor for electricity generation" does not justify which default value (1.3 tCO₂/MWh and 0.4 tCO₂/MWh) as per the Option A2 of Tool to calculate baseline, project and/or

leakage emissions from electricity consumption, Version 01 has been adopted for the proposed project activity and the basis of adoption. Whereas the ex-ante ER calculation spreadsheet considered the Grid Emission Factor value as 0.4 tCO₂/MWh. Furthermore, section B.6.2 also mentions both the default values as the **EF_{grid,y}** or **EF_{EL,k,y}**; which is not found to be justified. The PP was requested to clarify.

4. The Parameter table for “**EF_{grid,y}** or **EF_{EL,k,y}**” under “Choice of data” contains some strike out sentences without any justification. The PP was requested to clarify.
5. In section A.2.4 of the PDD, the degree symbol is missing from the co-ordinates. The PP was requested to take corrective action.
6. In section C.2.2 of the PDD, the crediting period is stated as 01/10/2013 but this contradicts the statement in the section B.6.3 (below the table), which states the crediting period start date is 01/08/2013 and end date is 31/07/2013. The PP was requested to clarify.

Responding to CAR 21, the PP provided the below mentioned response-

1. The proposed CDM project activity is not yet completely implemented and therefore there are no evidences available with regard to its implementation as yet. However, majority of pipes that are used in the gas collection wells have been purchased and even placed in the landfill by the project participants. An enclosed flare system has been purchased and is not yet commercially commissioned. The purchased documents/landing documents were submitted by the PP. The gas engines would be installed within 1st year of crediting period after evaluating the actual gas output from the landfill due to delay in the implementation of the project activity. However, for the purpose of description of the project activity and its component these are detailed in section A.3 Table 1 of the PDD already. 1. The justification provided by the PP was found to be acceptable, further section A.1 & section A.3 of the PDD was checked by the assessment team.
2. The evaporator does not form a part of the project activity as per the description of the revised PDD, version 15.1 dated 06/03/2014. As per the response provided to CAR 21, the PP has confirmed that the evaporator or any other heat generating equipment will not be installed as a part of the project activity. Thus the finding raised regarding evaporator does not carry any significance in this project activity.. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.
3. It is unlikely that an emission factor value of 1.3 tCO₂e/MWh will be used, therefore it has been removed from the section. The justification of the choice has been indicated in clear manner under B.6.1 and B.6.2 of the revised PDD. The PP has further removed the emission factor of 1.3 tCO₂/MW. The justifications have been included in section B.6.2 of the PDD. The revised PDD was checked by the assessment team and was accepted.
4. In the revised PDD, the strikethrough text has been removed and the choice made by the PP has been made in clear manner. The choice was already indicated under section B.6.1 but now the value has been provided too. Section B.6.2 of the PDD was checked and was found to be correct.
5. Section A.2.4 of the revised PDD, version 14 dated 05/09/2013 was checked by the assessment team and observed that the PP has made necessary corrections.
6. Section B.6.3 of the revised PDD Version 14 dated 05/09/2013 was checked by the assessment team. The start date of crediting period was found to be consistent with that of the section C.2.2 of the PDD.

Further, the following points were raised as a part of CAR 21-

1. The PP requested to substantiate the description of the technology employed by the project, since section B.2 from the PDD⁽¹⁾ states that one of the uses of the LFG will be to generate steam to

evaporate the leachate collected whereas section A.3 of the PDD^{/1/} states that the evaporation is made through direct heat exchange with the combustion chamber and direct contact of the combustion gases with the leachate. The PP is requested to provide a clarification on the inconsistency observed.

2. The PP is also requested to provide justification on how the applicability criteria (c) (ii) are applicable to the project activity, with supportive evidences.
3. The PP is requested to provide information on prevailing waste management practices in the region that have been affected by the land fill. The PP is also requested to provide a comparative assessment with verifiable sources of information regarding the amount of waste recycled in the region before and after the implementation of the project activity to demonstrate that the project activity, "do not reduce the amount of organic waste that would be recycled in the absence of the project activity" in line with paragraph 76 of VVS version 5.0.
4. The PP is requested to further substantiate that the basis for discarding the alternative LFG3, LFG4 & LFG5 and justify the exclusion of the alternatives with verifiable documentary evidences. While determining the baseline alternatives for the destruction of LFG, the PP is requested to justify how paragraph 93 & 94 of VVS version 5.0 has been taken into consideration.
5. The PP is requested to clearly describe the type of flare used in the project activity. If an enclosed flaring has been used, the PP is requested to demonstrate if it is a low height flare as per the definition of tool to calculate 'Project Emission from Flaring'. The PP is requested to revise the PDD accordingly.
6. In section B.6.1 of the PDD, the PP has mentioned that a default value of flare efficiency will be considered. Considering this fact, the PP is requested to justify, why the steps to calculate flare efficiency steps 2.1 to 2.4 of the tool "Project Emission from Flaring" has been included in the PDD in line with 97 and 98 of VVS version 5.0.
7. As per page 8/23 of methodology ACM 0001, version 13 "The gaseous stream the tool shall be applied to the LFG delivery pipeline to each item of electricity generation or heat generation equipment j, or the natural gas distribution system. $F_{CH_4,EL,y}$ and $F_{CH_4,HG,y}$ are then calculated as the sum of mass flows to each item of electricity generation or heat generation equipment j;". The PP was requested to justify, how this point has been taken into account in the section B.7.1 of the PDD, while including the parameters to be monitored in line with paragraph 132 of VVS version 5.0.

The response provided by the PP was assessed as follows-

1. The revised PDD, version 15.1 dated 06/03/2014 was checked by the assessment team. The PP has removed the heat generation part of the project activity, and the PP has confirmed that this heat generation equipment will not be installed as a part of the project activity. Now the LFG captured will only be used for generation of electricity in the gas engine and some portion may be flared. The applicability criteria was reassessed after this change in project description, and the assessment team is of the opinion that the applicability criteria of ACM 0001, version 13 has not been affected. In the revised PDD, the description in section A.3 is consistent with the remaining section of the PDD. Thus this point was closed. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014. The assessment team has checked the revised PDD, version 15.1, dated 06/03/2014 and is of the opinion that the PP has removed the description of the heat generation component in the PDD from all respective sections, the description of the project activity is now consistent throughout the PDD.

Since the proposed project implementation is yet to be completed, FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity

Consequently, the cost associated with the installation of Leachate evaporator system has been removed from the PDD and corresponding IRR sheet. The removal of cost has resulted in improvement of Equity IRR to 4.58%, which is still below the benchmark i.e., 12%. As the base Equity IRR has changed, there are also changes in the sensitivity threshold however none of the situations, which are realistic, raise the IRR to cross the benchmark. The revised PDD and revised IRR spreadsheet reflects this. This was checked by the assessment team and was found to be correct.

2. The PP has decided not to install any heat generating equipment as a part of the project activity. The LFG captured will only be used in the gas engine to generate electricity and some portion may be flared. Thus the applicability criteria (C) of the applied methodology are being met by the project activity. Thus this point was accepted by the assessment team. The project activity is partially implemented i.e. LFG extraction and collection pipelines along with flaring equipments are already installed and the PP is yet to install any downstream LFG utilisation components of the proposed project activity. This has been further supported by the self declaration letter from the PP, dated 08/03/2014, signed by Ahmed Hamidi, President & Director General of ECOMED confirming the current status of project implementation as of March 2014. Since the proposed project implementation is yet to be completed, a FAR 22 has been raised by the assessment team, to confirm the utilisation of LFG in the plant and this will be checked by the verifying DOE at the time of verification of the project activity.
3. The PP has confirmed that the contract to build and operate the controlled sanitary landfill was signed in Dec 2001, which was initially for a period of 10 years and was extended to 20 more years (making it 30 years). The Delegated Management Agreement, dated December 2001, which was signed by Fes Urban Community and the PP, was checked by the assessment team. It is evident that the terms and conditions to operate the land fill site were agreed well before the start date (24/01/2008) of the CDM project activity. As per the agreement no recycling of the waste was required to be undertaken by the PP. This was also checked from the further addendum to the Delegated Management Agreement, ADDENDUM NO.2 TO AGREEMENT NO.1/2002 and no such requirement was mentioned to recycle the incoming waste. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998, also did not suggest any recycling of incoming waste. Thus it was confirmed that there was no recycling of waste before or after the implementation of the project activity. Furthermore the assessment team also checked this during the validation site visit and confirmed that there is no recycling facility in the land fill site.

The prevailing practice of MSW in the region is 1% waste is composted, 10% recycled, 28% land filled and remaining 62% is open dumped at a country level. This was checked from table 1 of Country Report on the Solid Waste Management in Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>).

From the report^{78/} the assessment team confirmed that in the host country only 10% of the waste is being recycled, however this is mostly the non-organic part of the waste as confirmed from page number 9 of the report^{78/}. The recycled waste consists mainly of components with high economic value such as oils, metals, glass, paper and cardboard. The implementation of the project activity will not reduce the recycling of waste with high economic value.

In addition, the collection of waste in urban area is 82%, which goes to 10 operational land fill sites as confirmed from the above referred report. Thus in urban areas, the prevailing practice is dumping of waste in land fill sites that are in operation. This was also confirmed by the assessment team based on local and sectoral knowledge of the local assessor, who is a part of the assessment team. Therefore the assessment team is of the opinion that there is no other prevailing practice of treating the collected waste other than being dumped in the landfill sites.

An assessment of prevailing government rules and regulations regarding treatment of incoming waste (for e.g. recycling) was carried out by the assessment team. The Household Waste Management National Program was developed in cooperation between the ministries of the Interior, Finance, and the Environment. One aim of Household Waste Management National Program is only to promote the recycling of waste, but it does not mention any mandate in this regard. It was also confirmed by the local assessor, that there is no government regulation regarding recycling of MSW, and hence no government organisation is keeping a record of amount of waste recycled.

The fact that in Morocco, land filling is the preferred option, was also confirmed from the World Bank published interview^{79/} of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank. When asked the question: "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, stated that "The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....".

Therefore, after validating the documentary evidences referred in the PDD^{1/} (i.e., Feasibility Study conducted by Sadat International Inc', dated September 1998), assessing the prevailing waste management practice based on the local and sectoral knowledge of the assessment team, assessing the prevailing government rules and regulations and physical inspection during the validation site visit, the assessment team confirms that there is no recycling of incoming waste in the landfill site before or after the implementation of the CDM project activity. Also based on the above mentioned assessment the assessment team concludes that recycling is not a well established practice in host country, and the implementation of the project does not affect any recycling activity. The assessment team also confirms that the validation of this applicability criteria of the applied methodology ACM 0001, version 13, has been carried out as per the requirement of paragraph 74-76 of VVS, version 05.0.Closed.

4. **LFG3:** Recycling of organic waste has been ruled out by the PP as an alternative for organic waste. The Delegated Management Agreement, dated December 2001, which was signed by Fes Urban Community and the PP, was checked by the assessment team. As per the agreement no recycling of the organic waste was required to be undertaken by the PP. This was also checked from the further addendum to the Delegated Management Agreement, ADDENDUMNO.2 TO AGREEMENT NO.1/2002 and no such requirement was there to recycle the incoming organic waste. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998, also did not suggest any alternative such as recycling of incoming organic waste. Furthermore the assessment team also checked this during the validation site visit and confirmed that there is no recycling facility in the land fill site. Thus it was confirmed that recycling of organic waste cannot be an alternative for LFG destruction.

The prevailing practice of MSW in the region is: 1% waste is composted, 10% recycled, 28% land filled and remaining 62% is open dumped at a country level. This was checked from table 1 of Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). From the report^{78/} the assessment team confirmed that in the host country, only 10% of the waste is being recycled, however this is mostly the non-organic part of the waste, as confirmed from page 9 of the report^{78/}. The recycled waste consists mainly of components with high economic value such as oils, metals, glass, paper and cardboard.

The assessment team therefore is of the opinion that recycling of organic waste is not a widely used practice in the host country. This was also confirmed by the local assessor for the host country.

An assessment of prevailing government rules and regulations regarding recycling of organic waste was carried out by the assessment team. The Household Waste Management National Program (HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM) was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report On The Solid Waste Management In Morocco, (link- [http://www.sweep-](http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf)

net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf). One aim of HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM is only to promote the recycling of waste, but it does not discuss any mandate in this regard. It was also confirmed by the local assessor for the host country, that there is no government regulation regarding recycling of organic part of the waste.

The fact that in Morocco, land filling is the preferred option, was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). When asked the question “Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?”, Mr Jaafar Sadok Friaa, has stated that “The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....”. Thus the assessment team is of the opinion that recycling of organic waste cannot be an alternative for LFG destruction.

LFG 4: Aerobic treatment of organic waste has been ruled out by the PP as an alternative for LFG destruction. The PP has confirmed that less than 1% of waste is being composted in the host country. In the urban area waste is collected (82% collection efficiency) and is being dumped in the nearby land filling sites (10 operational sites). This information was checked from Country Report On The Solid Waste Management In Morocco^{/78/}. The report further confirms that since 1960, 10 composting units were installed in Morocco, and as of now, all the units are shut down due to numerous technical and economical constraints. Thus the assessment team is of the opinion that the aerobic treatment of the organic part of the waste cannot be an alternative for LFG destruction.

An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried out by the assessment team. The Household Waste Management National Program was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report on the Solid Waste Management in Morocco^{/78/}. The aim of the Household Waste Management National Program, as mentioned in the above referred report does not discuss aerobic treatment of organic waste. It was also confirmed by the local assessor for the host country, that there is no government regulation regarding aerobic treatment of organic part of the waste.

The fact that in Morocco, land filling is the preferred option was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). When asked the question “Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?”, Mr Jaafar Sadok Friaa, has stated that “*The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....*”. Thus the assessment team is of the opinion that aerobic treatment of organic waste cannot be an alternative for LFG destruction.

LFG 5: Incineration has been ruled out as an alternative by the PP. This was supported by the Fes Solid Waste Management Feasibility Study^{/12/} conducted by Sadat International Inc', dated September 1998. The feasibility study rules out incineration on the basis of technical and economical aspects associated with incineration process. The study^{/12/} carried out by Sadat International Inc also states that incineration is a highly energy intensive process and hence it cannot be taken up as an alternative to the LFG destruction. The feasibility study was checked by the assessment team and the justification provided was found to be acceptable.

An assessment of the prevailing practice of organic waste was carried out by the assessment team. No information regarding incineration of municipal solid waste could be traced in the host country. Incineration is adopted only for industrial hazardous waste & medical waste and these types of waste are not a part of municipal solid waste. This information was confirmed from the Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>).

An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried out by the assessment team. No government rules or regulations regarding incineration of organic part of the municipal solid waste could be traced. It was also confirmed by the local assessor for the host country, that there is no government regulation regarding incineration of organic part of the waste.

The fact that in Morocco, land filling is the preferred option for MSW, was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). When asked the question “Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?”, Mr Jaafar Sadok Friaa, has stated that “The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....”. Thus the assessment team is of the opinion that incineration of organic waste cannot be an alternative for LFG destruction. Thus the point raised was successfully addressed by the PP and is closed.

5. The design specification provided by the Flare Manufacturer was checked and was found to be correctly mentioned in the PDD. The effective height of the stack has been given by the manufacturer as 6630 mm. The Width (synonymous with diameter in this case) has been prescribed as 2229 (in mm), therefore the height of the flare is approximately 3 times to that of its diameter. Therefore, the flare that is installed in the project activity is a low enclosed flare as per the methodological tools ‘Project emissions from flaring’ Version 2.0.0. The PP has accordingly adjusted the flare efficiency as per the requirement of the tool, EB 68, Annex 15. This was found to be correct by the assessment team. Closed.
6. Section B.6.1 of the revised PDD was checked by the assessment team. The PP has correctly removed the steps to calculate the flare efficiency from the PDD. This was accepted by the assessment team. Closed.
7. Section B.7.1 of the revised PDD, was checked by the assessment team. The PP has included parameters $F_{CH4,EL,y}$ & $F_{CH4,sent_flare,y}$. This is found to be in line with the applied methodology ACM0001 version 13.0. This is found to be appropriate and hence it is accepted.

Thus all the issues of CAR 21 was successfully addressed by PP, which was accepted by the assessment team, thus CAR 21 was closed.

Opinion:

Based on the analysis, It is confirmed that;

- a) All assumptions and data used by the project participants are listed in the PDD, 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 PDD;
- c) All values used in the PDD 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 PDD.

Therefore, with reference to the requirements of Para 131 of VVS version 05.0, this is confirmed that the equations applied to calculate project emissions, baseline emissions, leakage and emission reductions complies with the requirements of the applied Methodology ACM0001 version 13.0.0 and relevant methodological tools.

4.9 Application of Monitoring Methodology and Monitoring Plan

The proposed project activity has applied approved monitoring methodology ACM0001, version 13.0.0. The final PDD fulfils the requirements of the applied approved monitoring methodology and the applicable methodological tools. In addition to the requirement of monitoring methodology ACM0001 version 13.0.0, the requirements of the following methodological tools (as specified by the ACM0001, version 13.0.0) on the context of the proposed project activity, have been appropriately used to determine the project monitoring plan;

- Emissions from solid waste disposal sites (Version 06.0.1)
- 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)
- Project emissions from flaring (Version 02.0.0)
- Tool to calculate the emission factor for an electricity system (Version 03.0.0)
- Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 02.0.0)

The PP has also provided a clear description towards the data and parameters required to be monitored at the *ex-post* scenario in the final version of the PDD.

The applicable parameters which will be monitored for the proposed CDM project activity as per ACM0001 version 13.0.0 and the applicable methodological tools as provided in <http://cdm.unfccc.int/methodologies/DB/EYUD9R1ZAU22XNZXD3HQB18OK3VWIV> are considered appropriately for the project monitoring plan, which are discussed below:

1. $V_{t,db} = V_{t,wb} = FVRG_{,h} (F_{CH_4,EL,y})$ (where, $V_{t,db}$ = Volumetric flow of the gaseous stream in time interval t on a dry basis; $V_{t,wb}$ = Volumetric flow of the gaseous stream in time interval t on a wet basis; $FVRG_{,h}$ = Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour h .) : - This parameter will be monitored for the LFG gaseous stream delivered for electricity generation in the gas engines. The instruments with recordable electronic signal (analogical or digital) will be installed at the monitoring site. This parameter shall be continuously monitored by flow meters. The accuracy of monitoring equipment is according to national standard. Regarding parameters $V_{t,db}$ and $V_{t,wb}$, the volumetric flow rate of the residual gas at normal conditions in the hour h will be measured according to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", the measurement option in the project activity will be: Option (A) dry basis: when the temperature of gaseous stream is lower than 60°C (333.15 K) at the flow measurement point. Option (B) wet basis: when the temperature of gaseous stream is higher than 60°C (333.15 K) at the flow measurement point; Regarding parameter $FVRG_{,h}$, Project Participant will ensure that the same basis (dry or wet) is considered for this measurement and the measurement of volumetric fraction of all components in the residual gas ($f_{vi,h}$) when the residual gas temperature exceeds 60 °C. The calibration frequency of this monitoring equipment will be in accordance with manufacturer's specifications.
2. $V_{t,db} / V_{t,wb} / FVRG_{,h} (F_{CH_4,sent,flare,y})$ (where, $V_{t,db}$ = Volumetric flow of the gaseous stream in time interval t on a dry basis; $V_{t,wb}$ = Volumetric flow of the gaseous stream in time interval t on a wet basis; $FVRG_{,h}$ = Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour h .): This parameter will be monitored separately for the LFG gaseous stream delivered to the LFG delivery pipeline to the flare(s) by the PP. The instruments with recordable electronic signal (analogical or digital) shall be installed at the monitoring location of the project activity. This parameter will be monitored on a continuous basis by flow meters. The accuracy of monitoring equipment is according to national standard. Regarding parameters $V_{t,db}$ and $V_{t,wb}$, the volumetric flow rate of the residual gas at normal conditions in the hour h will be measured

according to the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, the measurement option in the project activity will be: Option (A) dry basis: when the temperature of gaseous stream is lower than 60°C (333.15 K) at the flow measurement point; Option (B) wet basis: when the temperature of gaseous stream is higher than 60°C (333.15 K) at the flow measurement point; Regarding parameter $FVR_{G,h}$, the Project Participant will ensure that the same basis (dry or wet) is considered for this measurement and the measurement of volumetric fraction of all components in the residual gas ($f_{vi,h}$) when the residual gas temperature exceeds 60 °C.

3. $v_{i,t,db} = V_{t,wb} = FVR_{G,h} (V_{t,db} = \text{Volumetric flow of the gaseous stream in time interval } t \text{ on a dry basis; } V_{t,wb} = \text{Volumetric flow of the gaseous stream in time interval } t \text{ on a wet basis; } FVR_{G,h} = \text{Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour } h.)$ – This parameter will be measured by the project participants using a continuous gas analyser operating in dry-basis. The calibration frequency of this monitoring equipment should be according to the manufacturer’s specifications. The monitoring of this parameter is as per “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 02.0.0.
4. T_t (Temperature of the gaseous stream in time interval t) – This parameter will be measure by Project participant using a temperature meter. Instruments with recordable electronic signal (analogical or digital) are required. Calibration and frequency of calibration is according to manufacturer’s specifications. Provided all parameters are converted to normal conditions during the monitoring process, this parameter may not be needed except for moisture content determination and therefore it should be metered only when performing such measurements (with same frequency). However, if the applicability condition related to the gaseous stream flow temperature being below 60°C is adopted, this parameter must be monitored continuously to assure the applicability condition is met. This parameter is used for the baseline emission calculation. The monitoring of this parameter is as per “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 02.0.0.
5. P_t (Pressure of the gaseous stream in time interval t) – For measuring this parameter, instruments with recordable electronic signal (analogical or digital) will be used. Periodic calibration against a primary device must be performed periodically and records of calibration procedures must be kept available as well as the primary device and its calibration certificate. Pressure transducers (either capacitive or resistive) will be calibrated monthly. The monitoring of this parameter is as per “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 02.0.0.
6. $p_{H2O,t,Sat}$ (Saturation pressure of H2O at temperature T_t in time interval t) - This parameter is solely a function of the gaseous stream temperature T_t and can be found at reference [1] of “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 02.0.0 for a total pressure equal to 101,325 Pa.
7. Management of SDWS – The PP will use different source of data viz. original design of landfill, Technical specification for the management of the SWDS and Local or national regulation. Project participants referred to the original design of the landfill to ensure that any practice to increase methane generation have been occurring prior to the implementation of the project activity. However, there was no change that occurred due to project implementation. Any change in the management of the SWDS after the implementation of the project activity will be monitored and recorded. Monitoring of this parameter is as per the applied methodology ACM 0001, version 13.0.0.
8. $Op_{j,h}$ (Operation of the equipment that consumes the LFG) – For each equipment unit j using the LFG monitor that the plant is operating in hour h by the monitoring any one or more of the following three parameters:
 - Temperature. Determine the location for temperature measurements and minimum operational temperature based on manufacturer’s specifications of the burning

equipment. e.g., the prescribed temperature for flare system is 1600 °F (or 871 °C) in order to achieve 98% destruction;

- Flame. Flame detection system is used to ensure that the equipment is in operation; e.g. the flare will be integrated with flame detection system.
- Products generated. Monitor the quantity of leachate treated in the evaporator.

$Op_{j,h}=0$ when:

- One of more temperature measurements are missing or below the minimum threshold in hour h (instantaneous measurements are made at least every minute);
- Flame is not detected continuously in hour h (instantaneous measurements are made at least every minute);
- No products are generated in the hour h

Otherwise, $Op_{j,h}=1$

Annual calibration/testing of the monitoring equipment would be undertaken by accredited agencies. The monitoring of this parameter is as per the applied methodology ACM 0001, version 13.0.0.

9. $EG_{PJ,y}$ (Amount of electricity generated using LFG by the project activity in year y) – The PP will monitor net electricity generation by the project activity using LFG. Electricity meter will be subject to regular (in accordance with stipulation of the meter supplier) maintenance and testing to ensure accuracy. The readings will be double checked by the electricity distribution company. This parameter is required for calculating baseline emissions associated with electricity generation ($BE_{EC,y}$) using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. The monitoring of this parameter is as per the applied methodology ACM 0001, version 13.0.0.
10. $EG_{EC,y}$ (Amount of electricity consumed by the project activity in year y) - Sources of consumption shall include, where applicable, electricity consumed for the operation of the LFG capture system, for any processing and upgrading of the LFG, for transportation of the LFG to the flare or other applications (boilers, power generators) etc. Electricity meter will be subject to regular (in accordance with stipulation of the meter supplier) maintenance and testing to ensure accuracy. The readings will be double checked by the electricity distribution company. This parameter is required for calculating project emissions from electricity consumption due to an alternative waste treatment process t ($PE_{EC,y}$) using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”. The monitoring of this parameter is as per the applied methodology ACM 0001, version 13.0.0.
11. f_y (Fraction of methane captured at the SWDS and flare, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y) – The monitoring of this parameter has been done as per methodological tool “Emissions from solid waste disposal sites”, version 06.0.1. The tool prescribes for two sources- Select the maximum value from the following: (a) contract or regulation requirements specifying the amount of methane that must be destroyed/used (if available) and (b) historic data on the amount captured. The prevailing contract and regulations do not prescribe any destruction of methane for this project activity. Hence option (b) has been selected, and the parameter will be monitored annually. The source of data for this parameter will be plant records at the landfill site. This is in line with the requirement of methodological tool “Emissions from solid waste disposal sites”, version 06.0.1.
12. $T_{EG,m}$ (Temperature in the exhaust gas of the enclosed flare in minute m) - The temperature of the exhaust gas in the flare will be measured by an appropriate temperature measurement equipment. The measurements outside the operational temperature specified by the manufacturer may indicate that the flare is not functioning correctly and may require maintenance. Flare manufacturers will provide suitable monitoring ports for the monitoring of the temperature of the flare. These would normally be expected to be in the middle third of the flare.

Monitoring frequency will be once per minute and this parameter is used for baseline emission calculation. Temperature measurement equipment will be replaced or calibrated in accordance with their maintenance schedule. The calibration would be conducted once in a year or as specified by the manufacturer. Unexpected changes such as a sudden increase/drop in temperature can occur for different reasons. These events will be noted in the site records along with any corrective action that was implemented to correct the issue. The monitoring of this parameter was found to be in line with the Tool, "Project emissions from flaring", version 02.0.0.

13. Flame_m (Flame on or Flame off) – This parameter indicates flame detection of flare in the minute *m*. Source of data will be onsite measurement data. This will be measured using a fixed installation optical flame detector. Monitoring frequency will be once per minute. Equipment shall be calibrated and maintained in accordance with manufacturer's recommendations. Monitoring of this parameter is as per "Project emissions from flaring", version 02.0.0.
14. TDL_{k,y} (Average technical transmission and distribution losses for providing electricity to source *i*, *k* or *l* in year *y*) – The source of data will be Project participants/National data. Monitoring frequency will be annually. In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years. The monitoring of this parameter is as per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01.

The monitoring procedure, monitoring equipment involved, measurement and data recording frequency along with QA-QC approach for the individual monitoring parameter has been found in line with the requirement of applied methodology and applicable methodological tools as specified above.

As per the requirements of VVS, version 05.0 para 131 and 133, the following requirements of the monitoring aspects were checked in the PDD by the Assessment Team.

- a) Compliance of the monitoring plan with the approved methodology.
 - i. By means of document review, identify the list of parameters required by the selected approved methodology: All the parameters listed above were checked and found to be appropriately considered as per the requirement of the methodology and the tools. Further this was checked with the provisions of monitoring provided by the equipment suppliers and was found to be consistently done as per the provisions of the methodology and thus accepted.
 - ii. This is thus to confirm that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology.
- (b) Implementation of the plan
 - i. This is to further confirm that the monitoring arrangements described in the monitoring plan are feasible within the project design and was checked to be matching the design parameters of the project provided by equipment suppliers
 - ii. The PP has clearly provided information of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

Thus based on the above, it can be concluded that the PP would have proper provisions for the implementation of the monitoring plan as per the requirement of the methodology and the tools associated with the methodology.

The monitoring plan of PDD version 13 is found to fulfil the requirements of ACM0001 version 13.0.0 and appropriate procedures are identified for data reporting and cross checks.

Discussion of CAR & CL:

CL 14 was raised as follows:

The PP was request to clarify why the QA/QC procedures have been deleted from operation of the energy plant (the parameter to be monitored) and flare efficiency? The PP was also requested to state the calibration frequency of the monitoring equipments in the OA/QC row under section B.7.1 of the PDD. Further, the PP was requested to explain the procedures in case of data missing and adjustment.

The closure of CL 14:

The QA/QC procedures have been mentioned for all parameters in the revised PDD. The PP has stated that, in the case data is missing the most conservative approach will be taken into account for conducting the emission reduction calculations. This information has been mentioned in section B.7.2. of the revised PDD. This accepted by the assessment team and CL 14 was **closed**.

Opinion:

The assessment team is of the opinion that the monitoring plan of the project activity is in line with the requirement of the applied methodology ACM0001, version 13.0.0 and applied tools. The monitoring arrangements described in the monitoring plan are feasible within the project design and the PP will be able to implement the monitoring plan as described. The validation of the monitoring plan was carried out as per paragraph 132 of VVS, version 05.0, and the monitoring plan meets the requirement of paragraph 131 of VVS version 05.0.

4.10 Environmental Impacts

The project activity, landfill gas collection and flaring, is a supplementary part of the Sanitary landfill operations. Although not required by the existing regulations at the time, An Environmental Impact Assessment^{15/} for the Fes Landfill was prepared by Sadat International Inc. (SII) in 1999, as a part of the solid waste management plan for the city of Fes. The assessment team concludes that the project will give rise to a large number of positive impacts, and no significant negative residual impacts have been detected. A summary of the environmental impact statement is presented in Annex 6 of the PDD. Below are the additional positive impacts that could results from the landfill Gas Capture and Flaring System at the Fes Sanitary landfill.

Environmental:

Capturing and flaring the landfill gas is an effective way of preventing the emission of methane into the atmosphere, thus reducing the release of gases having a greenhouse effect, and therefore minimising contribution to global climate change. Besides, this methodology permits extracting and channelling the gases generated within the sanitary landfill, accordingly increasing the sanitary landfill stability. In addition, flaring of the collected LFG does not only destroy methane, but will also destroy compounds in the LFG such as volatile organic compounds and ammonia This gas management methodology will decrease the emission of gases to the atmosphere, thus improving air quality in the surrounding area.

Socio-economic:

The sale of CERs earned by implementing the project will generate a substantial flow in foreign currency to the Commune Urbaine de Fes. This income will be shared with the Commune and can be used for the research and promotion of new Sustainable-Development Projects. The construction, operation and maintenance of the system will result in about 8 new direct jobs in the project area. This project will promote new projects within the Clean Development Mechanism at national and provincial levels. The project will be a vehicle for technological development in the Province, and will permit the engagement and formation of specialists and new projects in the field of the capture of the Landfill gas, so as to overcome the technological barriers presented by this type of project.

There are no negative impacts on the environment due to the project activity. The proposed project activity as per the prevailing environmental laws of the host country does not have any negative environmental impact. The non requirement of an EIA study for the project activity is thus hereby considered accepted. Further it was ascertained that the project activity will not result in any adverse environmental effect and will not create any trans-boundary environmental impacts.

Discussion of CAR & CLs:

CL 16 was raised as follows:

The PP was requested to provide the copy of the EIA report^{/15/}. The PP was also requested to clarify whether an EIA was a mandatory regulatory requirement, and to provide a copy of environmental clearance obtained from the regulatory authority. Furthermore, the PP was requested to clarify whether a separate EIA is required for the CDM project activity since flaring installations and a power generation plant is being installed.

Addressing CL 16, the PP stated that-

An Environmental Impact Assessment^{/15/} was conducted for the development and operation of Fes Landfill. The EIA included the landfill gas management aspects including all aspects of the current project activities such as landfill gas collection and flaring, power production and leachate evaporation. The EIA concluded that there are no negative environmental impacts by this project. Furthermore, there is no mandatory regulatory requirement to obtain a regulatory clearance from a regulatory authority as of the start date of the project. The Law n°2-04-563 requiring regulatory clearance of EIAs did not come out until November 4, 2008 and concerns only projects requiring investments in excess of 200,000,000 DHs which is not the case for this project activity. This was checked by the assessment team and was found to be correct. Thus CL 16 was **closed**.

4.11 Local Stakeholder Comments

The operator of the Fes landfill has continuously interacted with local stakeholders, both for the dissemination of information associated to the management plan of the landfill, and for different improvement projects involved in such plan, especially the project reviewed herein. The project was presented at the Wilaya of Fes on June 7, 2005 at the occasion of the world environment day. All the stakeholders were invited, including ministerial, provincial and municipal representatives, press, academic community, provincial and municipal legislators and neighbours. A visit to the landfill was also organised on the same day. Minutes of meetings^{/75/} as submitted by the PP was checked by the assessment team. In August 2006, the Ministry of Interior approved the Agreement between the consortium Ecomed-Edgeboro and the Commune Urbaine de Fes to Capture and Use of Gases from the Fes Sanitary landfill. The agreement describes the main features of the project, the benefits pursued and the predicted results.

The comments received from the local population have been encouraging, so far as they evidenced an understanding of the significance of a project of this type and the likelihood of new associated projects in the future. Ministerial, provincial and municipal representatives showed their support for the project, and emphasized its importance as the first in its type in the Province and as an opening for new opportunities of Sustainable Development. The academic and political community showed great interest in the project because it promotes social development by including state-of-art technology in the Province. The neighbors are interested in the project since it will reduce the problems of odours from the landfill. No negative comments have been received from any of the interested parties.

The queries stated during the meetings and presentations were answered and clarified at the meetings. Such queries did not result in any comments that could cause changes to be done to this Project Design Document.

Based on the documentary evidence^{/75/} and on-site interviews conducted during the validation site visit it is hereby concluded that the local stake holders' consultation was conducted in a satisfactory manner as per

the mandatory requirement of the CDM project activity. This has been carried out in compliance with paragraphs 138 of VVS 05.0.

Discussion of CAR & CLs:

CL 17 was raised as follows:

The PP was requested to submit the following documents-

- a) supporting documents that referred stakeholders in PDD have been consulted.
- b) copy of invitation letter sent to stakeholders.
- c) summary of comments received from the stakeholders.

The PP was also requested to justify how the due account has been taken if any stakeholders comments received.

The supporting documents submitted regarding the stakeholders consultation process was checked by the assessment team. The photographic evidences of the meeting have also been checked and were found to be acceptable by the assessment team. It was also confirmed that no negative comments were received during the stakeholder's consultation process. Thus CL 17 was **closed**.

5. Comments by Parties, Stakeholders and NGOs

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

5.1 Description of how and when the PDD was made publicly available

The Project Design Document for this project was made available on (<http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html>) and was open for comments from 19/08/2008 until 17/09/2008.

5.2 Compilation of all comments received

Comment Number	Date Received	Submitter	Comment
NA	NA	NA	No comment was received

5.3 Explanation of how comments have been taken into account

No comments were received

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
03/11/2008 & 04/11/2008	Ahmed Hamidi	Project developer	Project description, applicability, baseline selection, additionality, CDM consideration, applied methodology, monitoring.
03/11/2008 & 04/11/2008	Mr. Hassan Mohamm	Landfill Manager	Project description, applicability, baseline selection, additionality, CDM consideration, applied methodology, monitoring.
03/11/2008 & 04/11/2008	Mr. Sliani Youssef	Deputy Director of Ecomendd	Project description, applicability, baseline selection, additionality, CDM consideration, applied methodology, monitoring.
03/11/2008 & 04/11/2008	Mr. Laarbi Faqihi	City Engineer	Project description, applicability, baseline selection, additionality, CDM consideration, applied methodology, monitoring.

7. Document References

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

Name of document
<p>/1/</p> <ul style="list-style-type: none"> • PDD, version 04, dated-01/07/2008 • PDD, version 05, dated-13/04/2009 • PDD*, version 03, dated-11/05/2010 • PDD*, version 04, dated-27/09/2010 • PDD, version 06, dated-14/04/2011 • PDD, version 07, dated-14/08/2011 • PDD, version 08, dated-31/01/2012 • PDD, version 09, dated-31/07/2012 • PDD, version 10, dated-15/03/2013 • PDD, Version 11, dated-30/04/2013 • PDD, version 12, dated -10/07/2013 • PDD, version 13, dated -05/08/2013 • PDD version 14, dated -05/09/2013 • PDD version 14.1, dated 10/09/2013 • PDD version 15, dated 28/02/2014 • PDD version 15.1, dated 06/03/2014 (final version) <p>*There was an error while sequencing the PDDs submitted to DoE by PP. This issue was addressed under CL 18. However all the versions have been kept for transparency.</p>
/2/ Letter Of Approval, from Host Country DNA dated – 29/12/2009
/3/ MoC, dated – 30/04/2013
/4/ ER calculation sheet (filename: New_CER_Calculations_Fes_Landfill_20140228)
/5/ IRR calculation sheet (filename: NewIRR_Initial_Investment_Analysis_20140228)

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

Name of document
/6/ Clean Development Mechanism Validation and Verification Standard Version 05.0
/7/ Approved methodological Standard version/s ACM0001: Flaring or use of landfill gas Version 13.0.0
<p>/8/ <u>Tools</u> used to calculate, determine, demonstrate, estimate, identify and/or test information relating to a CDM project activity i.e. Additionality etc .</p> <ul style="list-style-type: none"> • “Combined tool to identify the baseline scenario and demonstrate additionality” (Version 04.0.0) • Guidelines on the Assessment of Investment Analysis” (version 05)
/9/ Copy of solid waste law, Decree No. 2-09-284 of 20 hja 1430 (December 8, 2009) (determining the administrative procedures and the technical specifications relating to controlled landfills)
/10/ Landfill Gas Enclosed Flare System Specifications
/11/ Proposal for EvapoDry Model ED 300 dated – 27/05/2011

/12/ 'Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998. In addition, an English translation of the summary of the feasibility study is also provided.
/13/ Minutes of Meeting of the meeting held between Project Participant and Ministry of Environment from the CUF dated- 26/06/2003
/14/ CDM Workshop Invitation Letter to Mr. President of Fes Urban Commune from Ministry of Territorial Development, Water And Environment, Morocco, dated- 04/11/2004
/15/ Environmental Impact Assessment, "Solid Waste Management Study- Environmental Impact Assessment" – 1999, prepared by Sadat International Inc.
/16/ Addendum dated 30/07/2010 to the signed Validation agreement between DOE & PP
/17/ Letter from the CUF to Ministry of Interior dated 07/05/2006
/18/ Delegated management Agreement, dated – 12/2001
/19/ Fax communication from National Electricity Office dated 02 July 2012, showing electricity price structure.
/20/ Transmittal & Landfill approval minutes of Stake Holders Meeting, dated – 01/12/1999
/21/ Quotation of Blowers and Flare from EDGEBORO INTERNATIONAL, INC, dated 03/03/2006
/22/ Workshop confirmation Letter from the President of Fes Urban Commune to Mr. Director of Partnership, Communication and Cooperation, State Secretariat in charge of Environment, Morocco, dated 21 June 2003.
/23/ http://www.one.org.ma and The workshop summary of the International Workshop on Renewable Energy and Hybrid Systems REHYSYS 2006; December 14-15, 2006; Marrakech, Morocco (http://hy-pa.org/Publications/2007/morocco-workshop/S2-6-HYPA-WS-Marrakech-0612-Benlamlih.pdf)
/28/ Letter from the Moroccan Bank BMCE, dated 16/03/2009
/29/ PLR (benchmark): Attachment B5b http://www.bkam.ma/wps/portal/net/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKL94w38T_IHSZnFe8QbebvqR2KluSDEfD3yc1P1g1LzgLKR5kBBR8Mw_RB9b_0A_YLc0lhyPxNHAG86T8Y!/delta/base64xml/LOIKWWttUSEhL3dITUFLc0FFVUF0by80SUvhREFBIS9mcg!!
/30/ Purchase order for gas Blower equipment, dated 24/01/2008
/31/ Quote from John Zinc, dated 02/03/2006 (Finding 9_CAPEX_Proposal Flare Cost from John Zink Company LLC)
/32/ Proposal Genset Cost from Ener G UK, dated 20/04/2009
/33/ Quote from Plastima, dated 03/01/2006
/34/ Approval of project by Ministry of Interior, dated 04/08/2006 {Signed Agreement (ADDENDUM NO.2 TO AGREEMENT NO.1/2002)}
/35/ Debt - Proposal from the Bank - Letter from SGMB Bank, dated 06/02/2006
/36/ Equity - Company policy
/37/ Capacity Offer from the buyer for purchase of electricity (Letter from National Electricity Office, dated 28/02/2008)
/38/ Auxiliary Consumption - CAPEX_Proposal Genset Cost from Ener G UK (Manufacturer specification)
/39/ Escalation on Repair, maintenance and Overhead http://www.indexmundi.com/morocco/inflation_rate_%28consumer_prices%29.html
/40/ Repairs and Maintenance cost - dated 01/03/2006
/41/ http://www.pwc.com/en_Gl/gi/publications/assets/TaxBulletinNovemberMorocco20082.pdf
/42/ Finance Law No- 30-35 for the fiscal year 2006.
/43/ An English translation of the Solid Waste Law N 28-00 (relating the management and disposal of wastes), dated December 2006
/44/ http://www.minenv.gov.ma/PDFs/Portefeuille_MDP.pdf
/45/ 5KVA silent generator specs
/46/ Translated Copy of Workshop confirmation letter, dated 21/06/2003
/47/ Translated copy of Workshop Invitation Letter to Mr. President of Fes Urban Commune from Ministry of Territorial Development, Water And Environment Directorate of Partnership, Communication and

Cooperation, Morocco, dated- 04/11/2004
/48/ Offer to assist in the development of the project from the Ministry of National Planning, Water and Environment to President of Fes Urban Commune, dated 29/03/2005
/49/ Translated copy of Offer to assist in the development of the project from the Ministry of National Planning, Water and Environment to President of Fes Urban Commune dated 29/03/2005
/50/ Letter from Ministry of Territorial Development, water and environment to President of Fes Urban Commune , dated 11/05/2005
/51/ Translated copy of Letter from Ministry of Territorial Development, Water and Environment to President of Fes Urban Commune, dated 11/05/2005
/52/ Tool to calculate “Project emissions from flaring” (Version 02.0.0)
/53/ Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 02.0.0)
/54/ Letter from CUF to National Office of Electricity regarding power agreement negotiations, dated 03/05/2007
/55/ Translated Copy of Letter from CUF to National Office of Electricity regarding power agreement negotiations, dated 03/05/2007
/56/ Gas engine Quotation from Kraft Power, dated 02/03/2006
/57/ Proposal for Lachate evaporation system from Fen Tech Environmental Inc, dated 02/03/2005
/58/ Leachate evaporation system quotation, dated 27/05/2011
/59/ Bank letter, dated 06/02/2006
/60/ Declaration Type of Waste, dated – 10/06/2013
/61/ Fax ONE Tarif Achat, dated – 02/07/2013
/62/ http://www.clarke-energy.com/service/upgrades-repair-and-overhaul/
/63/ Morocco DNA website screen shot

cdm Morocco+ project - xwww.minenv.gov.ma/PDFs/Portefeuille_MDP.pdfGoogle TranslateMechanism (CDM)

www.minenv.gov.ma/PDFs/Portefeuille_MDP.pdf

AppsWeb Slice GalleryImported From IESolarPlots definitionsCDM: The program ...CDM: R K Powergen...CDM: Guidelines an...Korea CPA locationIPCC Default values...Hor

13 Projects under validation :

Title	Project Proponent	Amount of CERs [tCO ₂ e/y]	Sector	Credit start	Contact person
Akhtennir Wind Farm Project	NAREVA	496,942	Wind	01/11/2011	Reda ZNAIDI r.znaidi@nareva-ona.com
Haoouma Wind Farm Project		138,009		01/10/2011	
Faoum El Qued Wind Farm Project		264,18		01/11/2011	
Tétouan Wind Farm Project for Lafarge Cement Plant (Wind farm2 & 3 : 22MW)	LAFARGE Ciments	58,000	Wind	01/01/2010	Ms. Siham ANOUA siham.anoua@lafarge-maroc.lafarge.com
RAMSA – Biogas recovery and electricity generation from M'zar Wastewater treatment plant, Morocco	Régie Autonome Multi-Services d'Agadir (RAMSA)	38,675	Methane avoidance (Waste water)	01/01/2009	Lahoucine BENZINE l.benzine@ramsa.ma
Fes New Landfill Gas Recovery Reuse and Flaring Project	- ECOMED - Commune Urbaine de Fès	102,647	Landfill gas	01/11/2008	Ahmed Hamidi ahmedhamidi@aol.com
Residues implemented at Renault Tanger Méditerranée (RTM) plant – Melloussa, Morocco	RTM (Renault Tanger Méditerranée SAS)	10,544	Biomass Energy	01/01/2012	Edouard ARMALET edouard.arnalet@renault.com
SBBC Fuel Switch Project	Société Briqueterie Bati Chaoula (SBBC)	27,494	Biomass Energy	01/10/2009	Zineb ADDIOUI addiou.zineb@gmail.com

/64/Letter from Grid ONE dated 02/07/2012
/65/ Translated copy of the letter from the President of Fez Urban Commune to Ministry of Interior dated 05/07/2006
/66/ Guidance Note on Landfill Flare and Engine Management and Monitoring (AG7) (latest best practice guidelines issued by USA EPA)
/67/ Old Host Country Approval by DNA, dated 13 June 2008
/68/ Grid emission factor sheet of Morocco
/69/ Waste characterization campaign, by ECOVAL, dated February, 2008.
/70/ Purchase details of pipes, dated 01/06/2011 & 01/07/2011
/71/ Commissioning certificate of the flaring system dated, 20/01/2011
/72/ Translated copy of the letter, to Mr. President of Fez Urban Community from Ministry of Territorial Development, Water And Environment, Morocco regarding call for proposition of projects that may benefit

from the advantages of CDM, dated 16/05/2003

/73/ True copy of the letter, to Mr. President of Fez Urban Community from Ministry of Territorial Development, Water And Environment, Morocco, regarding call for proposition of projects that may benefit from the advantages of CDM, dated 16/05/2003

/74/ Follow up letter was sent by president of CUF, dated 20/11/2007 to National Office of Electricity in Fes Boulemane Region

/75/ Stakeholder's consultation details.

/76/ Old Host Country Approval Letter, dated 13/06/2008 (not considered in this projects, however was checked by assessment team)

/77/ Email communication to DNA of Morocco, dated 13/06/2012 regarding confirmation on the authenticity of the LoA.

/78/ Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>)

/79/ World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>)

/80/ Support to DG Environment for development of the Mediterranean De-pollution Initiative "HORIZON 2020" (http://ec.europa.eu/environment/enlarg/med/pdf/morocco_en.pdf)

/81/ Photographic evidences of site regarding no installation of any heat generating equipment in the plant site (Photographic evidence 1)



/82/ Photographic evidences of site regarding no installation of any heat generating equipment in the plant site (Photographic evidence 2)



/83/ Email confirmation on the project details from the assessment team Local Assessor for the host country.
/84/ Email confirmation on the project details from Sectoral Expert for Sectoral Scope 13.
/85/ Purchase orders of gas recovery pipes dated 22/04/2010, 20/04/2010 & 16/04/2010
/86/ Declaration letter from ECO MED dated 08/03/2014 signed by Ahmed Hamidi, President & Director General of ECOMED, regarding the implementation schedule of the project activity.

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for “Fes New Landfill Gas Recovery Reuse and Flaring Project – Fes, Morocco”.

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

Issue	Findings	Source/Mean of Verification	Further Clarification / Action Required? / Information
Letter of Approval from Host Party and Participation requirements	The Moroccan DNA has confirmed having issued the Letter of approval - as per email received on 13th September 2012 from M. Souad EL ASRAOUI from the DNA office.	SGS has sent an email to the person being referred to as the DNA of Morocco (M. Benyahia) on the UNFCCC website to check the authenticity of the Letter of Approval. We got a response from his assistant, M. El Asraoui, on the 13th September 2012 (see appendix 1)	No action required
Project ownership	The ownership of the landfill is confirmed and thus the ownership of the project itself (as the project is directly related to the existing landfill)	Newspapers articles (http://www.leconomiste.com/article/fes-une-decharge-pour-creer-de-l-energie), Ecomed's Website (http://www.ecomed.ma/fr/groupe-ecommed/ecommed-fes)	No action required
Project funding (including any ODA)	LoA has not found any indication of project funding (including any ODA). Note that CDM is mentioned in the National Waste Management Program as a way of financing the Program besides international cooperation and public money.	Articles and presentations related to the project	No action required
Licenses and other statutory clearances	There are no particular regulations requirements. The only license is potentially a construction license that has to be asked by the construction company who will build the infrastructure. The connections to the electric network ONE (Office National de l'électricité - National Power Company) need an authorisation that	Asked information to an SGS ISO14001 auditor based in Casablanca (Eric.Monteyremard@sgs.com) and to Ouafae Bouchouata,	No action required

Issue	Findings	Source/Mean of Verification	Further Clarification Required? / Action / Information
	should be obtained by the construction company as well.	currently Chief of the Information and sensibilisation (Communication) Service from the Department of Environment from the Ministry of Energy, Mines, Water and Environment and formerly from the DNA department.	
Project Location	Checked with google earth.	Google earth	No action required
Project Boundary	No additional information	Not Applicable	No action required
De-bundling	There is no similar project by the PP, located in a radius of 1 km of the project. Note that ECOMED FES does also the construction works of the landfill of Ifrane and Azrou, both located at 60 km of Fes. Ecomed manages also the landfills of Mohammedia and Casablanca.	Asked information to an SGS ISO14001 auditor based in Casablanca. (Eric.Monteyremard@sgs.com)	No action required
Baseline and data assumptions	The calculation of the Grid emission factor has been done as per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption"	Not Applicable	No action required
Regulation on Methane flaring	There is currently no regulation in Morocco on methane flaring from landfills. The existing regulation on waste (la loi n° 28-00 relative à la gestion des déchets et à leur élimination) and the national waste management program mainly indicate how to manage the waste but doesn't mention anything about methane capture. Note that the EIA study on the landfill could include specific technical	National waste management program (appendix 2) and the law on the waste management and disposal (appendix 3)	No action required

Issue	Findings	Source/Mean of Verification	Further Clarification / Action Required? / Information
	requirements that could become mandatory. As per the summary on the EIA study included in the PDD, the options of covering and collecting the biogas have been mentioned as compensatory measures.		
Environmental Impact Assessment	<p>There is no need for an EIA for the Capturing and flaring of landfill gas and production of electricity (as less than 300MW thermal capacity) according to the list of installations that require EIA (Law on EIA studies).</p> <p>Note : since the law of 2003 on EIA studies, there is a need for an Environmental Impact Assessment for a new landfill as the list comprises : 'Installations de stockage ou d'élimination de déchets quel que soit leur nature et la méthode de leur élimination' (installations of waste storage and disposal whichever their nature and the disposal method)</p>	Law on EIA studies (Dahir n° 1-03-60 du 12 mai 2003 portant promulgation de loi n° 12-03 relative aux études d'impact sur l'environnement.) (appendix 4) and confirmed by an SGS ISO14001 auditor based in Casablanca (Eric.Monteyremard@sgs.com).	No action required
Local Stakeholder Consultation	<p>All the CDM projects in Morocco have to be subject of a Local Stakeholders consultation meeting to which the DNA usually participates.</p> <p>LSC carried out by the PP is sufficient.</p>	Asked to Ouafae Bouchouata, currently Chief of the Information and sensibilisation (Communication) Service from the Department of Environment from the Ministry of Energy, Mines, Water and Environment and formerly from the DNA department.	No action required

A.2 Annex 2: Validation Checklist

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

Requirement	Reference Criteria	SGS Assessment	Conclusion/CARs/CLs
<p>1. All Parties involved have approved the project activity</p> <p>1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms</p> <ul style="list-style-type: none"> a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration <p>1.2. Whether the LoA is unconditional with respect to (a)-(d) above?</p> <p>1.3. Is the LoA from the project participant or directly from the DNA, indicate the means of validation employed to assess the authenticity with DNA if the team doubt the authentic of LoAs.</p>	<p>Clean Development Mechanism, Validation and Verification Standard, Version 04.0 (from this point forwarded referenced as VVS) - – Para 39 a-d-42 /51</p> <p>EB 30 Para. 41.</p> <p>EB50 Annex 48 para. 8</p> <p>VVS Para. 46-49</p> <p>Paragraph 37 CDM Modalities and procedures</p>	<p>The HCA is not provided at the time of validation hence the PP has to clarify the same in line with para 44-50 and 126-127 of VVM 1.2, hence CAR 01 is raised.</p> <p>PP has submitted letter of approval dated 29/12/2009 from DNA, Morocco. Thus CAR 01 is closed out.</p>	<p>CAR#01</p> <p>Closed</p>
<p>2. Please state the project participants listed in the PDD and check with which of these project participants does SGS have a contract for the projects validation</p>	<p>VVS Para. 34-37</p> <p>Marrakech Accords, CDM Modalities, §40</p>	<p>The PP is correctly mentioned in the PDD and SGS is having contract with Ecomed Gestion des Dechets which is correct.</p>	<p>CAR#01</p> <p>Closed</p>

2.1. If the project participant(s) listed in the PDD published at international stakeholder ¹ consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41. EB50 Annex 48 Para. 8	Refer 2 above	CAR#01 Closed
2.2. Confirm while submitting a request for registration – all of the project participants with a contractual relationship are still listed in the PDD.	EB50 Annex 48 Para.7-9	Refer 2 above	CAR#01 Closed
2.3. Project participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with SGS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	EB50 Annex 48 Para.7-9	Refer 2 above	CAR#01 Closed
2.4. SGS may restart the validation activity through the new or revised contract with a different set of project participants by; a. Indicating that the first validation contract has been terminated and; b. Republishing the PDD or revised PDD for global stakeholder consultation.	EB50 Annex 48 Para.7-9 (If applicable)	Refer 2 above	CAR#01 Closed
2.5. The letter/s of approval are unconditional with respect to 1.1.a) to 1.1.d) above	VVS Para. 46-49	The LOA is to be provided by PP. PP provided the scanned copy the LOA which was checked and found to be consistent and thus accepted.	CAR#01 Closed
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	VVS Para. 51 Marrakech Accords, CDM Modalities §29 and §30	DNA approval is pending. PP provided the LOA which was checked and found to be consistent and thus accepted.	CAR#01 Closed

¹ Stakeholders mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity

	Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a		
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVS Para. 34-37 Marrakech Accords, CDM Modalities, §40	http://cdm.unfccc.int/Projects/Validation/DB/4JSAX4HVAFEZ8YE2FYHQYI24LDWCOQ/view.html Starting date and closing date : 16 Dec 11 until 14 Jan 12 Number of comments received: 0	CAR#01 Closed
5. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVS Para. 62-63 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions EB 25 Annex 15 EB 41 Annex 12	The project design document is in conformance with the UNFCCC PDD format.	CAR#01 Closed
6. Have the project participant been authorized by at least one Party involved in letter of approval	VVS para 45-49	The project participant has been authorized by DNA of Morocco. This was checked from the LoA letter issued to PP, dated 29/12/2009.	CAR#01 Closed
7. Has the DNA considered whether the proposed CDM project activity assists the host Party in achieving sustainable development	VVS para 50-52	Yes. The DNA considered the project activities contribution to sustainable development. This was checked from the LoA letter.	CAR#01 Closed

Table 2 - PDD

Checklist Question	Reference Criteria	MoV*	SGS Assessment	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVS Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The project title used in the PDD is not consistent with the LoA provided. Hence CAR#01 is raised.	CAR#01 Closed
A.1.2. Is there an indication of a revision number and the date of the revision?	VVS Para.56 PDD section A.1	DR	The version of PDD submitted must be sequential with previous submission. PP is requested to correct. CL 18 raised . CL 18 closed.	CL 18 CL 18 closed.
A.1.3. Does the PDD clearly indicate the project participant, host party, sectoral scope and selected methodologies correctly as per contract with SGS	PDD template version 4.1 Guidelines for completing a CDM-PDD (PDD) section A.1 Annex 8 EB 66	DR	The PDD clearly indicate the project participant, host party, sectoral scope and selected methodologies correctly as per contract with SGS.	Y
A.2. Description of the Project Activity				
A.2.1. Does the proposed CDM project activities in existing facilities or utilizing existing equipments? Does a site inspection carried out by the assessment team?	VVS Para 64 Guidelines for completing a CDM-PDD (PDD) section A.1	DR, SV	The proposed project activity is a landfill gas collection, utilization and flaring project implemented at the city of Fes, Morocco. The project activity involves installation of new equipments. Site visit was also carried out.	Y

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

A.2.2. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately and provide the reader with a clear understanding of the nature of the proposed CDM project activity?	VVS Para.64-69 VVS Para. 64(a) PDD section A.1 see also A3	DR, SV	The description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately and provide the reader with a clear understanding of the nature of the proposed CDM project activity.	Y
A.2.3. If the project activity involves the alternation of an existing installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVS Para.64-69 PDD section B.3 see also A.4, A.4.3 and B.3	DR	The project does not involve any alteration of existing facilities. Hence not applicable.	Y
A.2.4. Is all information provided consistent and in compliance with the actual situation or planning?	VVS Para.64-69 PDD section A.1 see also A.3, and B.2	DR	The project activity details as mentioned in the PDD are consistent. The same has been cross-checked during the site visit. PP needs to submit Purchase orders/ contracts for the equipments involved in the project activity. The details of the purchase orders from Hofstetter were provided by the PP which was checked on site and found to be consistent and thus accepted.	LAC/ Site visit Y
A.2.5. Is all information with respect to project description deemed accurate and complete?	VVS Para.64-69 PDD section A.1	DR	The project activity details as mentioned in the PDD are consistent. The same has been cross-checked during the site visit. PP needs to submit Purchase orders/ contracts for the equipments involved in the project activity. The details of the purchase orders from Hofstetter were provided by the PP which was checked on site and found to be consistent and thus accepted.	Y
A.3. Location of Project Activity				
A.3.1. Is the Host Party clearly mentioned in the section A.2	PDD section A.2 Annex 8 EB 66	DR	The table under section A.3 of the PDD version 01 required for the indication of project participants has been applied correctly.	

A.3.2. Is Region/State/Province etc. in A.2.2	VVS Para. 40-42 Annex 8 EB 66	DR	The Region/State/Province etc., have been clearly mentioned in the PDD.	Y
A.3.3. Is City/Town/Community etc. clearly mentioned in section A.2.3.	PDD section A.2 Annex 8 EB 66	DR	PP has mentioned City/Town/Community etc. clearly mentioned in section A.2.3 of the PDD.	Y
A.3.4. Is Physical/ Geographical location provided in A.2.4.	PDD section A.2 Annex 8 EB 66	DR	Physical/ Geographical location has been provided in A.2.4 of the PDD.	Y
A.3.5. Has the MoC been completed as per the latest Procedures for MoC between the project participants and the Executive Board?	EB 48 Annex 60 EB 45 Annex 59	DR	MoC has been completed as per the latest Procedures for MoC between the project participants and the Executive Board. CAR-01 raised . Closed	CAR-01 Closed
A.4. Technologies and/or measures				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	Annex 8 EB 66 PDD section A.3	DR	The landfill site is located in City of Fes, Morocco. CAR 02 raised.	CAR-02 Closed
A.4.2. Are the latitude and longitude of the site indicated (decimal points)	PDD section A.3 Guidelines for completing a CDM-PDD (PDD) section A.3	DR	The Co-ordinates provided are found to be incorrect and does not shows the exact geographical location of the project activity, when cross checked. CAR 02 raised.	CAR-02 Closed
A.4.3. Does the proposed	VVS Para.64-69	DR	No alteration in the system. Only change in raw material of refrigeration	Y

CDM project activity involve the alteration of existing installations or process?	PDD section A.3 Guidelines for completing a CDM-PDD (PDD) section A.3		manufactured.	
A.4.4. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVS Para.64-69 PDD section A.3 Guidelines for completing a CDM-PDD (PDD) section A.3	DR	The project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites.	Y
A.4.5. Is the category(ies) of the project activity correctly identified?	VVS Para.64-69 PDD section A.3	DR	PP has correctly applied Sectoral Scope 13 and methodology ACM 0001. This was found to be correct.	Y
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVS Para.64-69 PDD section A.3 Guidelines for completing a CDM-PDD (PDD)	DR	All information provided in compliance with actual situation or planning as available.	Y
A.4.7. Are the projected emission reductions in consistency with the ex-ante estimation in Section B.6.4?	VVS Para.64-69 PDD section A.4.3	DR	The table for emission reduction calculations correctly applied.	Y
A.5. Parties and Project participants				
A.5.1. Are the parties and project participants correctly mentioned in the A.4 of the PDD	VVS Para.64-69 PDD section A.4	DR	The parties and project participants has been correctly mentioned in the A.4 of the PDD	Y

A.6. Public Funding

A.6.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.5	DR	The PDD states that no public funding will be invested in the project activity.	Y
A.6.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.5	DR	The information mentioned in the PDD has been consistent throughout the PDD.	Y
A.6.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR	There is no involvement of Public Funding in the project activity.	Y

A.7. Debundling

A.7.1. If the project is a debundled component of a larger project, does the larger project fall within the limits for small-scale CDM project activities	VVS Para. 1154-156	DR	The project activity is a large scale project, hence not applicable. Please refer section A.5.1 above.	Y
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B. Baseline and Monitoring Methodology

B.1. Reference of methodology and Project activity eligibility

B.1.1. Is the baseline and monitoring methodology a valid version approved by the CDM EB?	VVS Para.70 PDD section B.1	DR	ACM0001 version 13.0.0 has been approved by the EB.	Y
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B.1.2. Is there any specific guidance (including the Tools) provided by EB and has these guidance been applied? If yes, is this correctly applied	VVS Para.71 PDD section B (B.2)	DR	The PP has correctly used the following tools correctly Combined tool to identify the baseline scenario and demonstrate additionality Tool to calculate project or leakage CO2 emissions from fossil fuel combustion Emissions from solid waste disposal sites Tool to calculate baseline, project and/or leakage emissions from electricity consumption Tool to determine project emissions from flaring gases containing methane Tool to determine the mass flow of a greenhouse gas in a gaseous stream Tool to determine the baseline efficiency of thermal or electric energy generation systems Tool to determine the remaining lifetime of equipment	Y
B.2. Choice and Applicability of methodology				
B.2.1. Is the selected approved methodology applicable to the project activity in the PDD?	VVS Para.76 PDD section B (B.2)	DR	ACM001 version 13.0.0 has been applied. PP is requested to provide the evidences for the correct applicability of used methodology. 1. In baseline scenario, there was total atmospheric release of the LFG and collection & destruction of LFG of the project sites is not required by law or regulation. 2. The power would have been generated by existing or new fossil fuel based power plant in absence of the project activity.	CL#03 Closed
B.2.2. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVS Para.74-76,77 PDD section B (B.2)	DR	Refer B.2.1	Pending Closed
B.2.3. Is there any GHG emissions occurring within the project boundary as a result of the implementation of the proposed project which are expected to contribute more than 1% of the overall expected average annual ERs, which are not addressed by the applied	VVS Para 86	DR	Pending until the closure of CAR#04	Pending Closed

methodology.				
B.2.4. Does the methodology allow project participants to choose whether a source or gas is to be included within the project boundary? If yes, has it been determined whether the project participants have justified that choice. Is the justification provided by the project participants reasonable, based on an assessment of supporting documented evidence provided by the project participants and corroborated by observations if required	VVS para 84,	DR	Project participant has justified the choices of source or gas included in the project boundary. CAR 04 raised.	CAR-04 Closed
B.2.5. Is the applicability of the selected methodology satisfied?	VVS Para.76	DR	The applicability of the selected methodology is satisfied.	Y
B.3. Project Boundary				
B.3.1. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVS Para.83-85 PDD section B.3 also see section A.1 and A.3	DR	The project boundary includes the physical delineation of the project activity. CAR 05 raised. CAR 05 closed.	CAR-05 CAR 05 closed.
B.3.2. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified	VVS Para.82 PDD section B.3	DR	All emission sources and gases related to the baseline scenario have been clearly identified and leakage clearly identified and described in a complete and transparent manner.	Y

and described in a complete and transparent manner?				
B.3.3. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the latest version of tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVS Para.83–85 PDD section B.3	DR	PP is requested to explain and include the local grid where electricity will be exported. The project boundary should be clearly mentioned providing a clear picture of all components and facilities used to mitigate GHGs. Please include all equipments and components which will be used in the project activity. CAR#05 has been raised. CAR 05 raised.	CAR#05 Closed
B.3.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVS Para.83-85 PDD section B.3 also see section A.1 and A.3	DR	PP is requested to write the geographical co-ordinates (latitude and longitude of the site) of the project activity in section A.4.1.4 of PDD. CAR#02 has been raised.	CAR#02, Closed
B.4. Identification of the Baseline Scenario				
B.4.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool and has the application of the tools as per methodology been consulted, if the Tool(s) are required by the methodology?	VVS Para..88 PDD Section B.4	DR	The information about the selection of baseline is not coming in clear in the PDD. PP is requested to provide evidences for the following points for baseline establishment: 1. The waste is being dumped on the open landfill site, where in no methane collection is being done. 2. The alternative waste disposal options are significantly more expensive than landfilling, and there is very limited or no experience with such technologies in Morocco. 3. The Fes sanitary has the legal mandate to dispose of solid waste in the municipal area. 4. There are no regulations and/or contractual requirements requiring active landfill gas extraction and flaring to reduce landfill gas emissions applicable in	CAR#06 Closed

			Morocco. The extraction and flaring of landfill gas is not common practice in Morocco.	
B.4.2. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario, including "relevant national and/or sectoral policies and circumstances?"	VVS Para.94, 95 PDD Section B.4	DR	Pending until the closure of CAR#06	Pending Closed
B.4.3. Are all potential realistic and credible alternative scenarios listed in the methodology are considered in identification of the most reasonable baseline scenario? Are all scenarios are reasonable in the con-text of the proposed CDM project and no reasonable alternative scenario has been excluded?	VVS Para.89,90,91,92 , 93 a,b PDD Section B.4	DR	Pending until the closure of CAR#06, CAR#06 was closed	Pending Closed
B.4.4. Is the choice of the baseline compatible with the available data?	VVS Para.94, 95 PDD Section B.4	DR	Pending until the closure of CAR#06, CAR#06 was closed	Pending Closed
B.5. Additionality				
B.5.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVS Para 158 EB 54 report, annex 15	DR	It is not clear why version 03 additionality tool has been referred on page 18 of PDD. PP is requested to clarify. Also why step 0, which is not a part of additionality tool version 5.2 has been discussed on page 20 of PDD.	CL#07 Closed

B.5.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	Pending until the closure of CAR#07 , CAR#07 was closed	Pending Closed
B.5.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVS Para.103 PDD Section B	DR	Pending until the closure of CL#07	Pending Closed
B.5.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVS Para.105 PDD Section B.5	DR	Pending until the closure of CL#07	Pending Closed
B.5.5. Is the project activity a new project activity or existing project activity? How is the early consideration	VVS Para.105 PDD Section B.5	DR	Please provide the documentary evidences for the project start date inline to the report of EB 41, para 67. Also clarify why section C.1.1 of PDD reads 'estimated start date'. Please justify that the CDM benefits were considered necessary in the decision to undertake the project as a CDM project activity. Please demonstrate that CDM was	CAR#08 Closed

demonstrated?			considered before the project start date.	
B.5.6. For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?	EB 65, annex.4	DR	Pending until the closure of CAR#08 , CAR#08 was closed	Pending Closed
B.5.7. Are all credible and plausible alternatives correctly identified? Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?	VVS Para. 113 PDD Section A.3/B.5	DR	Pending closure of CL 04. Please refer B.4.1 CL #04 was closed out. All credible and plausible alternatives have been correctly identified as per the requirement of applied Methodology and Combined tool to identify the baseline scenario and demonstrate additionality, version 4.0.0.	Pending CL 04 Y
B.5.8. If an investment analysis has been used, has it been demonstrated that the proposed project activity is not the most economically or financially attractive alternative, or is not economically or financially feasible, without	VVS Para. 117, 118, 119 a,b,c, 120 a,b,c,d,e, 121 a,b,c, 122 a,b,c PDD Section B.5	DR	PP is requested to provide; 1. Spreadsheet for NPV with all supportive documents for assumptions used to calculate the NPV/IRR. 2. Documentary evidence of the electricity tariff for the particular region for which calculation has been done (sensitivity analysis). 3. Documentary evidences for any debt & rate of interest considered any for the project activity. 4. Proof of project benchmark.	CAR#09 Closed

the revenue from the sale of CERs.				
B.5.9. Is the investment analysis carried out in accordance with specific guidance from EB?	VVS Para. 127 EB 65 Annex 4	DR	Pending until closure of CAR 09	Pending Closed
B.5.10. Is the investment analysis complete and accurate? (Important)	VVS Para. 117-119 PDD Section B.5	DR	Pending until closure of CAR 09	Pending Closed
B.5.11. Does the investment analysis rely on the values from Feasibility Study Reports (FSR) that approved by national authorities for proposed CDM project activity?	VVS Para. 112 a,b,c PDD Section B.5	DR	Pending until closure of CAR 09	Pending Closed
B.5.12. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVS Para.121 PDD Section B.5	DR	Pending until closure of CAR 09	Pending Closed
B.5.13. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project	VVS Para. 124 125a-b/126 PDD Section B.5 EB50, Annex 13	DR	No barrier has been demonstrated for the project. The project has used investment analysis to demonstrate additionality.	N/A

activity but would not have prevented the implementation of at least one of the alternatives?				
B.5.14. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVS Para. 113 PDD Section B.5	DR	No barrier has been demonstrated for the project. The project has used investment analysis to demonstrate additionality	N/A
B.5.15. Has the barriers correctly identified and they prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives.	VVS Para. 124 125a-b/126 PDD Section B.5 EB50, Annex 13	DR	No barrier has been demonstrated for the project. The project has used investment analysis to demonstrate additionality	N/A
B.5.16. If a barrier analysis has been used have the 'guidelines for objective demonstration and assessment of barriers' been followed? Have all applicable steps been considered and substantiated with objective evidence?	VVS Para. 124 125a-b/126 PDD Section B.5 EB50, Annex 13	DR	No barrier has been demonstrated for the project. The project has used investment analysis to demonstrate additionality	N/A
B.5.17. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same	VVS Para. 113 PDD Section A.3/B.5	DR	No barrier has been demonstrated for the project. The project has used investment analysis to demonstrate additionality	N/A

applicable laws and legislations?				
B.5.18. Is the proposed project type is justified as first-of-its kind?	VVS Para. 128 PDD Section A.3/B.5 EB 69 Annex 07	DR	Please provide evidence in support of the following statement made in PDD: d) All landfill sites in Morocco except Oulja landfill are open and unmanaged dumps. There are two other projects into the validation stage on UNFCCC site. Please clarify. e) How it has been concluded that the project activity is first of its kind. All landfill in Morocco are open and unmanaged.	CAR#10 Closed
B.5.19. Is the project activity not common practice?	VVS Para. 128 PDD Section B.5 EB 69 Annex 8	DR	Refer B.5.18	Pending Closed
B.5.20. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVS Para. 129 a-c, 130 a-d PDD Section B.5 EB 69 Annex 8	DR	Refer B.5.18	Pending Closed
B.5.21. Is the proposed project activity additional?	PDD Section B.5	DR	Pending until the closure of CAR#09	Pending Closed
B.6. Algorithms and/or formulae used to determine emission reductions				
B.6.1. Are the steps and equations applied to calculate baseline emissions in compliance with the requirements of selected baseline and monitoring methodology?	VVS 97,98,99a	DR	Section B.6.1 of the PDD - Explanation of methodological choices, d) Equation 7 on page 23 of the PDD is erroneously mentioned. e) For determination of project emission from flaring, all the steps (equations) as per the tool are not included; and determination of volumetric flow rate, determination of hourly efficiency are missing. f) Step 4 does not include details on efficiency of degassing system. Please include the same and provide evidentiary document for the same. g) Pending CL#05 on grid EF. If calculated as per tool, all the steps must be included. Section B.6.2 of the PDD	CAR#19 Closed

			<p>e) Please mention references of all the values adapted. f) Pending CL#11 regarding adjustment factor g) Regarding CEF pending CL#5.</p> <p>Parameters which are to be monitored as per tools included in the methodology ACM0001 version 11 are not included - ("Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site"; "Tool to determine project emissions from flaring gases containing methane"; and other tools as included)</p>	
B.6.2. Are the steps and equations applied to calculate project emissions in compliance with the requirements of selected baseline and monitoring methodology?	VVS 97,98,99a	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed
B.6.3. Are the steps and equations applied to calculate leakages in compliance with the requirements of selected baseline and monitoring methodology?	VVS 97,98,99a	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed
B.6.4. Are the steps and equations applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology?	VVS 97,98,99a	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed
B.6.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and	VVS 97,98,99a	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed

are they correct?				
B.6.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed
B.6.7. Are the ex-ante fixed data provided in compliance with the methodology and/or relevant tools (if applicable)?	VVS 97,98,99aPDD Section B.6.3B.6.4	DR	Please refer B.6.1, Pending until closure of CAR#19	Pending Closed
B.6.8. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVS Para. 97-99 a/b PDD Section B.6.3/B.6.4	DR	PP is requested to provide the spread sheet used for ER calculations.	CAR#11 Closed
B.6.9. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Pending until closure of CAR#11,	Pending Closed
B.6.10. Is all the data appropriate and correctly applied to the CDM project activity?	VVS Para. 99c PDD Section B.6.3/B.6.4	DR	PP is requested to provide information regarding the auxiliary power consumption in the project activity. Why the amount of onsite fossil fuel consumption (eg. diesel consumption) has not been considered.	CAR#12 Closed
B.6.11. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVS Para. 98 PDD Section B.6.3/B.6.4	DR	Pending until closure of CL#11,	Pending Closed
B.6.12. Are the ex-post	VVS	DR	Pending until closure of CL#11,	Pending

monitored data estimated appropriated for calculation of ex-ante emission reductions?	97,98,99aPDD Section B.6.3B.6.4			Closed
B.6.13. Is sampling approach used for any parameters?	EB 69 Annex 4 &5 EB 67 Annex 6	DR	Sampling approach is not applied for any parameters	N/A
B.6.14. Are all the steps taken and equations applied to calculate project emissions, baseline emissions and leakage and emission reductions correct and appropriate?	VVS 97,98,99a	DR	Pending until closure of CL#11,	Pending Closed
B.6.15. Where applicable, the plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) 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; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)	EB 48 Annex 11	DR	PLF has been correctly determined	Y

B.7. Monitoring methodology and Monitoring Plan

<p>B.7.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD?</p> <p>Are all parameters and data that are available at validation consistent with the approved methodology. Has this data been interpreted and applied correctly?</p>	<p>VVS Para. 72e PDD Section B.7-B.8 see also Annex 4</p>	<p>DR</p>	<p>Abbreviations used for few monitoring parameters are not inline to the applicable methodology. PP is requested to correct it.</p>	<p>CL#13 Closed</p>
<p>B.7.2. Is the monitoring plan compliant with the approved monitoring methodology and/or relevant tools (if applicable)?</p>	<p>VVS Para. 132(a) PDD Section B.7</p>	<p>DR</p>	<p>Why QA/QC procedures have been deleted from operation of the energy plant (the parameter to be monitored) and flare efficiency? Also please state about the calibration frequency of the monitoring equipments in OA/QC column. PP to explain the procedures in case of data missing and adjustment.</p>	<p>CL#14 Closed</p>
<p>B.7.3. Is the implementation of monitoring plan feasible and verifiable.</p>	<p>VVS Para. 132(b) PDD Section B.7</p>	<p>DR</p>	<p>Pending until closure of CL#14, CL#14 was closed</p>	<p>Closed</p>
<p>B.7.4. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission</p>	<p>VVS Para. 90-98</p>	<p>DR</p>	<p>Refer B.9.1, Pending until closure of CAR#19</p>	<p>Pending Closed</p>

reductions?				
B.7.5. Is the proposed monitoring plan compliance with the methodology/tools and for feasible implementation?	VVS Para.90-98	DR	Refer B.9.1, Pending until closure of CAR#19	Pending Closed
B.7.6. Does the information contained in Annex 4 in consistency with the information in Section B.7 of PDD?	PDD Annex 4	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Closed
B.7.7. Does the monitoring plan in the PDD comply with the approved methodology provided for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	VVS Para. 90-98PDD Section B.7-B.7.2	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Closed
B.7.8. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD Section B.7-B.7.2/B.6.2	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Y
B.7.9. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Y

B.7.10. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Y
B.7.11. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Y
B.7.12. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	Refer B.7.1, CAR 10 was closed. The monitoring plan described in the PDD provides a consistent approach in the context of all parameters to be monitored.	Pending Y
B.8. Operational and Management Structure				
B.8.1. Is the authority and responsibility of project management clearly described?	PDD Section B.7	DR	The PDD version 1 clearly signifies categorically the authority and responsibility of the project management towards the CDM project activity. In the Annex 4 of the PDD the hierarchy of job responsibility is properly furnished.	Y
B.8.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8	DR	In the Annex 4 of the PDD the hierarchy of job responsibility for registration, monitoring, measurement and reporting is provided clearly.	Y
B.8.3. Are procedures identified for training of	PDD Section B.7	DR	Person involved in the project activity were well trained to handle this project activity	Y

monitoring personnel?					
B.9. Baseline Information					
B.9.1.	Is the information contained in Annex 3 consistent with the Section B.4, B.5 and B.6?	PDD Annex 3	DR	Yes, the information provided in annex 3 is consistent with section B.4, B.5 & B.6	Y
B.9.2.	Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	It seems to be consistent with the time line of the PDD history as completion date for baseline study and PDD Version 01 respectively.	Y
B.9.3.	Is this consistent with the time line of the PDD history?	PDD Section B.8	DR	The baseline steam generation information regarding the starch extraction process as mentioned in the section B.6.3 of the PDD is justified and all the data provided is traceable.	Y
B.9.4.	Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	Refer B.9.1. The baseline details as specified in PDD section B.6 is found justified.	Y
B.9.5.	What is the documented crediting period of the project? Is this inline with available data?		DR	The length of crediting period is mentioned as 10 years under Renewable crediting period. PP is requested to note that maximum length of each renewable crediting period can be for 7 years.	CAR#20 Closed
B.9.6.	In cases where the methodology specifies, has the ' <i>Tool to determine the remaining lifetime of equipment</i> ' been correctly applied?	EB 50 Annex 15	DR	Not applicable	N/A
B.9.7.	In cases where the ' <i>Tool to determine the remaining lifetime of equipment</i> ' has been used the project participants may use	EB 50 Annex 15	DR	Not Applicable	N/A

<p>one of the following options to determine the remaining lifetime of the equipment:</p> <p>i. Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning;</p> <p>ii. Obtain an expert evaluation;</p> <p>iii. Use default values.</p>				
B.10. Sampling				
<p>B.10.1. Is there any indication of a Sampling?</p>	<p>PDD Section B.7.2/Annex 3 EB 69 Annex 4&5 and EB 67 Annex 6</p>	<p>DR</p>	<p>Not Applicable</p>	<p>N/A</p>
<p>B.10.2. Is the sampling consistent with the requirement of the methodology ?</p>	<p>Also see revision history of the PDD Standard for sampling and surveys for CDM project activities and programme of activities EB 69 Annex 4&5 and EB 67 Annex 6</p>	<p>DR</p>	<p>Not Applicable</p>	<p>N/A</p>

B.10.3. Is all data required provided in a complete manner by annex 5 of the PDD?	PDD Annex 5 EB 69 Annex 4&5 and EB 67 Annex 6	DR	Not Applicable	N/A
C. Duration of the Project / Crediting Period				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	VVS Para. , 105 PDD Section C.1.1/C.1.2	DR	PP is requested to provide the supportive document, inline to the EB41 para 67 for the starting date of the project (1st Jan'08)	CL#15 Closed
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVS Para. , 108PDD Section C.2/C.2.1/C.2.2	DR	Pending until closure of CL#15 , CL#15 was closed	Pending Closed
C.1.3. Does the project's operational lifetime exceed the crediting period	VVS Para.108 PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	Pending until closure of CL#15 , CL#15 was closed	Pending Closed
C.1.4. Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVS Para. 108PDD Section C.1.1/C.2.1.1	DR	Pending until closure of CL#15 , CL#15 was closed	Pending Closed
D. Environmental Impacts				
D.1.1. Does the project comply with environmental legislation in the host country?	VVS Para. 134,135PDD section D	DR	PP is requested to provide the copy of EIA which was done in 1999.	CL#16 Closed

D.1.2.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVS Para. 134,135PDD section D	DR	Pending until closure of CL#16 , CL#16 was closed	Pending Closed
D.1.3.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVS Para. 134,135PDD section D	DR	Pending until closure of CL#16 , CL#16 was closed	Pending Closed
D.1.4.	Will the project create any adverse environmental effects?	VVS Para. 134,135PDD section D	DR	The project activity will not create any adverse environmental effects However pending input from LOA. LOA clearly stated that there are no adverse environmental effects.	Pending LOA input OK
D.1.5.	Are trans-boundary environmental impacts considered in the analysis?	VVS Para. 134,135PDD section D	DR	No trans – boundary environmental impacts are there for the project activity and has not considered in the PDD.	OK
D.1.6.	Have identified environmental impacts been addressed in the project design?	VVS Para. 134,135PDD section D	DR	Pending until closure of CL#16 , CL#16 was closed	Pending Closed
E. Stakeholder Comments					
E.1.1.	Have local stakeholders been invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC web	VVS Para. 138 PDD Section E.1	DR	<ul style="list-style-type: none"> a) To provide the supporting documents that referred stakeholders in PDD have been consulted. b) To provide the copy of invitation letter sent to stakeholders. c) To provide the summary of comments received from the stakeholders. d) To explain how the due account has been taken if any stakeholders comments received. 	CL#17 Closed
E.1.2.	Have appropriate media been used to invite comments by local	VVS Para. 139 PDD Section E.1	DR	Pending until closure of CL#17 , CL#17 was closed	Pending Closed

stakeholders?				
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVS Para. 139 PDD Section E.1	DR	Pending until closure of CL#17, CL#17 was closed	Pending Closed
E.1.4. Is a summary of the stakeholder comments received provided?	VVS Para. 139 PDD Section E.2	DR	Pending until closure of CL#17, CL#17 was closed	Pending Closed
E.1.5. Has due account been taken of any stakeholder comments received?	VVS Para. 139 PDD Section E.3	DR	Pending until closure of CL#17, CL#17 was closed	Pending Closed
E.1.6. How the team validate the adequacy of stakeholder consultation?	VVS Para. 139	DR	Pending until closure of CL#17, CL#17 was closed	Pending Closed

A.3 Annex 3: Overview of Findings

	CARs	CLs	FARs
Total Number raised	11	10	01

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CAR	Number:	01	Reference:	Table 1
Lead Assessor Comment:					
Letter of approval from by Designated National Authority (DNA) is not obtained by the project participant. Please provide the same.					
Project Participant Response:			Date: 18/06/2009		
The approval letter was issued on June 13, 2008 by the Designated National Authority of Morocco for the Clean Development Mechanism.					
Documentation Provided by Project Participant:					
The approval letter from the DNA is enclosed in Attachment A-1					
Information Verified by Lead Assessor:					
DNA Letter of Approval dated 13/06/2008 is found OK for one of the project participant 'Ecomed Gestion des Dechets'					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 15/07/2009		
In the PDD there is one more project participant 'Commune Urbaine de Fes'. Please provide Letter of Approval for all the project participants mentioned in the PDD (refer Annex 1 and Section A.3). Kindly also indicate in Section A.3 of PDD if these parties are private or public. CAR Open					
Project Participant Response:			Date: 10/05/2010		
Letter of approval for "Commune Urbaine de Fes" is attached as Attachment - B1. The project participant Ecomed is a private entity and the project participant Commune Urbaine de Fes is a public entity. The modifications are inserted in Section A 3 of the PDD					
Documentation Provided by Project Participant:					
Letter of approval for "Commune Urbaine de Fes" is attached as Attachment- B1 was checked.					
Information Verified by Lead Assessor:					
Attachment B1 in Hard copies - DNA LoA dated 29 th Dec 2009 was checked by the assessment team.					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 14/07/2010		
Names of both the project participant have been included in the LoA dated 29 th Dec 2009. Letter is found to be in accord with VVM version 1.1. The modifications are inserted in Section A 3 of the PDD version 03 dated 11 th May 2010. Finding is closed					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 29/03/2011		
The finding was closed on 14/07/2010, however, it is reopened.					
1. The changes made in the last revised PDD version 03 dated 11 th May 2010 i.e. mention of private and public entity is deleted in PDD version 04 dated 27 th Sep 2010. OPEN					
2. The title of the project activity in the LoA and revised PDD are not same. (Please note that the title of the project activity is a unique identification and must be exactly same in all the official documents.) OPEN					
Project Participant Response:			Date: 14/04/2011		
1. Mention of public private entity has been added in the revised PDD					
2. The title of the project activity in the revised PDD and in the LoA have been matched					
Documentation Provided by Project Participant:					
Revised PDD Version 6 dated 14 th April 2011					
Information Verified by Lead Assessor:					
Revised PDD Version 6 dated 14 th April 2011 was checked by the assessment team.					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 21/07/2011		

Close Out:	
1. Section A.3 of the PDD version 06 is found correct. CLOSED	
2. Title of the project activity is not matching with the HCA. OPEN	
Project Participant Response:	Date: 14/08/2011
The title of the project in section A.1 of the PDD has been revised to match with the LoA and other documents	
Documentation Provided by Project Participant:	
Revised PDD, version 07, dated 14/08/2011, File: PDD_Fes_Version 7_20110814.doc.	
Information Verified by Lead Assessor:	
Revised PDD, version 07, dated 14/08/2011, was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
The revised PDD has the same title as quoted in the document, hence issue is CLOSED.	
However the CAR was reopened for the following issue-	
<ul style="list-style-type: none"> PP is requested to provide the correct date of issue of DNA letter, in the name of both the PPs under the section B.5 of the PDD. Moreover, PP is requested to clarify, why the length of crediting period is mentioned as 21 year in the LoA, whereas the actual length of crediting period is mentioned as 10 years in the PDD.CAR open. PP is requested to submit the latest template of the MoC form filled up and duly signed by authorized signatory. 	
CAR#01 is open.	
Project Participant Response:	Date: 30/04/2013
The Letter was signed on December 29, 2009 and forwarded to PPs on December 31, 2009 as shown in the attached letter. Initially the PPs were planning to use a crediting period of 21 year but changed to 10 year instead as the project was delayed in the validation process. Therefore, the extraneous information in the LoA is merely a reflection of what was appropriate at that point of time based on the PDD then provided. However, it is not a condition for the project participant to keep the crediting period same. Further, the LoA is still specific to the project title and PPs as per the VVS requirements.	
The latest MoC template is included	
Documentation Provided by Project Participant:	
DNA Letter: B-1New Approval Letter from DNA.pdf	
MoC Template: MOCreg_form19	
Information Verified by Lead Assessor:	
DNA Letter: B-1New Approval Letter from DNA.pdf was checked	
MoC Template: MOCreg_form19 was checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 10/06/2013
The justification provided by PP was found to be correct. CAR closed.	
Telephone number in page no 1 is not matching with the one mentioned in Annexure 1 of PDD.	
Project Participant Response:	Date: 10/07/2013
The information in the Annexure 1 of the PDD has been made consistent with the signed MoC.	
Documentation Provided by Project Participant:	
Revised PDD Version 12 dated 10/07/2013	
Information Verified by Lead Assessor:	
The revised PDD Version 12 dated 10/07/2013 has been checked for the information in the annexure 1 and found to be satisfactory.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/06/2013
PP has provided the revised PDD with the correction in the section Annexure 1 of the PDD with respect to the telephone number of the PP. The revised PDD has been checked and found to be satisfactory. Thus, CAR 01 was closed.	

The CAR was further reopened, dated – 30/07/2013	
<ul style="list-style-type: none"> The specimen signature of primary authorised signatory is not provided on page 2 of the MoC. 	
The date is not consistent in the MoC as page 2 mentions 18/02/2013 and page 4 mentions 30/04/2013.	
Project Participant Response:	Date: 05/08/2013
Please find a complete copy of the signed MoC that was somehow missed.	
Documentation Provided by Project Participant:	
Completely signed MoC dated 30/04/2013	
Information Verified by Lead Assessor:	
Completely signed MoC dated 30/04/2013 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 08/08/2013
The correction has been done on the MoC letter, this was checked by the assessment team and the CAR was closed.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 08/08/2013
There are further inconsistencies in the MoC document. The telephone number in page no 1 and 5 of MoC is not matching. Further, PP is requested to fill the MoC correctly and it should be updated for latest date when the MoC is signed. CAR open.	
Project Participant Response:	Date: 12/08/2013
The inconsistencies in the MoC has been corrected as under;	
<ul style="list-style-type: none"> a) The phone number on page 5 has been correct as per page 1, which in turn is consistent with Appendix 1 of the revised PDD. b) An optional Telephone number than was given on page 5 has been removed. c) Considering the MoC pages where changes are done are relating to only one entity they have been signed again keeping in view that it was in principle signed on 30/04/2013. Further, considering the changes are done only in the dates and rest of the information in the MoC is still same, for the purposes of keeping consistency it has been signed on the same date i.e., 30/04/2013. 	
Documentation Provided by Project Participant:	
Corrected MoC, dated 30/04/2013	
Information Verified by Lead Assessor:	
Corrected MoC, dated 30/04/2013 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 16/08/2013
The revised MoC was checked by the assessment team and it was found to be consistent and correct. Considering the fact that there are no other changes in the MoC, except the inconsistency in one of the telephone number, the MoC dated 30/04/2013 has been accepted by the assessment team.	
However this was further reopened as,	
Please clarify below observations found in MoC;	
<ul style="list-style-type: none"> Page 5, the fax number for Chabat Hamid doesn't match the PDD, appendix 1 (there is a digit missing). Page 5, email address for Chabat Hamid has spaces in between the address but in the PDD, appendix 1, there are no spaces in the email address at all. 	
Project Participant Response:	Date: 05/09/2013
The information in this regard is correct in the PDD. These are editorial corrections in page 5 has been undertaken.	
Documentation Provided by Project Participant:	
MoC (with editorial corrections)	
Information Verified by Lead Assessor:	
MoC (with editorial corrections) was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 05/09/2013

The MoC was found to be correct and consistent with the information provided in the PDD. This was accepted by the assessment team. CAR closed.

Acceptance and Close out by Lead Assessor: **Date: 05/09/2013**

Date:	30/10/08	Raised by:	Assessment Team
Type:	CAR	Number:	02
		Reference:	A.4.1

Lead Assessor Comment:

Please write the geographical co-ordinates (latitude and longitude of the site) of the project activity in section A.4.1.4 of PDD.

Project Participant Response: **Date: 18/06/2009**

The latitude and longitude coordinates of the site are: 34 00' 20.7"N, 4 56' 1.5"W.

Documentation Provided by Project Participant:

The coordinates were extracted from Google Earth.

Information Verified by Lead Assessor:

The coordinates extracted from Google Earth was included in the section A.4.1.4 of the PDD (version 05, dated 31/04/2009) under VVM track. This was cross-checked by the assessment team with Google Earth and this information matches with the co-ordinates, where the site visit took place.

Reasoning for not Acceptance or Acceptance and Close Out: **Date: 15/07/2009**

The information provided by PP was found to be correct and was accepted by the assessment team. The co-ordinates for the project activity is 34°00'20.7"N and 4°56'1.5"W. This was checked from the below link and was found to be correct.

<http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=34.000000&lon=-4.930000&setLatLon=Set>

Thus CAR is closed.

Acceptance and Close out by Lead Assessor: **Date: 15/07/2009**

Reasoning for not Acceptance or Acceptance and Close Out: **Date: 29/03/2011**

The finding was closed, however, it is reopened for the following issues-

1. In section A.4.3 of the PDD, please mention the capacity of landfill gas extraction system, capacity of landfill gas flaring system, number of flares, capacity of power plant, number & capacity of biogas engines. OPEN
2. Please provide declaration for no public funding has been availed for the project activity as mentioned in section A.4. of the PDD. OPEN

Project Participant Response: **Date: 14/04/2011**

1. The capacity of landfill gas extraction system, capacity of landfill gas flaring system, number of flares, capacity of power plant, number & capacity of biogas engines have been added to Section A.4.3 of the revised PDD
2. A declaration for no public funding has been added in Section A.4.5 and in Annex 2 of the revised PDD

Documentation Provided by Project Participant:

1. Revised PDD Version 6 dated 14th April 2011 was checked by the assessment team.

Information Verified by Lead Assessor:

Revised PDD, Version 06, dated 14/04/2011 was checked by the assessment team.

Reasoning for not Acceptance or Acceptance and Close Out: **Date: 21/07/2011**

1. In section A.4.3 of the PDD version 06, the detail specification of major equipments have been mentioned. CLOSED
2. In annex 2 of the PDD version 06, it is stated that no public funding will be obtained for the project activity. CLOSED

Reasoning for not Acceptance or Acceptance and Close Out: **Date: 11/12/2012**

CAR re-opened.

1. The geographical coordinates provided in the PDD need to be provided in DMS format.

Project Participant Response: **Date: 15/03/2013**

The coordinates have also been now provided in the decimal system in addition to degree minute seconds.

Documentation Provided by Project Participant:	
Revised PDD, version 10, dated 15/03/2013 was checked by the assessment team.	
Information Verified by Lead Assessor:	
The geographical co-ordinates are now provided in DMS format, this was checked from the revised PDD, version 10, dated 15/03/2013	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
The geographical co-ordinates are now provided in DMS format, this was checked from the revised PDD, version 10, dated 15/03/2013. However the Co-ordinates provided are not found correct and does not shows the exact geographical location of the project activity, when cross checked. PP to justify. CAR open. CAR#02 is open.	
Project Participant Response:	Date: 30/04/2013
The geographical coordinates 34 00' 20.7"N, 4 56' 1.5"W provided in the PDD are correct as checked from http://itouchmap.com/latlong.html .	
Documentation Provided by Project Participant:	
Image: Fes Landfill Location On Google Earth.jpg	
Information Verified by Lead Assessor:	
Image: Fes Landfill Location On Google Earth.jpg	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 30/05/2013
The geographical coordinates as mentioned in the PDD was found to be correct. CAR closed.	
Acceptance and Close out by Lead Assessor:	Date: 30/05/2013

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CL	Number:	03	Reference:	B.1.3
Lead Assessor Comment:					
Please provide the evidences for the correct applicability of used methodology.					
<div>1. In baseline scenario, there was total atmospheric release of the LFG and collection & destruction of LFG of the project sites is not required by law or regulation.</div> <div>2. The power would have been generated by existing or new fossil fuel based power plant in absence of the project activity.</div>					
Project Participant Response:				Date: 18/06/2009	
<div>1. The waste is being dumped at landfill site and there is no regulatory requirement for active landfill extraction and flaring in Morocco. It can be verified from the submitted copy of the law to validator.</div> <div>2. The project activity includes the landfill gas collection and subsequent power generation and export to the national grid. In the baseline there was no gas collection and power generation form the landfill. It is evident from the financial analysis that without that the power generation in the project activity would have not happened without the benefits of CDM. The same amount of power would have been generated by the national grid (carbon intensive).</div>					
Documentation Provided by Project Participant:					
<div>1. Copies of solid waste law, Attachment A-2</div> <div>2. Financial analysis included in the PDD.</div>					
Information Verified by Lead Assessor:					
<div>1. Copies of solid waste law, Attachment A-2 was checked by the assessment team.</div> <div>2. Financial analysis included in the PDD was checked by the assessment team.</div>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/07/2009	
<div>1. Please provide clear and exact reference/Article in the referred document. Please substantiate with exact reference that waste is dumped in secured landfills that generated LFG, which is not collected and destructed. OPEN</div> <div>2. As clarified in the absence of the project activity power would have been generated by the fossil fuel power plant connected to the grid. And, grid has considered as the baseline. CLOSED</div>					
Project Participant Response:				Date: 10/05/2010	
<div>1. This is evident from Title VII “Controlled landfills and waste processing, beneficiation storage and disposal installations” of earlier submitted law as attachment A-2” that flaring of landfill gas is not mandatory requirement by the law. This is also evident from the referred document that in the absence of the project</div>					

<p>activity no landfill gas will be collected and flared in the host country. Furthermore, the solid waste law 28-00 is not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law and the proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: f. Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (see Decree No. 2-09-284 of 20 hijra 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills; PART III : Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11</p>	
Documentation Provided by Project Participant:	
Copy of solid waste law, Attachment A-2 and Decree No. 2-09-284 of 20 hijra 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills	
Information Verified by Lead Assessor:	
Attachment A2 – Law N 28 - 00 referring solid waste law; and Decree No. 2-09-284 of 20 hijra 1430 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
<p>1. Legal requirements for destruction of landfill gas <u>Attachment A2 – Law N 28-00 which is solid waste law</u></p> <ul style="list-style-type: none"> As per title VII of Law N 28 - 00, there is no requirement for flaring of landfill gas. OKAY Under Title 1, chapter 3, article 9 refers to National Master Plan on Hazardous Waste Management which has to be prepared within five years from date of publication of this law. This has no relevance to Municipal solid waste. Please clarify. <p><u>Decree No. 2-09-284 of 20 hijra 1430</u> Please provide a translated copy of the same. <u>Current and applicable Laws and Guidelines</u> Please provide list of all applicable laws and guidelines relevant to waste management in Morocco.</p>	
Project Participant Response:	Date: 27/09/2010
<p><u>Attachment A2 – Law N 28-00 which is solid waste law</u> There was a typo in Item 2 referenced in Attachment A2-Law N 28-00 above, the reference should refer to Title 1, chapter 3, <u>article 12</u> instead of <u>article 9</u></p> <p><u>Decree No. 2-09-284 of 20 hijra 1430</u> An English translation of this decree is provided herewith (see highlighted PART III : Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11f)</p> <p><u>Current and applicable Laws and Guidelines</u> Solid Waste Law N 28-00 and the decree 2-09-284</p>	
Documentation Provided by Project Participant:	
An English translation of the decree No. 2-09-284 of 20 hijra 143 (File: Finding 3_English Translation of - Decret No 2-09-284.pdf)	
An English translation of the Solid Waste Law N 28-00 (File: Finding 3_English Translation of Law 28-00 .pdf)	
Information Verified by Lead Assessor:	
Attachment A2 – Law N 28 - 00 referring solid waste law; and Decree No. 2-09-284 of 20 hijra 1430	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
<p>1. Paragraph 'F of article 11 of decree dated 8th Dec 2009 under Act No. 28 states "to allow the installation, as practicable, of a degassing system to satisfy the minimal safety requirements of the site;". So as per this paragraph, it is required to install a degassing system to ensure safety conditions. However, the law was not in force at the time neither of decision making nor during project start date. Hence, it is accepted that in the baseline, there is no law requiring destruction of landfill gas. CLOSED</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/05/2012
CAR reopened as the methodology is set to expire on 25/07/2012 and PP is requested to update the methodology. PP is also requested to use the latest available tools or calculating the ERs as the earlier versions of the tools are being applied.	
Project Participant Response:	Date: 30/06/2012
The PDD has been revised to the latest version of the methodology ACM0001 Version 13.0.0 and the reference to the latest valid tools has been incorporated.	

Documentation Provided by Project Participant:	
Revised PDD, version 09, dated 31/07/2012 was checked by the assessment team. Revised CER spreadsheet was checked by the assessment team. Revised IRR spreadsheet was checked by the assessment team.	
Information Verified by Lead Assessor:	
Revised PDD, version 09, dated 31/07/2012 section B.4 was checked by the assessment team. Revised IRR & CER spreadsheets were checked against the supportive documents Revised methodology ACM0001 version 13.0.0 was also checked to compare the changes made in the revised PDD, version 09, dated 31/07/2012	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 04/10/2012
The applicability conditions specified in the methodology have not been correctly explained in the revised PDD; issue is OPEN.	
Project Participant Response:	Date: 22/10/2012
The PDD has been revised with the relevant section	
Documentation Provided by Project Participant:	
Revised PDD	
Information Verified by Lead Assessor:	
Section B.4 of the revised PDD, version 09, dated 31/07/2012, was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 12/12/2012
<ol style="list-style-type: none"> 1. Project description: Letter from the Ministry of National Planning to Fes dated 29/03/2005 indicating the selection of "old landfill" as a possible project for CDM among 5 landfill projects. Hence PP is requested to clarify whether the older unmanaged landfill also forms part of the project activity. 2. The project description includes two sets of gas engines, one is of 375 kW and the other is 165 kW. PP is requested to clarify which has been included in the project design and the reason for the second set of equipment. 3. PP is requested to provide the specifications and source documentation for the flares (both open and closed) and evaporator. Further in certain portions of the PDD, it is stated that the project activity employs an enclosed flare and there is no mention of the backup open flare. 4. The applicability condition (b) of the applied methodology has not been correctly explained in the PDD. 	
Project Participant Response:	Date: 15/03/2013
<ol style="list-style-type: none"> 1. The older landfill was initially going to be included in the project activity, but the PP decided not to include it any more since the project validation and registration has taken so long that there is probably no more gas in the old landfill as it has not been covered over the years and a lot of burning took place. Therefore, only the new landfill is included in the project activity. 2. The project design includes using gensets modules of 375 KW as specified in Section A.4.3. The 165 KW module was considered to be used only as a temporary genset until more gas is available and the registration of the project is obtained. The cost of this temporary engine is not considered in the investment analysis. If more gas would not be available the sizing of remaining engines would be reviewed at later stage after the project registration and if there are any changes, these can be considered as per the post registration process defined by CDM. 3. The specifications of the Flare and Evaporator are included. <p>ZTOF Flre spec enclosed.pdf 7677-052711 + ED-300 - EvapoDry.pdf</p> <p>The open flare was initially considered to be installed as a backup but the PP changed its mind. Therefore the open flare will not be used in this project.</p> <ol style="list-style-type: none"> 4. Now it has been done. Please refer the revised PDD. The PDD has been further modified as per VVS requirements. 	
Documentation Provided by Project Participant:	
Revised PDD, version 10 dated 15/03/2013 ZTOF Flre spec enclosed.pdf 7677-052711 + ED-300 - EvapoDry.pdf	

Information Verified by Lead Assessor:	
Revised PDD, version 10, dated 15/03/2013 was checked by the assessment team. <u>ZTOF Flre spec enclosed.pdf</u> was checked by the assessment team. <u>7677-052711 + ED-300 - EvapoDry.pdf</u> was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
<ol style="list-style-type: none"> 1. The justification provided by PP was found to be acceptable. This was also checked by the assessment team during site visit of the project activity. CL closed. 2. PP is requested to include the details regarding the gen-set in the PDD. CL closed. 3. The specifications of flare and evaporator were checked and the information provided in the PDD was found to be consistent with the information as mentioned in the equipment specifications. CL closed. 4. Appropriate justification on applicability condition (b) of the applied methodology is not yet addressed in the revised PDD. 5. Further, Fulfilment of Meth applicability criteria needs more clarity on the following points – <ol style="list-style-type: none"> vii. Regarding criteria (a) the justification should clarify whether the new LFG capture system under the PA has been installed in a new or existing SWDS. viii. Regarding criteria (b) the more justification would be required as based on the project description at Section A.2 the project involves installation of enhanced landfill gas extraction system further more at the pre-project scenario some temporary arrangement was available for burning of the landfill gas through an open pipe extended from the leachate collection system. . But the in the section B.2, PP has mentioned that there is no LFG capture system installed at the project site in the baseline. Thus PP is requested to justify the inconsistent information. ix. Regarding criteria (c) there is no justification found towards the use of captured landfill gas in the leachate evaporation system. x. Regarding criteria (d) any evidence/ supportive statistics on organic waste dumping towards the claim available? xi. Regarding the criteria related to plausible baseline scenario, some more clarity would be required to justify the applicability in contrast to burning of the landfill gas at pre-project scenario. xii. PP is requested to provide a declaration to support that management of the SWDS in the project activity will not be deliberately changed during the crediting in order to increase methane generation compared to the situation prior to the implementation of the project activity. CAR open. 6. PP is also requested to clearly mention a description of the project components in the revised PDD. open CL#03 is open. 	
Project Participant Response:	Date: 30/04/2013
<p>4. The project site does not have any existing LFG capture system therefore this clause is not relevant in the proposed CDM project activity. The information has been suitably reflected in the revised PDD for applicability clause b and sub points.</p> <p>5. i. As confirmed and shown during the site visit to the auditors and also the data provided thereafter that the landfill gas start receiving MSW from year 2004 onwards. Therefore, the project is located at the existing SWDS at the time of investment decision. The MSW keeps on coming since it started operating and gets fixed into the landfill cells. The information has been made clearer in the revised PDD.</p> <p>5.ii. The pre project scenario includes a LFG venting system, which is nothing but extended vertical pipes. This system is used to give passage to the LFG so that it gets emitted into the atmosphere easily and is sparingly used to burn the LFG to address the safety or odor issues, if LFG gets accumulated. However, these cannot be considered as LFG capture system as the proposed CDM project activity can not utilize these for useful purposes like combustion in gas engines or flare as these are very rudimentary and temporary measures. On the contrary a new state of the art LFG capture system is being used in the project activity that will collect the LFG for the intended purposes (using for electricity generation, flaring and heat generation in boiler for leachate evaporation). The information has been further updated in the revised PDD in</p>	

<p>the referred sections and made consistent as per the actual situation on ground.</p> <p>5.iii. The information was already included under clause 'c.ii' which is more relevant for this issue. However, as rightly pointed out, the utilization of LFG in boiler that will be used to evaporate leachate has been suitably included under clause 'c' as well in the revised PDD.</p> <p>5.iv. The O&M agreement (provided earlier) that was awarded to the PP to manage the landfill site and site photographs that was shown and provided to the auditors confirms that there is no other treatment of the MSW. It is important to state here is that the purpose of the project activity is capture and use LFG as part of the proposed CDM project activity, which in no way, affects the existing waste management practice, which is to dump the MSW into the landfill cells.</p> <p>5.v. As communicated earlier, the data pertaining to actual methane combusted in the pipes through the extended pipe was estimated based on number of days it was recorded in landfill records. However, now 20% has been considered as conservative value and information in this regard has been updated in the CER and revised PDD.</p> <p>5.vi. As indicated in the response of the point 5.iv. the proposed CDM project does not intend to alter the dumping of MSW in the landfill cells. The existing practice will continue to put MSW in the cells and cover them as per O&M agreement. In any case, there is no attempt made by the PP to increase the methane generation in any manner but to capture the methane that is being generated and liberated to atmosphere. Therefore, the management of SWDS will remain same prior to or during the project activity.</p> <p>6. The revised PDD has been updated to include the information with regard to all project components under section A.3, which was missed out from VVM PDD template to VVS PDD template.</p>	
Documentation Provided by Project Participant:	
Revised PDD Version 11 dated 30/04/2013	
Information Verified by Lead Assessor:	
Revised PDD Version 11 dated 30/04/2013 was checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 30/05/2013
<p>4. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>5. i. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>ii. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>iii. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>iv. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>v. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>vi. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p> <p>6. The revised PDD was checked and the justification provided by PP was found to be acceptable. CAR closed.</p>	
Acceptance and Close out by Lead Assessor:	Date: 30/05/2013

Date:	30/10/08	Raised by:	Assessment Team
Type:	CAR	Number:	04
		Reference:	B.2.1
Lead Assessor Comment:			
<p>1. Project boundary is neither clear nor inline to the applied methodology for the following points.</p> <p>Baseline:</p> <ul style="list-style-type: none"> d) Emission from decomposition of waste at landfill site. e) Emission from electricity consumption. f) Emission from thermal energy generation in the baseline within the project boundary. <p>Project Activity:</p> <ul style="list-style-type: none"> g) Onsite fossil fuel consumption due to project activity other than for electricity generation h) Emission from onsite electricity use. <p>2. Please also provide the schematic diagram of the project activity.</p>			
Project Participant Response:		Date: 18/06/2009	
<p>The project boundary has been revised for the Emission from decomposition of waste at landfill site. Emission of CO₂ and CH₄ from electricity consumption and emission of CO₂ from thermal energy generation in the baseline has been considered while estimating the baseline in the revised version of methodology. But since there was no electricity consumption in the baseline so this component is zero.</p> <p>In the project activity there will not be any use of fossil fuel onsite and also only the electricity generated from the project activity will be used onsite. Therefore no project emissions on account of onsite fossil fuel consumption and electricity use are kept zero.</p> <p>A schematic diagram of the project activity is also included in the revised version of the PDD.</p>			
Documentation Provided by Project Participant:			
A schematic diagram of the project activity is also included in the revised version of the PDD (version 05, dated 31/04/2009)			
Information Verified by Lead Assessor:			
PDD version 05, dated 13/04/2009 was checked by the assessment team.			
Reasoning for not Acceptance or Acceptance and Close Out:		Date: 15/07/2009	
<p>It is not clear how the electricity requirement, e.g. for blowers, will be met in the phase 1 as depicted in PDD? Please clarify</p> <p>Further, the justification and choice (Included/Excluded) is not consistent in PDD for CO₂.</p> <p>Baseline: Emission from thermal energy generation</p> <p>Project activity: On-site fossil fuel consumption due to the project activity other than for electricity generation, Emissions from on-site electricity use</p> <p>Please correct</p> <p>CAR Open</p>			
Project Participant Response:		Date: 10/05/2010	
<p>The project emissions on account of power export in phase I (no power generation on site) has been included in the revised spread sheet for ER. Even in phase II the project emissions for emergency situation of no power generation on site but flaring is being done, has also been included.</p> <p>No baseline emission for thermal energy generation has been calculated because the thermal energy generation used to evaporate the leachate coming out of the landfill is an integral part of the landfill management programme. In absence of project activity there will be no evaporation of leachate and hence there is no baseline for thermal energy generation. It is also important to note that PP will not claim any CER for the fuel replacement by LFG in thermal energy generation. This is conservative.</p> <p>There will not be any use of fossil fuel on the site and only electricity will be imported from grid and project emissions has already been accounted for that.</p>			
Documentation Provided by Project Participant:			
ER spread sheet in Attachment B2: ER Calculation Revised PDD.			
Information Verified by Lead Assessor:			
<p>PDD version 03* dated May 11, 2010 was checked by the assessment team.</p> <p>(*There was a error while sequencing the PDDs submitted to DoE by PP. This issue was addressed under CL 18.)</p>			

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
1. Project Boundary <ul style="list-style-type: none"> a) In the table B.3, column – ‘Baseline’; Row – Emission from thermal energy, for CO₂; its is said ‘Yes’ for column – ‘Included’. This is not in line with the justification provided. Please correct. 2. Schematic diagram of project boundary physically delineating all the components of project activity, <ul style="list-style-type: none"> a) Flow diagram must include the electricity grid to/from which electricity will be exported/imported as required by the methodology. Please refer section II. Baseline Methodology: Project Boundary on page of the methodology. b) The flow diagram must include the project boundary outline. 	
Project Participant Response:	Date: 27/09/2010
1. Project Boundary <ul style="list-style-type: none"> a) Table B.3, column – ‘Baseline’; Row – Emission from thermal energy, for CO₂; column – ‘Included’ is corrected to <u>No</u>. 2. Schematic diagram of project boundary physically delineating all the components of project activity, <ul style="list-style-type: none"> a) The flow diagram was corrected to include the electricity grid to which electricity will be exported. b) The flow diagram was corrected to include the project boundary outline. 	
Documentation Provided by Project Participant:	
Revised PDD Version 4, dated 27/09/2010 (File: PDD_Fes_Version4.doc)	
Information Verified by Lead Assessor:	
Revised PDD Version 4, dated 27/09/2010 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
<ul style="list-style-type: none"> a) Table of emission sources in now in accord with the methodology ACM0001 version 11. CLOSED b) The flow diagram is corrected and includes in the project boundary. CLOSED c) The flow diagram includes an outline representing the project boundary. CLOSED <p>This CAR was further reopened for the following non clarity:</p> <ul style="list-style-type: none"> 1. ‘Biogas towards Leachate treatment’ flow stream is not shown in the figure 1 a. PP to justify. CAR open 2. In the project boundary diagram- <ul style="list-style-type: none"> d) Please justify why bi-directional flow has been shown in “Auxiliary Electricity Consumption”, CAR open. e) How electricity export can take place from “Auxiliary Electricity Consumption”? CAR open. f) Why Grid has been kept outside the project boundary? CAR open. 3. Summary of GHG gases in the section B.3- project boundary, is not matching with applied methodology. <p>CAR#04 is open.</p>	
Project Participant Response:	Date: 30/04/2013
<ul style="list-style-type: none"> 1. The figure 1a has been removed from the revised PDD. The information with regard to LFG towards leachate evaporation system has been added suitably. 2. a to c. The project boundary has been further revised to clearly reflect the project components and their interconnections along with monitoring locations. The intent of keeping grid was to keep it outside the project activity but not project boundary. The diagram has been revised in the revised PDD. 3. The summary of GHG gases are consistent as per the project situation. The table in the methodology is indicative. Considering, the applicability conditions are met by the project activity, the same can be accepted. 	
Documentation Provided by Project Participant:	
Revised PDD version 11, dated 30/04/2013	

Information Verified by Lead Assessor:					
Revised PDD version 11, dated 30/04/2013 was checked.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 30/05/2013	
1. The revised PDD was checked and was found to be correct. CAR closed. 2. The revised Project boundary was checked and was found to be correct. CAR closed. 3. Justification provided by PP was found to be correct. CAR closed.					
Acceptance and Close out by Lead Assessor:				Date: 30/05/2013	

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CAR	Number:	05	Reference:	B.3
Lead Assessor Comment:					
Please also explain and include the local grid where electricity will be exported. The project boundary should be clearly mentioned providing a clear picture of all components and facilities used to mitigate GHGs. Please include all equipments and components which will be used in the project activity.					
Project Participant Response:				Date: 18/06/2009	
The project activity will export the power to Morocco national grid but the national grid doesn't fall into the project boundary. In the project activity boundary the following component are included; Landfill site (existing and new with continuous dumping for MSW) Landfill gas collection system (wells, blowers and pipe lines) Landfill gas based electricity generation system (Gas engine and power generator) Flaring system All these component have been shown in the in the schematic diagram of the registered PDD.					
Documentation Provided by Project Participant:					
All components have been shown in the in the schematic diagram of the registered PDD.					
Information Verified by Lead Assessor:					
Revised PDD version 05, dated 31/04/2009 was checked by the assessment.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2009	
1. Now, project boundary is clear. CLOSED 2. Since, the project activity will export power to Morocco national grid but Emission Factor is not determined in accordance with "Tool to calculate the emission factor for an electricity system" in Annex 6 of PDD. Please incorporate the determination of Emission Factor for an electricity system and demonstrate that it is latest what was available at the time of validation (webhosting of PDD). OPEN This CL is converted into CAR and kept open					
Project Participant Response:				Date: 11/05/2010	
The raw data from the national grid (ONE) to calculate the emission factor is being provided along with this response. In addition, the latest emission factor of 0.75 calculated by the national grid (ONE) is also provided.					
Documentation Provided by Project Participant:					
Attachment B3: Emission Factor Raw Data PDD version 03 dated 11/05/2010,					
Information Verified by Lead Assessor:					
PDD version 03* dated 11/05/2010, Hard copy – attachment B.3 was checked by the assessment.					
(*There was an error while sequencing the PDDs submitted to DoE by PP. This issue was addressed under CL 18.)					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2010	
1. CLOSED earlier on 14/07/2010 2. Regarding grid EF e) Firstly, please clarify EF of grid is being calculated or directly adapted from official sources. f) In case it is calculated as discussed in PDD. Please use "Tool to calculate the emission factor for an electricity system" as mentioned in the methodology. Calculation sheet along with evidentiary documents for the data sources must be submitted. Please incorporate the determination of Emission					

Factor for an electricity system and demonstrate that it is latest what was available at the time of validation (webhosting of PDD).	
g) Please correct statement in the PDD where it is mentioned that EF will be determined according to methodology ACM0002 or AMS.ID. EF is determined using the tool as per the methodology version 11.	
h) In case it is adapted from official source as mentioned in Annex 6 of PDD version 03 dated 11 th May 2010. The link provided as source of reference refers to another CDM project activity, which	
i) Please provide all documents in English (Attachment B.3 is not in English).	
Project Participant Response:	Date: 27/09/2010
2.	
a) The EF of grid is calculated.	
b) The EF is calculated using the "Tool to calculate the emission factor for an electricity system" as mentioned in the methodology. Calculation sheet along with evidentiary documents for the data sources are submitted herewith. The determination of Emission Factor for the electricity system is calculated using the data available at the time of validation (webhosting of PDD).	
c) The statement in the PDD where it is mentioned that EF will be determined according to methodology ACM0002 or AMS.ID was corrected to EF is determined using the tool as per the methodology version 11.	
d) The EF is calculated based on data available at the time of validation	
e) Supporting documents are provided herewith in English.	
Documentation Provided by Project Participant:	
3. The EF calculations (File: Finding 5_EF Calculations and Supporting documents.xls, worksheet: EF)	
4. Supporting documents for the EF calculations in English (File: Finding 5_EF Calculations and Supporting documents.xls, worksheet: consumption production data)	
5. Revised PDD Version 04, dated 27/09/2010 (File: PDD_Fes_Version4.doc)	
Information Verified by Lead Assessor:	
PPD version 04, dated 27/09/2010 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
1. CLOSED earlier on 14/07/2010	
2. Regarding grid EF	
a) It is clarified grid EF is calculated. CLOSED	
b) It is clarified that grid EF is calculated as per the tool. CLOSED	
c) However in PDD it is mentioned that EF is calculated as per ACM0002, and the methodology requires it to be calculated as per the tool. Please correct and update the different sections of the PDD accordingly and also state the version of the tool applied. Please state the tool in section B.1 of the PDD also. OPEN	
d) The EF calculation is provided, however please discuss in annex how each step is followed and discuss the justification for choices if any. OPEN	
e) English translated copy of supporting evidentiary documents (attachment B-3) is not provided. Furthermore, please refer tool to take into consideration the timing of the adapted data. OPEN	
f) In the EF calculation sheet, it is seen that there are no formulae being used to calculate, simply value are inserted. Please provide calculation as per the tool. OPEN	
Project Participant Response:	Date: 14/04/2011
2.	
c) The PDD has been revised to mentioned that EF is calculated as per ACM0001, and Tool for calculation of emission factor for electricity systems", ver. 2.1. The tool used is also indicated in B.1 of the PDD.	
d) The steps followed to calculate the EF and the justification for choices are added to Annex 3.	
e) English translation of the data from the national grid used to calculate the EF is added to Annex 3. Furthermore, as per the tool "The data used is based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation" (web hosting)	
f) The EF calculation sheet with formulae is provided	
Documentation Provided by Project Participant:	
a) Revised PDD Version 6 dated 14 th April 2011 was checked by the assessment.	
b) Annex 3 of the revised PDD Version 6 dated 14 th April 2011 was checked by the assessment.	
c) Annex 3 of the revised PDD Version 6 dated 14 th April 2011 was checked by the assessment.	

d) Spread Sheet file: Finding_5 EF Calculations and Supporting Documents.xls was checked by the assessment.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
<ol style="list-style-type: none"> 1. CLOSED earlier on 14/07/2010 2. Regarding grid EF <ol style="list-style-type: none"> a) It is clarified grid EF is calculated. CLOSED b) It is clarified that grid EF is calculated as per the tool. CLOSED c) In PDD version 06, it is mention the EF tool has been used. CLOSED d) All the steps followed have been discussed and found in accord with the EF tool. CLOSED e) English translated copy of supporting evidentiary documents (attachment B-3) is provided in Annex3 of the PDD. CLOSED f) The EF calculation have been checked and found correct. The vintage of data has been verified with the certified copies provided. CLOSED <p>However in the final revised PDD, PP has modified the EF. The EF of grid has been determined using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", version 01. As per this tool, Option A.2 of Scenario A has been considered. This has been included in section B.6.2 of the revised PDD. The application of this tool is also in line with the applied methodology ACM 0001, version 13.0.0, Step B, page no 12/23. This was checked by the assessment team and was found that PP has met the requirements of the methodology. CAR 05 closed.</p>	
Acceptance and Close out by Lead Assessor:	Date: 21/07/2011

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CAR	Number:	06	Reference:	B.3.2
Lead Assessor Comment:					
<p>The information about the selection of baseline is not coming in clear in the PDD. Please provide evidences for the following points for baseline establishment:</p> <p>5. The waste is being dumped on the open landfill site, where in no methane collection is being done.</p> <p>6. The alternative waste disposal options are significantly more expensive than landfilling, and there is very limited or no experience with such technologies in Morocco.</p> <p>7. The Fes sanitary has the legal mandate to dispose of solid waste in the municipal area.</p> <p>8. There are no regulations and/or contractual requirements requiring active landfill gas extraction and flaring to reduce landfill gas emissions applicable in Morocco.</p> <p>9. The extraction and flaring of landfill gas is not common practice in Morocco.</p>					
Project Participant Response:				Date: 18/06/2009	
<p>10. The current operation of the Fes landfill involves the disposal and daily cover of waste; however there no active gas collection and/or flaring system. The daily cover consists of permeable material allowing drainage of leachate to the bottom of the landfill and escape of the landfill gas to the atmosphere.</p> <p>11. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc. In 1998 concluded that alternative waste disposal options such as incineration are significantly more expensive than landfilling, and therefore recommended Landfilling as the appropriate waste disposal technology for Fes. Moreover, to the best knowledge of the author, there is no experience with waste incineration in Morocco.</p> <p>12. The law No. 78-00 known as the communal charter promulgated in the Dahir 1-02-297 dated Rajeb 1423 (October 3, 2002), gives the communes (article 39), including Fes, the legal mandate to manage and dispose of solid waste in their municipal areas.</p> <p>13. The existing 28-00 Solid Waste Law does not require active landfill gas extraction and flaring. Furthermore, the contract agreement between the Commune Urbaine de Fes and the project developer does not require active landfill gas extraction and flaring</p> <p>14. The statement has been changed in the PDD to read: "The Moroccan law does not require the installation of an active extraction system or flaring, and to the best knowledge of the author, no active extraction system has been installed in Morocco prior to the construction of Fes landfill".</p>					
Documentation Provided by Project Participant:					
<p>1. Attachment A-2.</p> <p>2. Annexe 7.</p> <p>3. Attachment A-3.</p>					

4. Attachment A-2 and A-4	
5. Revised PDD, Version 05, dated 31/04/2009	
Information Verified by Lead Assessor:	
1. Attachment A-2 was checked by the assessment.	
2. Annexe 7 was checked by the assessment.	
3. Attachment A-3 was checked by the assessment.	
4. Attachment A-2 and A-4 was checked by the assessment.	
5. Revised PDD, Version 05, dated 13/04/2009 was checked by the assessment.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2009
1. Please indicate clearly in the referred document that waste is disposed in landfills without collection or flaring system	
2. Annexe 7 is not obtained. Please provide the same	
3. OK, Commune Urbane Fes is found to be the owner of the solid waste generated in its municipal area and also bears the responsibility for its proper disposal. CLOSED	
4. Please indicate clearly where this information can be found/traced in the referred document	
5. Please provide documentary evidence for same.	
CAR open (except point 3, which is OK)	
Project Participant Response:	Date: 10/05/2010
1. This is evident from Title VII "Controlled landfills and waste processing, beneficiation storage and disposal installations" of earlier submitted law as attachment A-2" that flaring of landfill gas is not mandatory requirement by the law. Furthermore, the solid waste law 28-00 is not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law and the proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: f. Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (see Decree No. 2-09-284 of 20 hja 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills; PART III : Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11	
2. Annex 7 which contains the report of the feasibility Study conducted by Sadat International Inc., is provided along with this response. In addition, an English translation of the summary of the feasibility study is provided. It clearly states that Land filling is the most appropriate technology for solid waste management in Fes.	
4. This is evident from Title VII "Controlled landfills and waste processing, beneficiation storage and disposal installations" of earlier submitted law as attachment A-2" that flaring of landfill gas is not mandatory requirement by the law. This is also evident from the referred document that in the absence of the project activity no landfill gas will be collected and flared in the host country. Furthermore, the solid waste law 28-00 is not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law and the proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: f. Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (see Decree No. 2-09-284 of 20 hja 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills; PART III : Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11	
5. As above	
Documentation Provided by Project Participant:	
Annex 8a 'Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc'. In addition, an English translation of the summary of the feasibility study is also provided in Annex 8b.(Note Attachment A7 is the EIA)	
Information Verified by Lead Assessor:	
Hard copies – Annex 7 and Annex 8A, was checked by the assessment.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
1. OK, it is evident that there is no legal requirement for landfill gas flaring. CLOSED	
2. The feasibility report is checked and found that landfill was found to be a feasible option. Moreover, from global experience it is evident that landfill technology is the only cost effective and technologically acceptable. Other alternatives for waste disposal like incineration, biomethanation, composting are expensive, require sound collection system which is practically difficult in developing countries. CLOSED	

3. CLOSED earlier on 14/07/2010	
4. The draft laws and its decree have been reviewed and found that there is no law imposing landfill gas flaring. This is discussed in detail in CL#03 also. CLOSED	
5. As discussed in CL#03. CLOSED	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
The finding was closed on 14/07/2010, however, it is reopened.	
1. CLOSED earlier on 29/03/2011	
2. CLOSED earlier on 29/03/2011	
3. CLOSED earlier on 29/03/2011	
4. CLOSED earlier on 29/03/2011	
5. CLOSED earlier on 29/03/2011	
6. The discussion in section B.4 of the PDD is not complete in justifying the elimination of alternatives – P4, P5. OPEN	
7. As per the methodology ACM0001 version 11 Step 2, 3 and 4 for identification of the baseline scenario are not discussed. OPEN	
Project Participant Response:	Date: 14/04/2011
6. Fossil-fuel-based captive power plants or cogeneration plants would not be economically competitive with purchasing power from the grid so P4 is discarded. Furthermore, there are no renewable power options such as hydro, wave, currents available at the landfill and the landfill is receiving the waste on a daily basis and is subject to settlements, therefore the construction of windmill or solar power plants at the landfill is not realistic or credible base line scenario; thus P5 is discarded	
7. STEP 2, STEP 3 and STEP 4 have been added for identification of the baseline scenario in the revised Section B.4 of the PDD as per the methodology ACM0001 version 11	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14 th April 2011.	
Information Verified by Lead Assessor:	
Revised PDD Version 6 dated 14 th April 2011 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
The finding was closed on 14/07/2010, however, it is reopened.	
1. CLOSED earlier on 29/03/2011	
2. CLOSED earlier on 29/03/2011	
3. CLOSED earlier on 29/03/2011	
4. CLOSED earlier on 29/03/2011	
5. CLOSED earlier on 29/03/2011	
6. The discussion in section B.4 of the PDD version is now complete and elimination of alternatives – P4, P5 have been justified. CLOSED	
7. As per the methodology ACM0001 version 11 STEP 2, STEP 3 and STEP 4 for identification of the baseline scenario are now discussed in PDD version 06. CLOSED	
Acceptance and Close out by Lead Assessor:	Date: 21/07/2011

Date:	30/10/08		Raised by:	Assessment Team		
Type:	CL	Number:	07	Reference:	B.4.2	
Lead Assessor Comment:						
It is not clear why version 03 additionality tool has been referred on page 18 of PDD. Please clarify. Why step 0, which is not a part of additionality tool version 5.2 has been discussed on page 20 of PDD.						
Project Participant Response:				Date: 18/06/2009		
Referring version 03 in the previous version of PDD was a typographical error and has been corrected in the revised version of PDD which follows the latest available version 5.2 of the additionality tool. Also step 0 is no more valid as per version 5.2 so has been taken out. The additionality of the project is now being demonstrated as per the additionality tool version 5.2.						
Documentation Provided by Project Participant:						
Revised PDD, version 05, dated 31/04/2009						
Information Verified by Lead Assessor:						
Revised PDD version 05, dated 31/04/2009 was checked by the assessment team						

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/07/2009
The additionality tool version 5.1 is referred in 3 places in the revised PDD. Please correct. CL open.	
Project Participant Response:	Date: 10/05/2010
The PDD has been revised and referred only version 5.2 all over.	
Documentation Provided by Project Participant:	
Revised PDD, version 03, dated 11/05/2013	
Information Verified by Lead Assessor:	
PDD version 03 dated 11/05/2010 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
Corrected, finding is closed.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
The finding was closed on 14/07/2010, however, it is reopened. Please state the version of the additionality tool applied in the PDD. The same was incorporated earlier but deleted in the last PDD submitted. OPEN	
Project Participant Response:	Date: 14/04/2011
The additionality tool used is Version 5.2 and its mention was added to the revised PDD	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14 th April 2011.	
Information Verified by Lead Assessor:	
Revised PDD Version 6 dated 14 th April 2011 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
It is clarified and mentioned in revised PDD version 06 that additionality tool version 5.2 has been applied. CLOSED	
Acceptance and Close out by Lead Assessor:	Date: 21/07/2011

Date:	30/10/08		Raised by:	Assessment Team	
Type:	CAR	Number:	08	Reference:	B.4.3
Lead Assessor Comment:					
<p>1. Please provide the documentary evidences for the project start date inline to the report of EB 41, para 67. Also clarify why section C.1.1 of PDD reads 'estimated start date'.</p> <p>2. b) Please justify that the CDM benefits were considered necessary in the decision to undertake the project as a CDM project activity. Please demonstrate that CDM was considered before the project start date.</p>					
Project Participant Response:				Date: 18/06/2009	
<p>The project activity started on February 21, 2008 when the project developer purchased the blowers, flare and pre-treatment equipment for the biogas. The PDD for the project was webhosted from 19 August, 2008 to 17 September 2008.</p> <p>However, the CDM was seriously considered way before the start date of project activity. Indeed, The Commune Urbaine de Fes (CUF) held a meeting on June 26, 2003 with the Ministry of Environment regarding the CDM for Fes Landfill. On November 2004, the CUF, based on an invitation from the Ministry of Environment, attended a workshop organized by the Ministry and UNDP for the development of CDM projects. On March 29, 2005, the Ministry of Environment offered assistance to the CUF for the development of a NIP for the project, and on May 11, 2005, the project was one of the nine projects for which the Ministry funded a NIP.</p> <p>In January 2006, the CUF asked Ecomed to conduct a feasibility study and economical analysis of the project and on July 5, 2006 requested an amendment to the landfill operation contract to explore the gas extraction and flaring within the framework of CDM. Ecomed submitted a PDD to the Moroccan NDA on February 3, 2008 and received an approval on June 13, 2008.</p> <p>In addition, the CUF and Ecomed started negotiations since 2007 with the national grid (ONE) for the sale of potential power that can be obtained from the landfill. Several meetings were held and correspondences exchanged (May 3, 2007 and October 20, 2007) between the parties and a power agreement is still in</p>					

negotiations (April 16, 2009). As can be seen from the above, the project participants have been for a long time aggressively pursuing the implementation of this project under CDM. The delays are mainly due to administrative procedures and power agreement negotiations.

Documentation Provided by Project Participant:

Date	Event	Documentary Evidences
June 26, 2003	Meeting between Project Participant and Ministry of Environment	Attachment A-5: Letter from the CUF dated 6/26/03
November 4, 2004	Project Participants attended workshop on CDM by the Ministry of Environment	Attachment A-5: Invitation Letter dated 11/4/04
March 29, 2005	Offer by the Ministry of Environment to assist in the development of the project	Attachment A-5: Letter dated 3/29/05
May 11, 2005	Funding of NIP by the Ministry of Environment	Attachment A-5: Letter dated 5/11/05
July 5, 2006	Decision by the CUF to pursue the project under CDM	Attachment A-5: Letter from the CUF to Ministry of Interior dated 7/5/06
May 3, 2007	Power agreement negotiations	Attachment A-5: Letter from CUF to ONE
October 20, 2007	Power agreement negotiations	Attachment A-5: Letter from CUF to ONE
February 3, 2008	Submission of PDD and application to NDA	Letter of submittal dated 2/3/08
February 21, 2008	Project start activity	Attachment A-7: Purchase of Blowers and Flare, import documents dated 2/21/08 (see stamp date on the SGMB bank approval)
June 13, 2008	Approval by NDA	Attachment A-5: Letter of Approval dated 6/13/08
19 August to 17 September 2008	Webhosting of PDD	http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html
April 16, 2009	Power agreement negotiations	Attachment A-5: Letter from project developer to ONE

Information Verified by Lead Assessor:

Attachment A-5: Letter from the CUF dated 6/26/03 was checked by the assessment team
Attachment A-5: Invitation Letter dated 11/4/04 was checked by the assessment team
Attachment A-5: Letter dated 3/29/05 was checked by the assessment team
Attachment A-5: Letter dated 5/11/05 was checked by the assessment team
Attachment A-5: Letter from the CUF to Ministry of Interior dated 7/5/06 was checked by the assessment team
Attachment A-5: Letter from CUF to ONE was checked by the assessment team
Letter of submittal dated 2/3/08 was checked by the assessment team
Attachment A-7: Purchase of Blowers and Flare, import documents dated 2/21/08 (see stamp date on the SGMB bank approval) was checked by the assessment team
Attachment A-5: Letter of Approval dated 6/13/08 was checked by the assessment team

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 15/07/2009

The highlighted row does not fit in chronological order. Please correct.
Please provide the original signed copy of referenced documents/interactions.

It is not clear from the provided documents where to locate the start date of the project activity! CAR open		
Project Participant Response:		Date: 10/05/2010
The chronology has been corrected now. The original scan copy is being provided along with this response. The start date is indicated in the box where the stamp of approval by the bank is highlighted		
Documentation Provided by Project Participant:		
Scan copy of the original document: Attachment A7: Import Documents The start date is indicated in the box where the stamp of approval by the bank is highlighted in Attachment A7: Import Documents		
Information Verified by Lead Assessor:		
Hard Copies: Attachment A.7 was checked by the assessment team		
Reasoning for not Acceptance or Acceptance and Close Out:		Date: 14/07/2010
As per EB41 para 67, the start date is "the earliest date at which either the implementation or construction or real action of a project activity begins". "In light of the above definition, the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity..." Please confirm the earliest date relevant with the definition.		
Project Participant Response:		Date: 27/09/2010
The project activity start date is February 21, 2008 (as indicated in the previous response Attachment A-7) when the project developer purchased the blowers and pre-treatment equipment for the biogas		
Documentation Provided by Project Participant:		
Purchase of Blowers and Flare, import documents dated February 21, 2008 (File: Finding 8_Purchase of Blowers Import Documents.pdf; see date of February 21, 2008 on the domiciliating bank box)		
Information Verified by Lead Assessor:		
Purchase of Blowers and Flare, import documents dated February 21, 2008 (File: Finding 8_Purchase of Blowers Import Documents.pdf; see date of February 21, 2008) was checked by the assessment team		
Reasoning for not Acceptance or Acceptance and Close Out:		Date: 29/03/2011
<ol style="list-style-type: none"> The start date is taken as 21st Feb 2008 the date of approval of import indenture by the Ministry Incharge of Foreign Trade. The import indenture is placed for 'waste biogas treatment installation' which is the commercial name of goods, and the importer is 'Ecomed Gestion des Dechets'. This date is found to be in accord with the definition of start date in CDM glossary. This is confirmed as the gas generator sets purchase was not finalized till 20th April 2009 as per letter from ENER.G NATURAL POWER LTD. Moreover, 'waste biogas treatment installation' includes the extraction system which will be the first set of equipments to be installed to extract and process landfill gas, thus the approval bank of the purchase of this equipment/system is considered as the start date CLOSED CDM was seriously considered as demonstrated. Moreover continuous real actions have been taken to secure CDM status in parallel with the implementation of project activity. 		
Date	Event	Documentary Evidences VALIDATED
June 26, 2003	Meeting between Project Participant and Ministry of Environment	Letter from the CUF dated 21 st June 2003 (and its true copy with translation in English dated 08 th June 2009) is provided which confirms the meeting between PP and Ministry of Environment, Morocco. Prior to this, a call for proposition of project that may benefit from the advantages of CDM was sent to Mr. President of Fes Urban Commune by Ministry of Territorial Development, Water and Environment. This is confirmed from the true copy dated 8 th June 2009 of letter dated 16 th May 2003.
November 4, 2004	Project Participants attended workshop on	Invitation Letter dated 4 th Nov 2004, was sent Ministry of Territorial Development, Water and Environment to

	CDM by the Ministry of Environment	Mr. President of Fes Urbane Commune for participation in CDM Workshop. Copy of Original and true translated copy of the letter is provided dated 8 th June 2009.
March 29, 2005	Offer by the Ministry of Environment to assist in the development of the project	Letter dated 29 th March 2005 was sent by Ministry of Territorial Development, Water and Environment to provide technical assistance in development of CDM project. Copy of Original and True translated copy of the letter is provided dated 17 th May 2010.
May 11, 2005	Funding of NIP by the Ministry of Environment	Letter dated 11 th May 2005 was sent by Ministry of Territorial Development, Water and Environment to provide assistance in development of PIN. Moreover, a technical note prepared by NORATECH was enclosure along with the letter. Copy of Original and true translated copy of the letter is provided dated 8 th June 2009.
July 5, 2006	Decision by the CUF to pursue the project under CDM	Letter from the CUF to Ministry of Interior dated 5 th July 2006 was sent for grant of approval to develop the project activity and acquire CDM status for carbon revenue as an amendment to the initial contract for development & operation of controlled landfill. Original and true Copy of Original and true translated copy of the letter is provided dated 8 th June 2009.
May 3, 2007	Power agreement negotiations	Letter from CUF dated 3 rd May 2007 to National Office of Electricity in Fes Boulemane Region was requested power agreement negotiation. Original and true translated copy of the letter is provided dated 8 th June 2009.
October 20, 2007	Power agreement negotiations	A follow up letter dated 20 th Nov 2007 was also sent from CUF to National Office of Electricity in Fes Boulemane Region was requested fro power agreement negotiation.
February 3, 2008	Submission of PDD and application to NDA	Letter of submittal dated 3 rd Feb 2008, and the letter of approval has been granted as mentioned in below paragraphs.
February 21, 2008	Project start activity	The start date is taken as 21 st Feb 2008 the date of approval of import indenture by the Ministry Incharge of Foreign Trade. The import indenture is placed for 'waste biogas treatment installation' which is the commercial name of goods, and the importer is 'Ecomed Gestion des Dechets'. This date is found to be in accord with the definition of start date in CDM glossary. Original and true translated copy of the letter is provided dated 8 th June 2009.
June 13, 2008	Approval by NDA	Letter of Approval dated 13 th June 2008 was provided. This is also confirmed form the DNA website http://www.cdmmorocco.ma/fr/portfeuille_envvalid.php
19 August to 17 September 2008	Webhosting of PDD	http://cdm.unfccc.int/Projects/Validation/DB/CSLYAOM7RGBONCZ903WLCO2YI01P95/view.html
April 16, 2009	Power agreement negotiations	Letter from project developer (ECOMED) to National Office of Electricity to request to hold discussion on power agreement. Original and true translated copy of the letter is provided dated 8 th June 2009.

The CAR was further opened as the PDD mentions the start date of the project activity as 24th January, 2008. PP is requested to clarify the mismatch in information regarding project start date.

CAR#08 is open.	
Project Participant Response:	Date: 30/04/2013
The start date is 24 th January, 2008 as shown in the attached Purchase order No.INFO012/2008	
Documentation Provided by Project Participant:	
Purchase order: PO gaz equipment from Ell.pdf	
Information Verified by Lead Assessor:	
Revised PDD, version 11, dated 30/04/2013 was checked. Purchase order: PO gaz equipment from Ell.pdf was checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 30/05/2013
The start date was checked from the documentary evidence provided by PP and it was found that the start date of the project activity is 24/01/2008. This is also in line with EB 70, Annex 04. The earlier start date was erroneously mentioned. The same has been corrected in the revised PDD, version 11, dated 30/04/2013. This was checked by the assessment team and was found to be correct. CAR closed.	
Acceptance and Close out by Lead Assessor:	Date: 30/05/2013

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CAR	Number:	09	Reference:	B.4.6
Lead Assessor Comment:					
Please provide;					
1. Spreadsheet for NPV with all supportive documents for assumptions used to calculate the NPV/IRR.					
2. Documentary evidence of the electricity tariff for the particular region for which calculation has been done (sensitivity analysis).					
3. Documentary evidences for any debt & rate of interest considered any for the project activity.					
4. Proof of project benchmark.					
Project Participant Response:					Date: 18/06/2009
1. The Spreadsheet for NPV is attached with the revised PDD.					
2. The electricity tariff used is the tariff published by the Moroccan national grid (ONE). The tariff is fixed for the whole country. It states that the national grid would purchase green power from any independent producer at a rate equal to 50% of the sale price of electricity by the grid. The current sale price of electricity by the grid is 0.7649 dh/kwh (http://www.one.org.ma/)					
3. The rates used in the NPV are those obtained from the Moroccan Bank BMCE.					
4. The rates used are obtained from Morocco banks.					
Documentation Provided by Project Participant:					
1. The Spreadsheet for NPV and related documents are attached to the revised PDD.					
2. http://www.one.org.ma and http://hy-pa.org/Publications/2007/morocco-workshop/S2-6-HYPA-WS-Marrakech-0612-Benlamlih.pdf					
3. Letter from the Moroccan Bank BMCE, Attachment A-6					
4. The rates used are obtained from Morocco banks.					
Information Verified by Lead Assessor:					
1. The Spreadsheet for NPV and related documents are attached to the revised PDD was checked by the assessment team was checked by the assessment team was checked by the assessment team.					
2. http://www.one.org.ma and http://hy-pa.org/Publications/2007/morocco-workshop/S2-6-HYPA-WS-Marrakech-0612-Benlamlih.pdf was checked by the assessment team was checked by the assessment team was checked by the assessment team					
3. Letter from the Moroccan Bank BMCE, Attachment A-6 was checked by the assessment team was checked by the assessment team was checked by the assessment team					
4. The rates used are obtained from Morocco banks was checked by the assessment team was checked by the assessment team was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:					Date: 15/07/2009
Kindly provide sources (traceable) of information for considering input values used in financial spreadsheet					
The link http://www.one.org.ms is not working. The other website is not clear enough to substantiate the response.					
Please justify the exclusion of interest rate for sensitivity analysis					
CAR open.					

Project Participant Response:	Date: 10/05/2010															
<p>All the cost used in IRR calculation has been taken from purchase orders and/or quotes from vendors (see Attachment B4a through B4d). The IRR investment analysis is provided in Attachment B5.</p> <p>The price of electricity has also been taken from the published rates by the national grid. The tariff is fixed for the whole country. It states that the national grid would purchase green power from any independent producer at a rate equal to 50% of the sale price of electricity by the grid. The current sale price of electricity by the grid is 0.7649 dh/kwh (see Attachment B4e and B4f)</p> <p>The project IRR comes out as 2.5% which any way is significantly less than the benchmark (landing rate of the nationalized bank). That's why the sensitivity has not been done on interest rate but no it has been included and PA is still not crossing the benchmark.</p>																
Documentation Provided by Project Participant:																
<p>IRR calculation v2: Attachment B5: IRR Investment Analysis</p> <p>PLR (benchmark): Attachment B5bis gives the quarterly survey of commercial benchmark PLR for Morocco. The data used is the one available in the 4th quarter of 2007 just before the commitment was made. See Monetary and financial statistics/interest rates/Quarterly Survey on Interest rates Debtors/Enquete Trimestrielle sur les taux Debiteurs/Taux Debiteurs at the following Moroccan central bank link: http://www.bkam.ma/wps/portal/net/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKL94w38TIHSZnFe8QbebvqR2KluSDEfD3yc1P1g1LzgLKR5kBBR8Mw_RB9b_0A_YLc0lhyPxNHAG86T8Y!/delta/base64xml/L0IKWWttUSEhL3dlTUFLc0FFVUF0by80SUVhREFBIS9mcg!!</p>																
Information Verified by Lead Assessor:																
<p>IRR calculation v2: Attachment B5: IRR Investment Analysis was checked by the assessment team</p> <p>PLR (benchmark): Attachment B5bis gives the quarterly survey of commercial benchmark PLR for Morocco was checked by the assessment team. The data used is the one available in the 4th quarter of 2007 just before the commitment was made.</p> <p>Monetary and financial statistics/interest rates/Quarterly Survey on Interest rates Debtors/Enquete Trimestrielle sur les taux Debiteurs/Taux Debiteurs at the following Moroccan central bank link: http://www.bkam.ma/wps/portal/net/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKL94w38TIHSZnFe8QbebvqR2KluSDEfD3yc1P1g1LzgLKR5kBBR8Mw_RB9b_0A_YLc0lhyPxNHAG86T8Y!/delta/base64xml/L0IKWWttUSEhL3dlTUFLc0FFVUF0by80SUVhREFBIS9mcg!! was checked by the assessment team</p>																
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010															
<ol style="list-style-type: none"> 1. Please provide the estimated project cost (CAPEX) with details of all the components, and provide evidentiary documents for all the input values (quantities and price). 2. Please provide the OPEX with details of all the components, and provide evidentiary documents for all the input values (quantities and price). 3. Please list all the references being provided with name and date of the document, interview transcript, etc. 																
Project Participant Response:	Date: 27/09/2010															
<ul style="list-style-type: none"> • Same is included in the PDD • Same is included in the PDD • List all the references being provided (see list below: documentation provided by Project Participant) 																
Documentation Provided by Project Participant:																
<ul style="list-style-type: none"> • CAPEX Cost <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Designation</th> <th style="width: 35%;">Source of information</th> <th style="width: 40%;">Documentation</th> </tr> </thead> <tbody> <tr> <td>Blowers and Gas Pretreatment</td> <td>Actual invoice from Vendor as per import documents</td> <td>File: Finding 9_CAPEX_Blowers and Gas Treat Cost</td> </tr> <tr> <td>Flare</td> <td>Quote from John Zink</td> <td>File: Finding 9_CAPEX_Proposal Flare Cost from John Zink</td> </tr> <tr> <td>Gensets</td> <td>Quote from ENER G UK</td> <td>File: Finding 9_CAPEX_Proposal Genset Cost from Ener G UK</td> </tr> <tr> <td>HDPE Pipes</td> <td>Quote from Plastima</td> <td>File: Finding 9_CAPEX_Proposal Flare Cost from John Zink</td> </tr> </tbody> </table>		Designation	Source of information	Documentation	Blowers and Gas Pretreatment	Actual invoice from Vendor as per import documents	File: Finding 9_CAPEX_Blowers and Gas Treat Cost	Flare	Quote from John Zink	File: Finding 9_CAPEX_Proposal Flare Cost from John Zink	Gensets	Quote from ENER G UK	File: Finding 9_CAPEX_Proposal Genset Cost from Ener G UK	HDPE Pipes	Quote from Plastima	File: Finding 9_CAPEX_Proposal Flare Cost from John Zink
Designation	Source of information	Documentation														
Blowers and Gas Pretreatment	Actual invoice from Vendor as per import documents	File: Finding 9_CAPEX_Blowers and Gas Treat Cost														
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Gensets	Quote from ENER G UK	File: Finding 9_CAPEX_Proposal Genset Cost from Ener G UK														
HDPE Pipes	Quote from Plastima	File: Finding 9_CAPEX_Proposal Flare Cost from John Zink														

• OPEX Cost

Designation	Source of information	Documentation
Total Capital cost	Purchase orders	see table above
Debt	Proposal from the Bank	File: Finding 9_Letter from SGMB Bank
Equity	Company policy	Company policy
Interest	Proposal from the Bank	File: Finding 9_Letter from SGMB Bank
Tenure	Proposal from the Bank	File: Finding 9_Letter from SGMB Bank
moratorium	Proposal from the Bank	File: Finding 9_Letter from SGMB Bank
Capacity	Offer from the buyer	File: Finding 9_Letter from National Electricity Office
Auxiliary Consumption	Manufacturer specification	Finfing 9_CAPEX_Proposal Genset Cost from Ener G UK

Project Specification	Source of information	Documentation
Escalation on Repair, maintenance and Overhead	Published country inflation rates	http://www.indexmundi.com/morocco/inflation_rate_%28consumer_prices%29.html
Overheads & Administration cost	Estimated	Based on company rates
Insurance Cost	Proposal from provider	File: Finding 9_Letter from National Electricity Office
Repairs and Maintenance cost	Proposal from vendor	File: Finding 9_OPEX_Cost of O&M of Power Plant.pdf
Selling cost	Fixed price of the national grid	File: Finding 9_Letter from National Electricity Office
Corporate Tax Rate	Published country tax rates	http://www.pwc.com/en_Gl/gi/publications/assets/TaxBulletinNovemberMorocco20082.pdf
		File: Finding 9_Corporate Tax rate

• File: Finding 9_IRR Investment Analysis.xls

Information Verified by Lead Assessor:

File: Finding 9_CAPEX_Blowers and Gas Treat Cost was checked by the assessment team
File: Finding 9_CAPEX_Proposal Flare Cost from John Zink was checked by the assessment team
File: Finding 9_CAPEX_Proposal Genset Cost from Ener G UK was checked by the assessment team
File: Finding 9_Letter from SGMB Bank was checked by the assessment team
File: Finding 9_Letter from National Electricity Office was checked by the assessment team
Finfing 9_CAPEX_Proposal Genset Cost from Ener G UK was checked by the assessment team
PDD version 04*, dated 27/09/2010 was checked by the assessment team

(*There was an error while sequencing the PDDs submitted to DoE by PP. This issue was addressed under CL 18.)

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 29/03/2011

As per PDD version 04, decision by CUF to pursue the project under CDM was taken 5th July 2006, which is being considered as the investment decision date as per 'CDM Guidelines for investment analysis'. All the input values of investment analysis must be in line with the investment decision date as per para 6 of the guidelines available at http://cdm.unfccc.int/EB/051/eb51_repan58.pdf.

It must be noted that the actual cost incurred can best serve as crosscheck for the input values assumed at the time of investment decision. However, PP must provide the basis for investment analysis and its input value in line with para 6 of the investment analysis guidelines, annex of additionality tool. OPEN

Project Participant Response: **Date:** 14/04/2011

Actually there was a typo in the PDD version 04 regarding the date of 5th July 2006. This date corresponds to

<p>the date when the CUF <u>asked</u> the Ministry of Interior for permission to pursue the project with the project developer under CDM and <u>not an investment decision</u> since there were no committed expenditures still at this stage. According to EB 41, "the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity". For The Fes New Landfill Gas Recovery, Reuse and Flaring Project, the project activity started on February 21, 2008 when the project developer committed expenditures to purchase the blowers, flare and pre-treatment equipment for the biogas as shown in Attachment A-7: Import Documents. All the input values of investment analysis are in line with the investment decision date</p>	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14 th April 2011.	
Information Verified by Lead Assessor:	
PDD version 06, dated 14/04/2011 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
<p>The start date of the project activity in the referred document confirms that project participant placed the purchase order for biogas treatment on Jan 24, 2008. However, the revised PDD still contains an erroneous date.</p> <p>The project participant shall provide the documentation which confirms the investment decision taken by them and provide sources of all the input value that have been used in the investment analysis including the benchmark (at the time of investment decision and not project start date). Please refer the latest guideline EB62 annex 5 and annex 13. OPEN</p>	
Project Participant Response:	Date: 14/08/2011
The investment analysis on the project was performed in March 2006 and the final decision to pursue the project was taken by the Ministry of the Interior on August 4, 2006	
Documentation Provided by Project Participant:	
File: Finding9bis_IRR Initial Investment Analysis 2006 with supporting documents of sources of input values	
File: Signature of Approval of project by the Ministry of the Interior 2006	
Information Verified by Lead Assessor:	
Revised financial assessment sheet, Signature sheet of approval of project by the Ministry of Interior	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 02/05/2012
Although the description provided states the start date is 24 January 2008, section C.1.1 still refers to the old date, Issue is OPEN.	
Project Participant Response:	Date: 30/06/2012
The section C.1.1 correctly indicates 24/01/2008, the format of date has been changed in the revised PDD	
Documentation Provided by Project Participant:	
Revised PDD Version 08 dated 31/01/2012	
Information Verified by Lead Assessor:	
Revised PDD Version 08 dated 31/01/2012, section C.1.1, C.2.2.1 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 04/10/2012
The PDD has been revised to reflect the corrected date. However the chosen crediting period start date needs to reflect realistic timelines.	
Project Participant Response:	Date: 22/10/2012
PDD has been revised accordingly.	
Documentation Provided by Project Participant:	
Revised PDD, version 09, dated 31/07/2012	
Information Verified by Lead Assessor:	
Revised PDD, version 09, dated 31/07/2012 section C.2.2.1	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 05/11/2012
PP has chosen a realistic start date of the crediting period and hence issue is resolved.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 12/12/2012
5. The choice of start date is as per the invoice of import. However PP is requested to provide a copy of the	

actual purchase order issued by the PP to the equipment supplier.

6. There are two sets of quotations issued by the supplier of pipes dated 31/01/2006 and 12/08/2009. PP is requested to clarify why there were two such quotations with a price variation in the range of 30%
7. The proposal for Blower and gas treatment equipment is being given by Ecomed, one of the consortium members and a project participant, and hence it is requested to confirm how this can be considered impartial.
8. The quotes have been issued to one Global Environmental Sustainability Inc. PP is requested to clarify if these quotes are applicable to the current project activity as well.
9. The quote from Kraft Power Corporation states that the enquiry was received through verbal communication on 06/10/2006 whereas the letter itself is dated 02/02/2006.
10. For the following documents it could not be ascertained that the letters were issued by the stated authority as they were not from their letterheads:
 - a. Letter from ONE regarding the price of power purchase dated 02/02/2006
 - b. Letter from Societe Generale Marocaine de Banques dated 06/02/2006
11. Copy of the fax document submitted from Ste Eledigis for the O&M price of Mercedes generator is undated and hence PP is requested to confirm the date of issue
12. The exchange rate considered between USD and MAD is 8.5666. However, the value applicable at the time of investment decision needs to be provided.
13. PP has considered a price of 1 million MAD for overheads and administration costs, and has cited company rates as the source. PP is requested to provide the supportive document for this.
14. The cost of insurance has been provided as a flat rate, whereas PP has used a percentage estimate. PP is requested to provide the source document.
15. The corporate tax value used is inconsistent between PDD and IRR spreadsheet.

Project Participant Response:

Date: 15/03/2013

1. A copy of the actual purchase order is included here in as an attachment with the responses (Bon_Commande_Biogaz Traiement_ECOMED_Fès.docx)
2. The quotation from the supplier of pipes in 2006 was higher as the PP obtained only a 20% (%R1) discount for this particular project. PP was able to negotiate in 2009 additional discounts from the supplier for other projects due to the volume of business he was doing with the supplier. For this project, the quotation of 2006 was used in the IRR analysis.
3. The proposal for the blower and gas treatment was obtained from Edgeboro and not Ecomed. Edgeboro is a private US separate company albeit is a member of the consortium. The equipment is being bought by the Moroccan company Ecomed which is a separate company from Edgeboro
4. Some quotes were provided for this project activity directly to Global Environmental Sustainability Inc. as the consultant who prepared the PDD for the project. The quotes are applicable to the current project activity as it is not mandatory that quotes shall be in the name of PP only. The representative of GESI is also included as representative of PP in the PDD.
5. This is a typo that has been corrected
6. The documents were issued by the stated authorities. Furthermore, the data provided in the documents were public information as asserted by the following documents.
 - a. The commercial interest rate provided by the bank is the same published interest rate by the Moroccan National bank (Bank Al Maghreb) for 2008 (see attached document, file: Taux débiteurs appliques par les banques au Maroc du 23 au 29 octobre 2008.pdf). As for the equity/debt ratio, the PP assumed and equity/debt ratio of 50% as per Annex 5, EB62 and not the financing proposed by the bank.
 - b. The energy rate used in the IRR analysis is based on the standard government rates that the grid is offering to all power producers even to nowadays. A recent letter from the grid confirms the basis of calculation of these rates
7. The date of the document is 3/1/2006
8. The exchange rate used is based on the date where the quotations were provided.
9. The details of this cost are provided herein as an attachment, see file: Overhead and Management

Cos ECOMED Fès Landfill CDM.docx

10. The flat rate of insurance was calculated based on the percentage rate (0.068%) provided by a vendor and the project total capital cost (44.46 million DH); thus an average flat rate of 0.03 million dirhams
11. The corporate tax rate used in the IRR is 35% as per the 'The country survey based on The U.S. Chamber of Commerce 's' provided and attached also herein. See file: Corporate Tax Rate in Morocco.pdf. The values in the PDD are now corrected.

Documentation Provided by Project Participant:

Revised PDD, version 10, dated 15/03/2013
Bon_Commande_Biogaz Traitement ECOMED Fès.docx
Taux débiteurs appliques par les banques au Maroc du 23 au 29 octobre 2008.pdf
Overhead and Management Cos ECOMED Fès Landfill CDM.docx
Corporate Tax Rate in Morocco.pdf

Information Verified by Lead Assessor:

Revised PDD version 10 dated 15/03/2013 was checked
Bon_Commande_Biogaz Traitement ECOMED Fès.docx was checked
Taux débiteurs appliques par les banques au Maroc du 23 au 29 octobre 2008.pdf was checked
Overhead and Management Cos ECOMED Fès Landfill CDM.docx was checked
Corporate Tax Rate in Morocco.pdf was checked.

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
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1. The purchase order submitted was not found in an acceptable format. Only word file of the document has been provided. Please provide verifiable copies of the purchase orders for all the equipments involved in project activity and also the copy of O&M contract
2. The justification provided by PP was found to be acceptable. However, PP is requested to mention precise date of decision making to invest in the project activity.
3. The proposal dated 03/03/2006 was checked and was found to be Ok. The proposal for the blower and gas treatment was obtained from Edgeboro. Edgeboro is a private US separate company albeit is a member of the consortium. The equipment is being bought by the Moroccan company Ecomed which is a separate company from Edgeboro. CAR closed.
4. The justification provided by PP was found to be acceptable. However, "The representative of GESI is also included as representative of PP in the PDD" as mentioned by PP in the response could not be found in the PDD. CAR open.
5. The quotation contains two dates. No correction was found. CAR open.
6. The document provided by PP was found to be acceptable
 - (a) Letter from ONE seems Ok
 - (b) The interest rate letter, can be confirmed from the Local Assessor. CAR closed.
7. There is no evidence to accept that the document is dated 3/1/2006
8. Kindly provide verifiable documentary evidence to support the assumption. CAR open.
9. The overhead cost as provided by PP was accepted and CAR closed.
10. Insurance cost could not be verified from the supportive document submitted by PP. CAR open.
11. The Corporate tax rate applied here is for the year 2002 only where as the decision making date is during 2006. Moreover the link provided in the IRR sheet is not working. PP to justify. CAR open.
12. Please justify why 12% cost of equity has been considered and how it is appropriate considering that the EB 62, annex 5 was not available at the time of investment decision. PP requested to provide the source of considered benchmark and justify the availability of the same at the time of decision making, suitability and comparability of the same. Also, PP is requested to submit the benchmark used at the time of decision making. Also clarify how the salvage value is calculated.

13. Please provide the source and justify the approach for the inflation forecast value of 2.09% as mentioned in the PDD. Also the values of inflation rate as 1.986%, mentioned in PDD could not be verified through the source web link.
14. PP is requested to kindly justify whether considered D/E ratio is in line with requirement set out in para 18 of EB62 Annex 5. PP is requested to justify how a debt: equity ratio of 50:50 is applicable as per para 17 of EB 62, Annex 5. Also justify the suitability of financial indicator "equity IRR" as project activity involve both debt and equity component.
15. Please provide the exact source for the income tax rate of 35% as assumed in the IRR sheet. The link provided is not working. It is not clear why allowed depreciation is not considered as expenses in income tax calculations.
16. PP is requested to clarify why the loan repayment has not been considered as an expense while calculating equity IRR in line with para 10 of EB62 Annex 5. Also clarify why there is no escalation is considered in tariff rate.
17. PP is requested to justify that the analysis is conducted in real terms as revenue stream and cost has been kept constant throughout the analysis.
18. The sensitivity analysis done in the IRR sheet is not reproducible. Also threshold limit of variation in parameters considered under sensitivity analysis is not mentioned in PDD.
19. As per combine tool to demonstrate the baseline & additionality, PP need to apply the latest version of the "Guideline on the common practice" as available at UNFCCC website.
20. Please provide the following documents-
 - I. Letter from the CUF to Ministry of Interior dated 07/05/2006
 - II. Signature of contract by the Ministry of the Interior date 08/04/2006

CAR#09 is open.

Project Participant Response:

Date: 30/04/2013

1. A verifiable copy of the purchase orders for the equipments is included. All the project components are not yet purchased as the project is not yet registered.
2. The precise date of decision making to invest (project start date) in the project activity is January 24, 2008 when an actual purchase order to buy the first set of gas equipment was placed. Whereas, the investment decision occurred on Aug 4, 2006 as mentioned earlier.
3. Closed by auditor.
4. The representative of PP is include in Appendix 1 of the PDD and is Mr. Ahmed Hamidi"
5. The correct date of the quotation 2/2/2006.
6. Closed by auditor.
7. The document is provided with a date of 3/1/2006
8. Exchange Rates on June 6, 2006 were taken from the following website <http://www.oanda.com/currency/historical-rates/>
9. Closed by auditor.
10. Insurance cost was calculated based on the premium rates provided by AXA Insurance; A premium of MAD1,617.03 was given by AXA for an investment of MAD 2,357,675 (a percentage of 0.068%). Therefore, since the project total capital cost is 44.46 million DH; thus the flat rate of insurance was estimated as 0.03 million Dirhams. However, it has been removed from calculations on conservative grounds.
11. The Corporate tax rate at the time of decision making date in 2006 is 35% as confirmed by the Moroccan Finance Law No. 35-05 for fiscal year 2006. Official Bulletin No. 5382-bis Article 20, Chapter III, page. 990, Article 20: Tax rate" The rate of tax on companies is set to: A-35%"
12. As indicated in the web hosted PDD that initial financial indicator was NPV where discount factor was assumed as 12% (page 23) which was assumed as it was found reasonable for commercial expectation

at that time. However, during the course of the validation, the financial indicator has been converted into equity IRR analysis and default return on equity has been chosen from the referred guidance, which is also incidentally same. Therefore, the selection made by the PP is in accordance with the latest applicable guidance and consistent with the initial assumption. Further more, as a cross check there are many other projects, in recent time, in power sector from renewable source that use benchmark in the range of 12%-14% as can be checked from <http://cdm.unfccc.int/filestorage/C/5/X/C5XFQDWN0HBEL86R7VGSTJA21IMKOP/Annex%201.pdf?t=NXB8bW4zMWf2fDCqeOWsnGXReuj0f94niFbj> . Therefore, in PP opinion the selection of value is reasonably justified. The salvage value has been considered as 10%, which is reasonable for this kind of project equipments where the deterioration is even higher. The recovery cost of capture system is negligible once it is put in the cell as it cannot be extracted and the properties of LFG damage the gas engines more often than any other power generation equipments. Considering the salvage value is taken after the end of life, the value to be reasonable, conservative and justified.

13. The financial indicator i.e., equity IRR has been presented in the real terms therefore the reference to the inflation has been removed from the revised PDD and corresponding IRR sheet. Therefore, the revised documentation uses a post tax equity benchmark of 12% that is also consistent with the webhosted PDD and what was considered at the time of investment decision.
14. Considering there are no projects in Morocco and no publicly available information available in this regard. The information prescribed in the para 17 of EB62 Annex 5 is also not available that is the reason the default D/E ratio prescribed by the guidance is applied. The paragraph 18 of guidance allows the use of default D/E as 50-%50%, and same is applied. The risk of equity investor are better reflected by the equity IRR and therefore are used. The equity IRR as per standard accounting practices can be obtained for both type of projects, purely equity or mix of equity and debt.
15. The source for the income tax rate of 35% as assumed in the IRR sheet is the Moroccan Finance Law No. 35-05 for fiscal year 2006 as provided in the document belo (Loi de finance 2006.pdf). The depreciation has been now correctly treated in the income tax calculations.
16. The interest payments were calculated but due to miss linking of formulae same got excluded. The error in the spreadsheet has been corrected and revised PDD contains correct equity IRR that complies with the EB requirements. The negotiations with the ONE grid revealed that the price will be fixed. Further a sensitivity has been on the tariff rate to reflect any future variations. Lastly, there has not been any escalation that is applied either or operating cost or revenue, which is conservative and the returns are calculated on real terms and not real terms.
17. It is the choice of the PP that financial indicator of the project activity is calculated on real terms that is without adjusting for any inflation, which is conservative. If required, the inflation percentage can be ignored from the benchmark to make it consistent. Therefore default return on equity would then become 12% as compared to real equity IRR of 4.58%, which is far below the benchmark.
18. The spreadsheet has been revised to show the result of sensitivity analysis, by changing the values in the variation column, the results that are typed in the sensitivity table can be obtained. The threshold or breaching values have been now included in the revised PDD.
19. The latest guidance on common practice has been used, which is incorporated in the version 5 of combined tool for baseline and additionality. The revised PDD has been provided.
20. The following documents are provided-
 - i. Letter from the CUF to Ministry of Interior dated 07/05/2006 File: Letter from CUF to Ministry July 5-2006.pdf
 - ii. The Signature of contract by the Ministry of the Interior dated 08/04/2006 is provided in File: Signature of contract by Ministry on 8-4-2006.jpg

Documentation Provided by Project Participant:	
<ol style="list-style-type: none"> 1. Purchase order: PO gaz equipment from Ell.pdf 2. Same as 1 above 3. Closed 4. Revised PDD, version 11, date 30/04/2013 5. File : Quotation from Kraft.pdf 6. Closed 7. File : O&M quote_Eledigis.pdf 8. http://www.oanda.com/currency/historical-rates/ 9. Closed 10. Finding 9_OPEX_Insurance cost_French_English.pdf 11. Loi de finances 2006.pdf 12. Revised PDD version 11, date 30/04/2013and IRR sheet 13. Revised PDD version 11, date 30/04/2013and IRR sheet 14. Revised PDD version 11, date 30/04/2013and IRR sheet 15. Loi de finances 2006.pdf 16. Revised PDD version 11, date 30/04/2013and IRR sheet 17. Revised PDD version 11, date 30/04/2013and IRR sheet 18. Revised PDD version 11, date 30/04/2013and IRR sheet 19. Revised PDD version 11, date 30/04/2013and IRR sheet 20. See attached files: Letter from CUF to Ministry July 5-2006.pdf. Signature of contract by Ministry on 8-4-2006.jpg 	
Information Verified by Lead Assessor:	
<ol style="list-style-type: none"> 1. Purchase order: PO gaz equipment from Ell.pdf was checked 2. Revised PDD version 11, date 30/04/2013 and IRR sheet was checked 3. File : Quotation from Kraft.pdf was checked 4. File : O&M quote_Eledigis.pdf was checked 5. http://www.oanda.com/currency/historical-rates/ was checked 6. Finding 9_OPEX_Insurance cost_French_English.pdf was checked 7. Loi de finances 2006.pdf was checked 8. Loi de finances 2006.pdf was checked 9. Letter from CUF to Ministry July 5-2006.pdf. was checked 10. Signature of contract by Ministry on 8-4-2006.jpg was checked 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 10/06/2013
<ol style="list-style-type: none"> 1. The purchase order dated 24/01/2008 was checked by the assessment team and was found to be acceptable. CAR closed. 2. The investment decision date is 04/08/2006 and the project start date is 24/01/2008. This was checked from the purchase order to buy the first set of gas equipment. 3. Already closed. 4. The revised PDD was checked and was accepted by the assessment team. CAR closed. 5. The response provided by PP was accepted by the assessment team, as it was a typo in the quotation. 6. Already closed. 7. The proposal for Blower and gas treatment equipment is dated 03/01/2006. This was checked by the assessment team and was found to be correct. CAR closed. 8. The link of the website provided by PP for exchange rate was checked by the assessment team and was found to be correct. CAR closed. 9. Already closed. 10. PP has removed the insurance cost from the IRR sheet. This was found to be conservative and the same 	

was accepted by the assessment team. CAR closed.

11. The Tax Rate of 35% was checked from the Moroccan Finance Law No. 35-05 for fiscal year 2006, Official Bulletin No. 5382-bis Article 20, Chapter III, page 990. The assumption by PP was found to be correct. CAR closed.
12. The justification provided by PP was found to be correct. CAR closed.
13. The justification provided by PP was found to be correct and conservative. CAR closed.
14. The justification provided by PP was found to be acceptable by the assessment team. CAR closed.
15. The justification provided by the PP was found to be acceptable by the assessment team. The revised IRR sheet has been checked for the income tax calculation and was found to be correct.
16. The loan repayment has been correctly considered in the revised IRR sheet. This was checked by the assessment team. PP has not considered any escalation on the tariff rate, however PP has applied sensitivity analysis to the tariff rate, and it was observed that, even after a sensitivity analysis of $\pm 10\%$, the IRR of the project activity remained under the benchmark of 12%. It was also observed that the threshold limit for variation in tariff is 42% from the assumed value. However, PP is requested to justify how not considering any escalation on revenue (especially on tariff) is conservative. CAR open.
17. The approach considered by PP was found to be correct. CAR closed.
18. The revised IRR sheet of the project activity was checked. PP has correctly put the sensitivity analysis. The threshold limit has been put in the revised PDD. This was checked by the assessment team and was accepted. CAR closed.
19. The revised PDD was checked by the assessment team and it was observed that the common practice has been computed using the latest guidance on common practice. Thus accepted and CAR closed.
20. The documents provided by PP was checked and was found to be acceptable. CAR closed.

Project Participant Response:

Date: 10/07/2013

16. The basis for considering a fixed tariff rate as 0.38 DH/kWh were already provided to the DOE that was available at the time of investment decision. In order to further substantiate that the tariff rate can not exceed by 42% is a fax communication received from ONE (grid utility) dated 2nd July 2012 that clearly confirms following ;
The tariff rate for first 5 years

Tranche	Number of hours	Percentage	Sale price of ONE to other customers DH	Purchase price from Ecomed	Average purchase price DH/KWH
Peak	5	70%	1.14123	0.798861	0.45
Normal	11	60%	0.80518	0.483108	
Low	8	40%	0.49553	0.198212	

Tariff rate from year 6 to 15 will be as under ;

Tranche	Number of hours	Percentage	Sale price of ONE to other customers DH	Purchase price from Ecomed	Average purchase price DH/KWH
Peak	5	50%	1.14123	0.570615	0.37
Normal	11	50%	0.80518	0.40259	
Low	8	40%	0.49553	0.198212	

A supporting calculation has also been provided for easy reference. Therefore, it can be confirmed that the electricity tariff will not exceed, even with the electricity prices that existed last year. The best tariff is expected in the first 5 years which is 0.45 DH/kWh and that is 11.8% increase from the considered tariff. However, the tariff as per communication will be fixed as 0.37 DH/kWh for the remaining period.

Furthermore, the communication from ONE does not prescribe any annual variation either. Therefore, the values applied by the PP were valid and conservative at the time of investment decision and are robust enough that any realistic variation will not be able to let it cross the benchmark.	
Documentation Provided by Project Participant:	
Communication from ONE official dated 02 July – Spreadsheet showing basis of calculations as prescribed in the letter.	
Information Verified by Lead Assessor:	
PP has clearly justified the non consideration of the escalation on the tariff rate and demonstrated that the tariff is fixed and same this information was available at the time of investment decision. Also, PP has provided documentary evidence to support this justification and the supportive document also reflect that the tariff rate cannot exceed by 42% is a fax communication received from ONE (grid utility) dated 2 nd July 2012 that clearly confirms the conservativeness of the investment analysis.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/06/2013
The justification as well as the supportive evidence provided by the PP demonstrate the conservativeness of the IRR calculation, which has been found to be satisfactory. Thus, CAR 09 was closed.	
The CAR was further reopened due to the following issue- dated – 30/07/2013	
26. Common Practice Analysis:	
<ul style="list-style-type: none"> f. It is not clear why the PP has considered the point (b) of Measure for project activity. Also, please clarify why the PP has not provided the justification against applicable measure? g. How the heat generation and flaring is considered as Output as per definition of Output mentioned in “Guidelines on common practice” Version 2.0? h. Why the PP has not defined the Different technologies for proposed CDM project activity as per definition of Different technologies “Guidelines on common practice” Version 2.0? i. How the value of F is zero in calculation of factor $F = 1 - N_{diff}/N_{all} = 1 - 0/0 = ?$ j. Please check this statement for factor calculation is correct or not? 	
27. Project start date and prior consideration of CDM: Please request to the PP to correctly specified the “start date of CDM project activity” instead of “project start activity”.	
Biogas generation from leachate generated has not been taken as a source of emission. PP is requested to justify the same.	
Project Participant Response:	Date: 05/08/2013
1. Common practice analysis:	
<ul style="list-style-type: none"> a. The justification has been included in the revised PDD. The point b) of measure is considered as the project activity falls into the same as it exports electricity to the grid. b. It has been removed and only electricity generation from LFG has been considered as appropriate output in accordance with the referred guidance. c. The information has been updated in the revised PDD in this regard. d. The value of F is considered 0 because the expression $0/0$ is mathematically undefined. Taking note of the interpretation given for F, it indicates that this number is for the penetration of the technology using the same technology as that of proposed CDM project activity. Considering in this case, there is no technology found that is similar to project activity in the country there is no penetration. This understanding would get defeated if the value of F is shown as 1 considering $0/0$ is equal to 0, which is mathematically not correct and also in the context of the underlying definition of F. e. The statement in the PDD in this regard is correct as the value of F is considered to be 0. If something undefined ($0/0$) is subtracted from 1, as per the expression given, it can also not be understood to be 1. Mathematically, an undefined value is not equal to 0. Moreover, it is only one of the options the other criteria i.e. $N_{all} - N_{diff}$ is clearly equal to 0 and does not exceed the value of 3, is good enough to demonstrate that project is not a common practice. 	

2. The wordings have been corrected in the revised PDD.	
3. Technically the leachate is generated from the MSW that is dumped in the landfill. The first order decay expression already considers the basis that how much methane can be generated from such dumped quantity MSW depending upon its characteristics. The leachate is only a result of decay of MSW quite like LFG from the same quantity. The leachate once out of landfill will be sent to leachate evaporator system therefore there is no probability that it will be able to generated methane. Lastly, the applied methodology or tool does not prescribe emissions, if they are occurring or not, from leachate to be taken into account.	
Documentation Provided by Project Participant:	
Revised PDD, version 13, dated 05/08/2013	
Information Verified by Lead Assessor:	
Revised PDD, version 13, dated 05/08/2013	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 08/08/2013
<p>1. (a) PP has stated that, considering the project activity will export power to the grid, which is why it is covered under point (b) and considering the project activity also involves flaring i.e., point (c) when surplus gas is available or gas engines are not able to use it, is also found applicable. This was found to be correct and was accepted by the assessment team. The common practice analysis in PDD (final version) has been revised accordingly with proper justification.</p> <p>(b) The PDD has been revised by PP, only the electricity generation has been mentioned as the output of the project activity. This was found to be correct in regards to the project scenario of the project activity. This was accepted by the assessment team.</p> <p>(c) The technologies that use the same energy source/fuel (in this case LFG) as the proposed CDM project activity, have been considered similar to the project activity while others are considered to be different. Therefore, power generation using LFG as a source has been considered similar to the project. The PDD has been updated by PP, this was checked by the assessment team and was found to be acceptable.</p> <p>(d) The justification provided by PP was found to be correct and was accepted by the assessment team.</p> <p>(e) The justification provided by PP was found to be correct and was accepted by the assessment team.</p> <p>2. The revised PDD was checked by the assessment team. Section B.5 has been updated with proper correction. This was accepted by the assessment team.</p> <p>3. The justification provided by PP was found to be correct and was accepted by the assessment team.</p>	
Acceptance and Close out by Lead Assessor:	Date: 08/08/2013

Date:	30/10/08	Raised by:	Assessment Team
Type:	CAR	Number:	10
		Reference:	B.4.8
Lead Assessor Comment:			
Please provide evidence in support of the following statement made in PDD:			
f) All landfill sites in Morocco except Oulja landfill are open and unmanaged dumps. There are two other projects into the validation stage on UNFCCC site. Please clarify.			
g) How it has been concluded that the project activity is first of its kind.			
h) All landfill in Morocco are open and unmanaged.			
Project Participant Response:		Date: 18/06/2009	
a) According to a study by the World bank and the Moroccan Ministry of Environment, there are about 182 open and unmanaged landfills in Morocco, and only those of Fes, Rabat, El Jadida, Essaouira, Oujda, and Berkane have initiated some controls. In addition, only one closed landfill, of Oulja, has been registered with the UNFCCC.			
b) According to the Moroccan NDA, only 4 projects have been registered with CDM. These projects include the closure of Oulja Landfill, 2 Wind farms, and 1 solar PV .			
c) This statement has been changed to "Most of the landfills in Morocco are still open and unmanaged".			
Documentation Provided by Project Participant:			
a. http://www.metap-solidwaste.org/fileadmin/documents/National_activities/technical_assistance/Rapport-D_charges-Mission_III.pdf),			

b. http://www.cdmmorocco.ma/fr/portfeuille_enreg.php c. http://www.metap-solidwaste.org/fileadmin/documents/National_activities/technical_assistance/Rapport-D_charges-Mission_III.pdf ,	
Information Verified by Lead Assessor:	
d. http://www.metap-solidwaste.org/fileadmin/documents/National_activities/technical_assistance/Rapport-D_charges-Mission_III.pdf , was checked. e. (http://www.cdmmorocco.ma/fr/portfeuille_enreg.php) was checked f. http://www.metap-solidwaste.org/fileadmin/documents/National_activities/technical_assistance/Rapport-D_charges-Mission_III.pdf , was checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 15/07/2009
a. The information is not clear from the reference. Please clarify b. The referred website http://www.cdmmorocco.ma/fr/portfeuille_enreg.php indicates the estimation of ERs as 75,000 ton of CO ₂ e which is quite lower than the PDD. Please clarify. Further website refers the project under CDM irrespective of its stage. It does not indicate the project which is not under CDM. Also, there is already a registered project therefore how project can be first of its kind. The query is not responded adequately. c. This document is in local language, an English translation is requested. CAR open	
Project Participant Response:	Date: 10/05/2010
a. A study by the Mediterranean Environmental Assistance Program (METAP) of the World Bank indicates that there are 182 open and unmanaged landfill sites in Morocco. The study also indicates that only 1% of the solid waste in Morocco is disposed of in landfills while 95% of waste is disposed of in open dumps. In addition, there is no regulation in place to collect and flare the LFG from these landfills. This is evident from the document Copies of solid waste law, Attachment A-2 already provided to SGS. The solid waste law 28-00 is not even applicable until 11/22/2011 as per Title I, Chapter 3, Article 9 of this law and the proposed decree for the implementation of the law states only, when it comes to landfill gas, that the design should only: f. Allow the establishment, to the extent possible, of a gas drainage system to meet the minimum security concerns of the site (see Decree No. 2-09-284 of 20 hja 1430 (December 8, 2009) establishing the administrative procedures and technical requirements for landfills; PART III : Technical requirements for Controlled Landfills; Chapter II: Site Design; Article 11 Therefore, as a matter of fact the collection of LFG is not the common practice in the host country. b. The project is first of its kind in terms of power generation from landfill and will also claim the ER for the grid replacement. c. The English summary of the study by Mediterranean Environmental Assistance Program (METAP) of the World Bank, supports that most of the landfill in host country (95%) are unmanaged an only 1% are controlled has been provided along with this response.	
Documentation Provided by Project Participant:	
Attachment B6: METAP study of Morocco SWM	
Information Verified by Lead Assessor:	
Attachment B6: METAP study of Morocco SWM - This document is dated Nov 2004, link checked on 07/07/2010. (Link a & c – same document) was checked by the assessment team http://www.cdmmorocco.ma/fr/portfeuille_enreg.php was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
Please provide documents which are relevant with project activity decision date to demonstrate common practice in Morocco.	
Project Participant Response:	Date: 27/09/2010
Attachment B6, also included in the link http://www.metap-solidwaste.org/ under Morocco (http://www.metap-solidwaste.org/fileadmin/documents/country_data/SWM_Morocco_A4.pdf) is dated 24-3-2008 and gives the following statistics on solid waste in Morocco as of 2008 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MSW Collection Coverage: 72 - 100% <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MSW Final Destination: 0% composted 4% recycled 1% landfilled 95 % open dumped	

The web address is correct, there is an underline () between portefeuille and energ.php: http://www.cdmmorocco.ma/fr/portfeuille_enreg.php . The site gives the list of all PDD registered projects in Morocco, but none of them included power generation from landfill gas even as of 2010.	
Documentation Provided by Project Participant:	
Study about Morocco Solid Waste Management by the METAP program of the World bank (File: Finding 10_SWM_Morocco_A4.pdf)	
List of registered PDD projects in Morocco: (File: Finding 10_List of registered PDD projects in Morocco.pdf)	
Information Verified by Lead Assessor:	
PDD version 04*, dated 27/09/2010 Attachment B-6 was checked by the assessment team	
(*There was an error while sequencing the PDDs submitted to DoE by PP. This issue was addressed under CL 18.)	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
It is checked from attachment B-6 (http://www.metap-solidwaste.org/fileadmin/documents/country_data/SWM_Morocco_A4.pdf), which is the webpage of METAP secretariat. The web content was last updated on 24/03/2008 as mentioned on the webpage http://www.metap-solidwaste.org/ . This information on the website was checked on 04/03/2011 and the screen shot of the same is taken. It is found MSW generated in Morocco is disposed in open dump yards and there is no legal framework enforced that requires the landfill gas to be destroyed. Moreover, it has been checked that there is only one project of similar nature from the Morocco DNA website http://www.cdmmorocco.ma/fr/portfeuille_enreg.php . PP is requested to update the description of step 4 in section B.5 of the PDD giving proper references as described in your response above. OPEN	
Project Participant Response:	Date: 14/04/2011
Step 4 of section B.5 of the PDD has been updated	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14 th April 2011.	
Information Verified by Lead Assessor:	
PDD version 06, dated 14/04/2011 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
Common Practice Analysis is clearly discussed in PDD version 06 dated 14/04/2011. The claims have been validated from the METAP and Morocco DNA website. CLOSED	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/05/2012
CAR reopened as PP is requested to use the CDM EB guidance on arguing additionality on "first of its kind barrier" as given in EB 63, Annex 11.	
Project Participant Response:	Date: 30/06/2012
The first of its kind barrier is not opted by the PP. The misleading text has been modified. Only investment analysis has been opted.	
Documentation Provided by Project Participant:	
Revised PDD, version 08, dated 31/01/2012	
Information Verified by Lead Assessor:	
Revised PDD version 08, dated 31/01/2012 section B.5 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 04/10/2012
PP has revised the PDD to include only relevant arguments for additionality arguments, hence issue is resolved.	
Acceptance and Close out by Lead Assessor:	Date: 04/10/2012

Date:	30/10/08	Raised by:	Assessment Team
Type:	CAR	Number:	11
		Reference:	B.5.1
Lead Assessor Comment:			
Please provide the spread sheet used for ER calculations.			
Project Participant Response:			Date: 18/06/2009
The spread sheet used for ER calculations is included in the revised PDD.			
Documentation Provided by Project Participant:			
See revised PDD, version 05, dated 31/04/2009			
Information Verified by Lead Assessor:			
See revised PDD, version 05, dated 13/04/2009 was checked by the assessment team.			
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 15/07/2009
Kindly submit the <ul style="list-style-type: none"> a) Source for waste characterization used in sheet 'DOC-Waste analysis' b) 3% destruction of LFG in the baseline c) Quantity of waste processed in the past and support the figures taken for future estimate d) details of gas engines to be installed e) assumption for auxiliary and in house consumption for project activity f) considered emission factor for grid (how it is in line to Tool to determine emission factor for an electricity system' g) Power purchase agreement h) Basis for considering MCF as 0.8 CAR open			
Project Participant Response:			Date: 10/05/2010
<ul style="list-style-type: none"> a. Copy of the report for the waste characterisation is attached (see Attachment B7) b. Copy of the document supporting that there was no requirement of the landfill gas collection in the baseline form the landfill site is attached (Attachment A3a and A3b). The 3% figure is very conservative estimation given that the gas was burned only for fire safety related issues by inserting some vertical pipes in the landfill. c. Supportive document for actual quantity of waste received, on landfill site, is attached (Attachment B8) d. Specs of equipment to be installed (Attachment B4a) e. Manufactures specification for auxiliary consumption is attached (Attachment B4a) f. Raw data used for GEF calculation is attached (Attachment B3) g. Published power purchase rates by the grid from IPPs are attached (Attachment B4e and B4f) h. The landfill site is managed and a copy of the agreement between PP and ministry of interior is attached to support that existing landfill site has to be covered with the soil and also leachate will be collected (Attachment A4). This allows to use the MCF as 0.8. 			
Documentation Provided by Project Participant:			
As detailed above all supportive are attached.			
Information Verified by Lead Assessor:			
<ul style="list-style-type: none"> a. Hard Copies: Attachment B.7 – 'Waste Characterization Campaign at the Fes Controlled Landfill' in February 2008 by 'G2C Environment', its webpage is http://g2c.fr/portail/ . b. Attachment A3a and A3b was checked by the assessment team c. Attachment B8 was checked by the assessment team d. Attachment B4a was checked by the assessment team e. Attachment B4a was checked by the assessment team f. Attachment B3 was checked by the assessment team g. Attachment B4e&f was checked by the assessment team h. Attachment A.4 was checked by the assessment team 			
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 14/07/2010
<ul style="list-style-type: none"> a. OKAY: The composition study is conducted by independent third party and the results are found to be matching with the IPCC guidelines volume 5: Waste. Finding is closed. b. (PENDING closure of CL#03 for confirming about the regulation.) However, if burning is being done on voluntarily basis to check fire accidents, please clarify how 3% LFG destruction is valid assumption and being considered for adjustment factor. c. Attachment B.8 is checked as provided by Ecomed. Please provide evidentiary document for the waste quantities disposed; and if estimated for future, basis for the same. 			

- d. Attachment B.4A contains the letter with some of the specification of Genset. Please provide copy of technical specification provided by the supplier.
- e. OKAY: Auxiliary consumption of Genset is found okay as confirmed through Suppliers letter – ENER.G Natural Power Ltd. England.
- f. PENDING closure of CL#05
- g. Power Purchase agreement s not signed. Letter of communication with the electrical authorities to hold a meeting for negotiations have been provided. CLOSED
- h. MCF is 0.8 is for unmanaged landfill site as per the “**Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site**” in the methodology. However, the project activity consists of controlled landfill. Please clarify

Section B.6.3 of the PDD

- a) Please provide evidentiary document for recovery rate and efficiency of flaring system.
- b) Pending CL#05 on grid EF

ER Calculation sheet

- a) Pending CL#19
- b) Please provide evidentiary documents for all the input values.

Project Participant Response:

Date: 27/09/2010

- a. OKAY
- b. The 3% of LFG destruction for safety was based on the average number of days in the year when the pipe kindle flare was lit.
- c. The waste quantities used in the calculations are based on the actual waste quantities received at the landfill for the first two years and the projected quantities based on the contract with the city of Fes for future years.
- d. The technical specifications provided by the supplier are included herein.
- e. OKAY:.
- f. PENDING closure of CL#05
- g. A letter giving the general terms of power purchase from the national grid is provided herein. The terms are based on the standard power purchase conditions by the national grid as the sole mandated power purchaser in the country.
- h. There was a typo in the project participant's response of 10/05/2006 about the MCF factor. The correct value used in the ER calculations is 1.0 is for controlled landfill.

Section B.6.3 of the PDD

- The details of the efficiency of degassing system have been included in the revised PDD. US EPA provides the 75% default value for gas recovery efficiency. The same has been taken from the section 2.4.4.2 in <http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf> (page 11/98)
- The default value of closed flare efficiency rate used in the PDD is 90%, if the temperature in the exhaust gas of the flare (T_{flare}) is above 500 °C for more than 40 minutes during the hour h and the manufacturer's specifications on proper operation of the flare are met continuously during the hour h.
- Pending CL#05 on grid EF.

ER Calculation sheet

- Pending CL#19
- The evidentiary documents for all the input values are provided herein

Documentation Provided by Project Participant:

- a. OKAY:.
- b. File: Finding 11b_Justification of adjustment factor AF.pdf
- c. File: Finding 11b_Actual Waste Flows at Fes Landfill.pdf and Attachment A_4a Delegated Management Contract.
- d. File: Finding 11d_Technical specs on the genset.pdf
- e. OKAY:.
- f. PENDING closure of CL#05
- g. File: Finding 9_OPEX_Letter from National Electricity Office_English.
- h. ER calculation sheet.

Section B.6.3 of the PDD

- <http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf> (page 11/98)
- PDD and applied methodology

- Pending CL#05 on grid EF

ER Calculation sheet

- Pending CL#19
- For precipitation and temperature: see EI in attachment Annex-7
- For Recovery rate: see <http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf> (page 11/98)
- For waste data see File: Finding 11b_Actual Waste Flows at Fes Landfill.pdf and Attachment A_4a Delegated Management Contract

Information Verified by Lead Assessor:

PDD version 04, dated 27/09/2010 was checked by the assessment team

Finding 11b_Justification of adjustment factor AF.pdf was checked by the assessment team

Finding 11b_Actual Waste Flows at Fes Landfill.pdf and Attachment A_4a Delegated Management Contract.

Finding 11d_Technical specs on the genset.pdf was checked by the assessment team

Finding 9_OPEX_Letter from National Electricity Office_English was checked by the assessment team.

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 29/03/2011

CL converted CAR

- CLOSED on 14/07/2010
- Regarding adjustment factor, it is discussed below;
 - As per finding CL#03 there is no legal framework existing at the time of decision making which requires destruction of landfill gases.
 - An agreement for the development of project activity was signed on 31st Oct 2006 This agreement is an addendum to an agreement no. 01/2002 which was signed between Fes Urban Group (local govt. body) and company group composed of Ecomed Gestation des Dechets and Edgeboro International Inc for development of controlled landfill (project activity landfill) and maintenance of the old landfill, and did not include any conditions for landfill gas capture and destruction. The addendum to the original was signed to develop the CDM project activity i.e. landfill gas capture, flaring and utilization for electricity generation, and the tenure was extended from 10 years to 30 years. Thus, it is found that there is no contractual obligation for landfill gas capture and destruction.
 - The controlled landfill (landfill on which project activity draws upon its landfill gas) started to receive waste in April 2004. The landfill was equipped in year 2007 with an open traditional pipe mounted end of the main leachate collection pipe to vent landfill gas. The landfill gas has been flared to maintain safety conditions for 12 days in a year i.e. 3.28% of the entire year 2007 and 2.73% of year 2008 prior to start date of project activity i.e. 21st 2008. Accordingly 3% has been taken as adjustment factor in revised PDD version 04
 - As per methodology (page 6), it is mentioned "In the case where regulatory or contractual requirements do not specify $MD_{BL,y}$ or no historic data exists for LFG captured and destroyed an "Adjustment Factor" shall be used and justified, taking into account the project context. In lieu with this statement, the approach adopted for calculation of adjustment factor is found rational, thus correct.
 - However, PP is requested to consider the data before the project activity start date for calculation of the AF. OPEN
- In article 23 of the agreement no. 01/2002, waste quantities and its rates for 10 years are mentioned, and in article 26, rate determination for surplus waste is discussed. The estimated waste disposal in the controlled landfill is calculated from the actual historic disposal and tonnage quantities predicted for 1st ten years. However, the estimated waste quantity for disposal from year 2015 to 2020 is found to increase steeply as compared to the trend seen for years 2004 to 2014. Please clarify. OPEN
- Technical specification of the gas engines has been provided. General description of gas engine includes electrical output of 165KWe, consumption of landfill gas 105 Nm³/hr at 50% CH₄ and min gas pressure 100mbar. CLOSED
- CLOSED on 14/07/2010
- PENDING closure of CAR#05
- CLOSED on 14/07/2010
- The MCF factor is taken as 1 for controlled landfill, which is in accord with the tool. CLOSED
- Section B.6.3 of the PDD
 - Collection efficiency is considered as 75% as per information available on EPA website. Please

<p>refer section 2.4.4.2 of the chapter available on http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf . CLOSED</p> <ul style="list-style-type: none"> Flare efficiency is taken as default flare efficiency for closed flares i.e. 90%. CLOSED PENDING closure of CAR#05 <p>j. ER calculation</p> <ul style="list-style-type: none"> Please confirm the crediting period as raised in CL#20 and accordingly provide the ER calculation sheet. OPEN 	
Project Participant Response:	Date: 14/04/2011
<p>b. (5) . The calculation of AF is based on 2007 data before the project start activity</p> <p>c. The waste projection is modified to reflect the trend observed during the first 6 years of operation and contractual quantities</p> <p>f. Response to CAR#05 provided above</p> <p>i. (3) Response to CAR#05 provided above</p> <p>j. A fixed crediting period is used</p>	
Documentation Provided by Project Participant:	
<p>Revised PDD Version 6 dated 14th April 2011.</p> <p>The revised ER calculations: File: CER_Calculations_Fes Landfill_20110414.xls</p>	
Information Verified by Lead Assessor:	
<p>PDD version 6, dated 14/04/2011 was checked by the assessment team.</p> <p>ER calculation sheet was checked by the assessment team.</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
<p>a. CLOSED on 14/07/2010</p> <p>b. AF is now correctly considered. CLOSED</p> <p>c. The waste quantities considered is now as per past records and as per the agreement. CLOSED</p> <p>d. CLOSED on 29/03/2011</p> <p>e. CLOSED on 14/07/2010</p> <p>f. EF is found to be correctly calculated and the vintage of data has been checked and found correct. This is discussed under CAR#05. CLOSED</p> <p>g. CLOSED on 14/07/2010</p> <p>h. CLOSED on 29/03/2011</p> <p>i. It is discussed as below;</p> <ul style="list-style-type: none"> CLOSED on 14/07/2010 CLOSED on 14/07/2010 EF is found to be correctly calculated and the vintage of data has been checked and found correct. This is discussed under CAR#05. CLOSED <p>j. ER calculation is now in accord with the crediting period. CLOSED</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 12/12/2012
<p>CAR reopened</p> <ol style="list-style-type: none"> PP is requested to include an explanation on ignoring $BE_{HG,y}$ and $BE_{NG,y}$. PP is requested to provide the source document for the: <ol style="list-style-type: none"> gas engine availability considered (85%) and transmission losses 38% engine efficiency, specifically as it is for Jenbacher engines and not for the engine under consideration Source document for density if methane considered There is no method defined to estimate the quantity of methane that would be destroyed being used in the leachate evaporation system. The equations adopted to estimate $F_{CH4, sent_flare,y}$ have not been defined in the PDD. The equations used to determine $BE_{EC,y}$ have not been defined in the PDD. The equations used to determine $F_{CH4, EL,y}$ have not been defined in the PDD. The value used for η_{PJ} is inconsistent between PDD (which states it as 75%) and that used in the ER sheet (which uses 60%). PP has referred to EPA's document for the assumed 75%. However it gives a range of 60%-85%; hence PP is requested to demonstrate how 75% is more conservative. The source document for auxiliary consumption provided by the PP is from Ener G, which states this value 	

for 165 kW engines. PP is requested to confirm if this is applicable to the 375 kW electricity gensets as well.	
Project Participant Response:	Date: 15/03/2013
<ol style="list-style-type: none"> 1. Same has been included. These are not relevant in case of project activity. 2. 85% availability is standard assumption used in similar projects. It can be crosschecked with other registered projects too. Furthermore, even if availability is increased to 100% which is a theoretically maximum value, the equity IRR does not cross the benchmark. This efficiency is standard assumption based on experience. However, even if this value is increased to 100%, which is not possible, the equity IRR does not go beyond 11.4%. The source of methane density is applied methodology and tool at NTP. 3. This is conservatively neglected as baseline emissions are not considered for this component. 4. Now corrected. 5. Now corrected. 6. Now corrected. 7. The error in the PDD has been corrected. The value considered is 60%. However, even if 85% is considered in the investment analysis the value of IRR remains only 11.4%, which is below the benchmark. 8. The value of auxiliary consumption for a higher capacity would be correspondingly higher and therefore would reduce the net electricity output. The impact of considered value is conservative as and same has been presented in the PDD. 	
Documentation Provided by Project Participant:	
Revised PDD Version 10, dated 15/03/2013	
Information Verified by Lead Assessor:	
Revised PDD, Version 10, dated 15/03/2013 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 26/04/2013
<ol style="list-style-type: none"> 1. PP has revised the PDD, stating that, "BENG,y and BEHG,y are not relevant in case of proposed CDM project activity therefore these have been ignored." This was found to be ok with regard to the project activity description and was accepted. CAR closed. 2. The justification provided by PP was found to be acceptable. Even if 100% availability is considered the IRR of the project activity turns out to be 13.38%. This is less than the benchmark value of 14.09%. Even if the engine efficiency is assumed to be 100%, the IRR reaches 11.40%. This is also below the benchmark value of 14.09%. Thus the justification provided by PP was accepted. The density of methane was verified from the tool "Project Emission from Flaring", version 2.0.0 (http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v2.0.pdf) and was found to be correct. CAR closed. 3. The justification provided by PP was found to be acceptable. CAR closed. 4. The equation is still not included in the PDD as per the tool "Project Emission from Flaring", version 2.0.0. CAR open 5. Equation to calculate $BE_{EC,y}$ not yet mentioned in PDD in accordance with the applied methodology. CAR open 6. Equation to calculate $F_{CH4,EL,y}$ not yet mentioned in PDD in accordance with the applied methodology. CAR open 7. The value of η_{PJ} has been assumed to be 60%. However methodological tool "Flaring or use of landfill gas" suggests a default value of 50%. PP has justified that the expected efficiency of the LFG capture system is likely not to exceed 60% based on the experience. The assumption at the time of investment decision was 60% and therefore same has been used in contrast to 50% prescribed as default by ACM0001 V 13.0.0. This can be accepted, considering that the assumed value is on conservative side. CAR closed. 8. The justification provided by PP was found to be acceptable. The quotation from Kraft Power Corporation was checked. CAR closed. 9. In PDD (Pg. 38), section B.6.3 Under Step A.2: Determination of $F_{CH4,BL,y}$, it is given that $F_{CH4,BL,y} = 2.74\% * BE_{CH4,SWDS,y} / GWP_{CH4}$, whereas in the methodology it is given as zero for case 1. PP is requested 	

to clarify how this equation mentioned in the PDD, is relevant, since as per methodology & PDD section B.6.1, same has been mentioned as $FCH_4, BL_y = 0$. Moreover, PP need to justify, why they have mentioned "No" under "Existing LFG capture and destruction system", since under section A.1 it has been mentioned that "there is no regulatory requirement to deal with this gas and internal decision was made by the Project developer to temporarily burn this gas for safety reason. the burning of this gas took place on an average of 10 days per year". CAR open.

10. Please mention the source for amount of waste inputs entered in the worksheet 'INPUTS' of the ER sheet.
11. GWP Potential of methane is inconsistently mentioned in PDD and CER sheet. PP is requested to put the correct value consistently throughout all the documents.

CAR#011 is open.

Project Participant Response:	Date: 30/04/2013
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1. Closed by auditor
2. The revised IRR and benchmark are now presented in the PDD and annexures.
3. Closed by auditor
4. The equations have been updated now.
5. The equations have been updated now.
6. The equations have been updated now.
7. Closed by auditor.
8. Closed by auditor.
9. The value has been considered as 20% now as per procedures and section has been revised.
10. Same has been mentioned now.
11. GWP of 25 has been used now that is valid for 2nd commitment period.

Documentation Provided by Project Participant:

Revised PDD, version 11, dated 30/04/2013 and supporting documents

Information Verified by Lead Assessor:

Revised PDD, version 11, dated 30/04/2013 and supporting documents were checked by the assessment team.

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 10/06/2013
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1. Already closed.
2. Already closed.
3. Already closed.
4. Found Ok. CAR Closed.
5. Revised PDD was checked. The equation to calculate $BE_{EC,y}$ has been correctly mentioned. CAR closed.
6. Could not be found in PDD. Pls refer point 6 above. CAR open.
7. Already closed
8. Already closed
9. Justification provided by PP was found to be correct. CAR closed.
10. The revised ER sheet was checked by the assessment team and was found to be correct. PP has inserted the source for the amount of waste inputs entered in the worksheet 'INPUTS' of the ER sheet. This was accepted by the assessment team. CAR closed.
11. PP is requested to provide the exact reference for the same. CAR open.

Project Participant Response:	Date: 10/07/2013
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6. The ex post determination has been updated in the revised PDD.
11. Taking note of the para 5 of CMP7 (page 24) under Common Metrics, which directs to the Fourth Assessment Report by IPCC, where the GWP for CH₄ has been stated as 25, it has been used, as applicable.

Documentation Provided by Project Participant:

Revised PDD Version 12 dated 10/07/2013

http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html http://unfccc.int/resource/docs/2011/cmp7/eng/10a01.pdf	
Information Verified by Lead Assessor:	
The revised PDD Version 12 dated 10/07/2013 has been checked for the raised issues.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/06/2013
PP has provided the revised PDD which has been checked and found to be satisfactory. Thus, CAR 11 was closed.	

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CAR	Number:	12	Reference:	B.12.3
Lead Assessor Comment:					
Please provide information regarding the auxiliary power consumption in the project activity. Why the amount of onsite fossil fuel consumption (eg. diesel consumption) has not been considered.					
Project Participant Response:			Date: 18/06/2009		
All auxiliary power of the project activity will be met by landfill gas engine and no fossil fuel based power will be used in the project activity. The emission reduction calculation is done by keeping the fossil fuel based power consumption out because this is not applicable. There will be no diesel/fossil fuel consumption on the site during the project activity.					
Documentation Provided by Project Participant:					
Revised PDD, version 05, dated 31/04/2009					
Information Verified by Lead Assessor:					
Revised PDD version 05, dated 31/04/2009 was checked by the assessment team.					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 15/07/2009		
How the project activity will meet its power requirement in phase 1 when there will be flaring and no electricity generation? Also explain how the power requirements will be met during complete blackout. CAR 12 open					
Project Participant Response:			Date: 10/05/2010		
The project emissions on account of power export in phase I (no power generation on site) has been included in the revised spread sheet for ER. Even in phase II the project emissions for emergency situation of no power generation on site but flaring is being done, has also been included.					
Documentation Provided by Project Participant:					
The revised ER sheet (Attachment B2) and PDD version 03, dated 11/05/2010					
Information Verified by Lead Assessor:					
Revised PDD, version 03, dated 11/05/2010 and ER sheet was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 14/07/2010		
CAR 12 is still open Also explain how the power requirements will be met during complete blackout.					
Project Participant Response:			Date: 27/09/2010		
The power requirement during blackout would be met by a 5Kva diesel generator set. The DG set would supply power to essential loads i.e. computer, scales and lightings. For start up of the power plant, grid electricity would be used and the same has been taken care in the emissions reduction as the PP is claiming the emission reductions on NET electricity exported to the grid only.					
Documentation Provided by Project Participant:					
File Finding 12_5KVA Silent Generator Specs and power blackout needs.pdf					
Information Verified by Lead Assessor:					
File Finding 12_5KVA Silent Generator Specs and power blackout needs.pdf was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 28/03/2011		
As informed by PP, power requirements in case of emergency will be met through DGset for electricity requirement of administrative building having connected load of 2000W as mentioned in the attached document. This will be less than 1% of the total annual emission reductions. As per VVM para 77, this need					

not be included in the project emission calculation. CLOSED					
Acceptance and Close out by Lead Assessor:				Date: 28/03/2011	
Date:	30/10/08		Raised by:	Assessment Team	
Type:	CL	Number:	13	Reference:	B.9.1
Lead Assessor Comment:					
Abbreviations used for few monitoring parameters are not inline to the applicable methodology. Please correct.					
Project Participant Response:				Date: 18/06/2009	
The monitoring plan has been amended in the revised PDD and all abbreviations are now inline to the applied methodology and tools. Please refer the revised methodology.					
Documentation Provided by Project Participant:					
Revised PDD, version 05, dated 31/04/2009					
Information Verified by Lead Assessor:					
Revised PDD version 05 dated 13/04/2009 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2010	
CL is open for the following points in section B.7.1 of the PDD					
d) Monitoring parameters $MG_{PR,y}$ as per ACM0001 is not included as monitoring parameter					
e) Monitoring parameters $tO_{2,h}$ and $fvCH_4,FG,h$ as per the tool for calculating project emission from flaring are not included as monitoring parameter					
f) Monitoring parameter $fv_{i,h}$ on page 48 of revised PDD is not described as per the tool					
g) Monitoring parameters as per "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" are not included.					
h) Pending CL#05 on grid EF.					
Project Participant Response:				Date: 27/09/2010	
d) Monitoring parameters $MG_{PR,y}$ as per ACM0001 is included as monitoring parameter					
e) Monitoring parameters $tO_{2,h}$ and $fvCH_4,FG,h$ as per the tool for calculating project emission from flaring are included as monitoring parameter					
f) Monitoring parameter $fv_{i,h}$ on page 48 of revised PDD is described as per the tool					
g) Monitoring parameters as per "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" are included.					
Documentation Provided by Project Participant:					
6. Revised PDD Version4, dated 27/09/2010 (File: PDD_Fes_Version4.doc)					
Information Verified by Lead Assessor:					
Revised PDD version 04 dated 27 th Sep 2010 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 28/03/2011	
a) $MG_{PR,y}$ is included in the monitoring plan of revised PDD version04 dated 27 th Sep 2010. CLOSED					
b) Monitoring parameters for calculation of project emission from flaring have been included in revised PDD. CLOSED					
c) Monitoring parameters of methane avoidance tool that are required to be monitored in order to calculate $MG_{PR,y}$ must be included. OPEN					
d) EF is fixed ex-ante, hence not required to be monitored. CLOSED					
e) Please clarify how in case of thermal treatment methane in the LFG will be completely destroyed, and how this can be monitored. OPEN					
Project Participant Response:				Date: 14/04/2011	
c) The monitoring parameters of methane avoidance tool that are required to calculate $MG_{PR,y}$ are added to Annex 3					
e) The LFG that will be sent to the leachate evaporator will be burned at the evaporator's burner at 1800 °F (as per the manufacturer's specs) and thus completely destroyed. The evaporator is also equipped with a continuous mass flow meter to monitor the quantity of LFG being combusted at the evaporator.					
Documentation Provided by Project Participant:					
Revised PDD Version 6 dated 14 th April 2011.					

Information Verified by Lead Assessor:	
Revised PDD version 06 dated 14/04/2011 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
c) All monitoring parameters have been added and the monitoring plan in the PDD version 06 is found complete. CLOSED	
e) It is clarified how LFG will be destroyed in the leachate evaporator. CLOSED	
Acceptance and Close out by Lead Assessor:	Date: 21/07/2011

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CL	Number:	14 a&b	Reference:	B.11 & B.13.7
Lead Assessor Comment:					
Why QA/QC procedures have been deleted from operation of the energy plant (the parameter to be monitored) and flare efficiency? Also please state about the calibration frequency of the monitoring equipments in OA/QC column. Please explain the procedures in case of data missing and adjustment.					
Project Participant Response:				Date: 18/06/2009	
The QA/QC procedures as been mentioned for all parameters in the revised PDD. Please refer the revised version of the PDD in view of the above changes. In case of data missing the best conservative approach will be taken into account for doing the emission reduction calculations. This information has been mentioned in section B.7.2.					
Documentation Provided by Project Participant:					
Revised PDD, Version 05, dated 31/04/2009					
Information Verified by Lead Assessor:					
Revised PDD, Version 05, dated 31/04/2009 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2010	
QA/Qc have been included, finding is closed.					
Acceptance and Close out by Lead Assessor:				Date: 14/07/2010	

Date:	30/10/08		Raised by:	Assessment Team		
Type:	CL	Number:	15	Reference:	C.1.1	
Lead Assessor Comment:						
Please provide the supportive document, inline to the EB41 para 67 for the starting date of the project (1st Jan'08)						
Project Participant Response:				Date: 18/06/2009		
The project activity started on February 21, 2008 when the project developer purchased the blowers, flare and pre-treatment equipment for the biogas. Jan 1 st 08 was a typo. The PDD for the project was webhosted from 19 August, 2008 to 17 September 2008.						
Documentation Provided by Project Participant:						
Purchase of Blowers and Flare, import documents dated 21/02/2008, Attachment A-7						
Information Verified by Lead Assessor:						
Purchase of Blowers and Flare, import documents dated 21/02/2008, Attachment A-7 was checked by the assessment team						
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/07/2009		
The document is not clear in terms of date (if stamped date is referred). The document also has one more date i.e. 29/01/2008. Please explain the difference and provide a clear copy. Please make note that as per EB 41 para 67 the commitment to financial expenditure is adequate and not necessarily the date of payment. CL open						
Project Participant Response:				Date: 10/06/2010		
The clear copy of the import document for equipment is included in Attachment A-7. The date of commitment is indicated in the box with the seal from the bank.						
Documentation Provided by Project Participant:						
Attachment A7: Import Documents						

Information Verified by Lead Assessor:	
Hard Copies: Attachment A7 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 14/07/2010
Pending closure of CAR#08	
Project Participant Response:	Date: 27/09/2010
See response to CAR#8 and supporting documents	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 29/03/2011
<p>a) The start date is taken as 21st Feb 2008 the date of approval of import indenture by the Ministry Incharge of Foreign Trade. The import indenture is placed for 'waste biogas treatment installation' which is the commercial name of goods, and the importer is 'Ecomed Gestion des Dechets'. The starting date is found to be earliest real action and in accord with the CDM glossary. CLOSED</p> <p>Finding is added,</p> <p>b) Please provide evidentiary documents for the operational lifetime of 30 years. If it is 30 years, please clarify as the lifetime of gen sets is mentioned as 15-20 years. OPEN</p>	
Project Participant Response:	Date: 14/04/2011
The operational lifetime of the project is 20 years as specified in the contract amendment between the project developer and the Commune Urbaine de Fes. The amendment specifies that the end of the project is December 2031, thus 20 years from starting date in C.2.2.1.	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14/04/2011 and Attachment A-4B.	
Documentation Provided by Project Participant:	
Revised PDD Version 6 dated 14/04/2011 and Attachment A-4B was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 10/06/2013
The operational lifetime of the project activity has been found correct.	
<p>This CL was further reopened as the revised PDD states that the project life time is 15 years, under section C.1.2 of the PDD. Further PP was also requested to justify why the assessment period of the project activity has been considered as 15 years only, considering that the project life time is 20 years ? PP is requested to justify the assessment period for the project activity as per para 3 of EB 62, Annex 5. CL open.</p>	
Project Participant Response:	Date: 10/07/2013
<p>The project operational life can be upto Dec 2031, as per the landfill contract and based on the assumption that gas engine may operate for 15-20 years. However, the assumption that gas engines runs for approximately upto 60,000 hours without undergoing major overhaul. In fact EB 50 Annex 15 prescribes only 50,000 hours for gas based generators. Considering the LFG gas is more detrimental to gas engines as compared to other gas e.g. natural gases, the operational life time of the gas engines would be significantly less. On the other hand, if 50,000 as prescribed by EB50 Annex 15 is considered the operational life of gas engines would be much less than 15 years. Therefore, the considered life time as 15 years is conservative and it also does not take into account the cost associated with major overhauls and also considers a salvage value.</p>	
Documentation Provided by Project Participant:	
<p>EB 50 Annex 15</p> <p>http://www.clarke-energy.com/service/upgrades-repair-and-overhaul/ (as a crosscheck that gas engines typically require major overhaul at 60,000 hours)</p>	
Information Verified by Lead Assessor:	
The justification provided by the PP has been checked and also the supportive weblink has been checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/06/2013
<p>The justification provided by the PP has been found to be satisfactory, since the operation lifetime of the gas engine i.e. running hour of the gas engine has been considered on a conservative side and the supportive evidence i.e. the weblink also confirm the running hours of the same, since the EB 50, annex 15 prescribes only 50,000 hours which is less than the running hour considered in the project activity. Moreover, the period of the assessment i.e. 15 years is reasonable in context to the current project activity, considering the fact that</p>	

PP has considered 10 % salvage and the IRR remains below the benchmark, even if with a 25% salvage value, the IRR still remains below the benchmark. Hence, the assessment period of 15 years is suitably justified by the PP and same is found to be satisfactory. Thus, CL 15 was closed.

Acceptance and Close out by Lead Assessor: **Date: 24/06/2013**

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CL	Number:	16	Reference:	C.1.1
Lead Assessor Comment:					
EIA which is done in 1999. Please provide the copy of EIA					
Project Participant Response:				Date: 18/06/2009	
An Environmental Impact Assessment for the Fes Landfill was prepared by Sadat International Inc. (SII) in 1999, as a part of the solid waste management plan for the city of Fes					
Documentation Provided by Project Participant:					
A summary of the environmental impact statement is presented in Annex 7 of the revised PDD, version 05, dated 31/04/2009					
Information Verified by Lead Assessor:					
A summary of the environmental impact statement is presented in Annex 7 of the revised PDD, version 05, dated 31/04/2009 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/07/2009	
Please provide the original source of information and confirm if the EIA is duly approved! Please also indicate if the EIA is mandatory requirement in context to project activity. CL open					
Project Participant Response:				Date: 10/05/2010	
The environmental impact study conducted for this project shows that there is no negative environmental impact by this project.					
Documentation Provided by Project Participant:					
Annex 7: Environmental Impact Assessment					
Information Verified by Lead Assessor:					
Hard Copies: Attachment A8 – Annex 7 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2010	
EIA has been conducted for the development and operation of Fes landfill, and the EIA includes landfill gas management aspects. EIA is found to be okay and acceptable for the project activity. However, please clarify whether EIA is mandatory regulatory requirement, and please provide a copy of environmental clearance obtained from the regulatory authority. Furthermore, please clarify whether separate EIA is required for the CDM project activity since flaring installations and power generation plant is being set up.					
Project Participant Response:				Date: 27/09/2010	
An Environmental Impact Assessment was conducted for the development and operation of Fes Landfill. The EIA included the landfill gas management aspects including all aspects of the current project activities such as landfill gas collection and flaring, power production and leachate evaporation. The EIA concluded that there is no negative environmental impact by this project. Furthermore, there is no mandatory regulatory requirement to obtain a regulatory clearance from a regulatory authority as of the start date of the project. The Law n°2-04-563 requiring regulatory clearance of EIAs did not come out until November 4, 2008 and concerns only projects requiring investments in excess of 200,000,000 Dhs which is not even the case for this project.					
Documentation Provided by Project Participant:					
Annex 7 of the revised PDD: EIA Finding 16- Décret n°2-04-563 of 4 November 2008					
Information Verified by Lead Assessor:					
Annex 7 of the revised PDD: EIA was checked by the assessment team Finding 16- Décret n°2-04-563 of 4 November 2008 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 29/03/2011	
EIA which is done in 1999 for the development of the landfill site. And the project activity is basically landfill					

gas recovery and will be beneficial for the improvement CLOSED					
Acceptance and Close out by Lead Assessor:				Date: 29/03/2011	

Date:	30/10/08	Raised by:	Assessment Team		
Type:	CL	Number:	17	Reference:	C.1.1
Lead Assessor Comment:					
d) Please provide the supporting documents that referred stakeholders in PDD have been consulted. e) Please provide the copy of invitation letter sent to stakeholders. f) Please provide the summary of comments received from the stakeholders. g) Please explain how the due account has been taken if any stakeholders comments received.					
Project Participant Response:				Date: 18/06/2009	
a) The supporting documents referring to the stakeholders' consultation are attached to the revised PDD. b) The invitation letter sent to stakeholders is included in the revised PDD. c) The summary of comments received from the stakeholders is included in the revised PDD. d) The participation and response to the stakeholders' comments are included in the revised PDD.					
Documentation Provided by Project Participant:					
a. Attachment A-8 b. Attachment A-8 c. Attachment A-8					
Information Verified by Lead Assessor:					
a. Attachment A-8 was checked by the assessment team b. Attachment A-8 was checked by the assessment team c. Attachment A-8 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/07/2009	
Please provide the original source of information. CL open					
Project Participant Response:				Date: 10/05/2010	
The original references (A-8) is attached for stakeholders' consultation process.					
Documentation Provided by Project Participant:					
Attachment A8: Minutes of Meetings of Stakeholders					
Information Verified by Lead Assessor:					
Hard Copies: Attachment A8 – Invitation letter, Minutes of Meetings of Stakeholders was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 14/07/2010	
As per para 128 of VVM version 1.1, "Local stakeholders shall be invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website." Please note the documents for consultation done has been for the establishment of the landfill. Please provide documents for Local stakeholder consultation for the CDM project activity.					
Project Participant Response:				Date: 27/09/2010	
The stakeholders have been consulted on the proposed project activity in meetings held with the stakeholders					
Documentation Provided by Project Participant:					
Minutes of meeting with the stakeholders: File: Finding 17_ Stakeholders Awareness					
Information Verified by Lead Assessor:					
File: Finding 17_ Stakeholders Awareness was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 28/03/2011	
a) Please note that as mentioned in section E of the PDD version 04, the local stakeholder consultation was held on 5 th June 2006. Please provide list of participants. OPEN b) Please provide the copy of invitation letter/advertisements for this invitation on 5 th June 2006. OPEN c) Summary of consultation process has been provided. CLOSED d) No negative impacts have been identified. CLOSED					

Project Participant Response:	Date: 14/04/2011
a) Actually, there was a typo in the PDD version 4. The local stakeholder consultation was held on 7 th June 2005 instead of 5 th June 2006. A list of participants is added to Annex 5 b) A copy of invitation letter/advertisements for the invitation of 7 th June 2005 meeting is added to Annex 5	
Documentation Provided by Project Participant:	
Revised PDD Version 06 dated 14/04/2011.	
Information Verified by Lead Assessor	
Revised PDD Version 06 dated 14/04/2011 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 21/07/2011
a) List of participants has been mentioned. b) Invitation letter has been checked and found correct. CLOSED	
Acceptance and Close out by Lead Assessor:	Date: 21/07/2011

Date:	14/07/2010	Raised by:	Assessment Team		
Type:	CL	Number:	18	Reference:	A
Lead Assessor Comment:					
The version of PDD submitted must be sequential with previous submission. Please correct.					
Project Participant Response:				Date: 27/09/2010	
The version of the PDD has been corrected					
Documentation Provided by Project Participant:					
Revised PDD Version4 (File: PDD_Fes_Version4.doc)					
Information Verified by Lead Assessor:					
Revised PDD Version4 (File: PDD_Fes_Version4.doc) was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 28/03/2011	
Please note the following submission of PDD; <ul style="list-style-type: none">PDD version 04, 1st July 2008 – Webhosted on 19th August 2008PDD version 05, 13th April 2009- 1st PP Response to Findings dated 18/06/2009PDD version 03, 11th May 2010 - PP Response to Findings dated 10/05/2010PDD version 04, 27th September 2010 - PP Response to Findings dated 27/09/2010 (actual mail actually received on 10/02/2011) The versions numbers have been repeated for the sequentially revised PDD. Please correct and the version numbers of the submitted PDD and ensure the same in future revisions. OPEN					
Project Participant Response:				Date: 14/04/2011	
The version number has been corrected in the latest version					
Documentation Provided by Project Participant:					
Revised PDD Version 06 dated 14/04/2011.					
Information Verified by Lead Assessor:					
Revised PDD Version 6 dated 14/04/2011 was checked by the assessment team.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 21/07/2011	
Revised PDD Version 6 dated 14/04/2011 was checked by the assessment team and was found to be correct. CAR 18 closed.					
Acceptance and Close out by Lead Assessor:				Date: 21/07/2011	

Date:	14/07/2010		Raised by:	Assessment Team		
Type:	CAR	Number:	19	Reference:	B	
Lead Assessor Comment:						
Section B.6.1 of the PDD - Explanation of methodological choices, h) Equation 7 on page 23 of the PDD is erroneously mentioned.						

- i) For determination of project emission from flaring, all the steps (equations) as per the tool are not included; and determination of volumetric flow rate, determination of hourly efficiency are missing.
- j) Step 4 does not include details on efficiency of degassing system. Please include the same and provide evidentiary document for the same.
- k) Pending CL#05 on grid EF. If calculated as per tool, all the steps must be included.

Section B.6.2 of the PDD

- h) Please mention references of all the values adapted.
- i) Pending CL#11 regarding adjustment factor
- j) Regarding CEF pending CL#5.
- k) Parameters which are to be monitored as per tools included in the methodology ACM0001 version 11 are not included - ("Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site"; "Tool to determine project emissions from flaring gases containing methane"; and other tools as included)

Project Participant Response:

Date: 27/09/2010

Equation 7 on page 23 of the PDD has been corrected in the revised PDD.

All the Steps (equations) as per "Tool to determine project emissions from flaring gases containing methane" have been included in the revised PDD.

The details of the efficiency of degassing system have been included in the revised PDD.

US EPA provides the 75% default value for gas recovery efficiency. The same has been taken from the section 2.4.4.2 in <http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf> (page 11/98)

Documentation Provided by Project Participant:

1. Revised PDD Version 4 (File: PDD_Fes_Version4.doc)
2. <http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf>
3. File: Finding 19 Revised ER calculations.pdf

Information Verified by Lead Assessor:

Revised PDD version 04 dated 27/09/2010 was checked by the assessment team

Revised ER calculations.pdf was checked by the assessment team

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 29/03/2011

Section B.6.1 of the PDD - Explanation of methodological choices,

- a) Equation 7 is corrected. CLOSED
- b) All steps and equations for calculation of project emissions from flaring have been included. CLOSED
- c) Now Step 4 includes details on efficiency of degassing system. CLOSED
- d) It is stated in the PDD that there will be no project emission from electricity consumption and fossil fuel consumption for heat generation. Please clarify whether it is technically possible in case of emergency, and there will be no grid connection for import for the project activity. OPEN
- e) Please discuss if there can be any uncertainty in calculation of emission reduction due to heat generation for leachate evaporation technology. OPEN

Section B.6.2 of the PDD

- a) References of all the values adapted have been included. CLOSED
- b) Pending CL#11 regarding adjustment factor
- c) As EF of grid is calculated and fixed ex-ante. Please discuss how all the steps of the tool have been applied and also mention the formulae used as raised in CAR#05. OPEN

Project Participant Response:

Date: 14/04/2011

Section B.6.1 of the PDD,

- a) The statement concerning project emissions has been corrected in the revised PDD and the equations are added to calculate such emissions including those related to blackout and emergency.
- b) There are no uncertainties in the calculations of emission reduction due to heat generation for leachate evaporation. First of all, there are no baseline emissions for this case, since project electricity consumption is associated with landfill gas capture and flaring, and there is no active capture of LFG or leachate evaporation prior to project implementation. Secondly, regarding project electricity consumption: despite the fact that electricity can be supplied by on-site generation using LFG, in order to be more conservative during the emissions reduction estimation, i.e. higher project emissions, we have assumed that all

<p>project electricity consumption (for blowers and evaporator) come from the power grid. However, please note that Project Participant will implement the monitoring plan as described in sections B.7.1 and B.7.2, including the monitoring of the real electricity consumption from the grid once the project is operational by using an electricity meter.</p>	
<p>Section B.6.2 of the PDD</p> <ul style="list-style-type: none"> a) The justification for adjustment factor has been given in the response to CL#11 above b) The PDD has been revised to mentioned that EF is calculated as per ACM0001, and Tool for calculation of emission factor for electricity systems", ver. 2.1. The tool used is also indicated in B.1 of the PDD. The steps followed to calculate the EF and the justification for choices are added to Annex 3. The EF calculations formulas are provided in the Spread Sheet file: Finding_5 EF Calculations and Supporting Documents.xls 	
<p>Documentation Provided by Project Participant:</p> <ul style="list-style-type: none"> a) Revised PDD Version 6 , dated 14/04/2011. b) Spread Sheet file: Finding_5 EF Calculations and Supporting Documents.xls 	
<p>Information Verified by Lead Assessor:</p> <p>PDD Version 6, dated 14/04/2011 was checked by the assessment team EF calculation sheet was checked by the assessment team</p>	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 21/07/2011</p>
<p>Section B.6.1 of the PDD - Explanation of methodological choices,</p> <ul style="list-style-type: none"> a) Equation 7 is corrected. CLOSED b) All steps and equations for calculation of project emissions from flaring have been included. CLOSED c) Now Step 4 includes details on efficiency of degassing system. CLOSED d) It is clarified that there may be electricity consumption and accordingly relevant steps for the calculation of project emission have been included. CLOSED e) It is clarified that there will be no uncertainty in the ER calculation. CLOSED <p>Section B.6.2 of the PDD</p> <ul style="list-style-type: none"> a) References of all the values adapted have been included. CLOSED b) AF is now correctly mentioned as discussed in CAR#11. CLOSED c) As EF of grid is calculated and fixed ex-ante. All the steps of the tool have been applied and the formulae used have been mentioned. CLOSED 	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 12/12/2012</p>
<p>CAR re-opened.</p> <ol style="list-style-type: none"> 1. The PDD states that the project emissions have been calculated as per the latest tool, Project emissions from flaring (Version 02.0.0), whereas the description still applies the equations from the first version of the tool. 2. While using the tool, PP is requested to include the assessment for the usage of both the primary and backup flare. 	
<p>Project Participant Response:</p> <ol style="list-style-type: none"> 1. Now corrected in the revised PDD. 2. Now included. 	<p>Date: 15/03/2013</p>
<p>Documentation Provided by Project Participant:</p> <p>Revised PDD, version 10, dated 15/03/2013</p>	
<p>Information Verified by Lead Assessor:</p> <p>Revised PDD, version 10, dated 15/03/2013 was checked.</p>	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 26/04/2013</p>
<ol style="list-style-type: none"> 1. PP is requested to update the steps to calculate project emission from flaring as per the tool, version 2.0.0. PP is also requested to update all other tools used in the PDD and refer to their latest versions. CAR open 	

2. The assessment for the usage of both the primary and backup flare could not be traced in PDD. CAR open.
3. PP is requested to justify, why only one year Methane generation data has been considered for calculating $BE_{CH_4, BL, y}$
4. Also it is observed in the submitted PDD that 'hourly' reference(Ex: Exhaust Gas Temperature) has been given with regard to Flaring tool but in the latest version of the tool 'minute' wise description is provided. Hence PP is requested to update the PDD accordingly.
5. PP is requested to justify the application of value 1.0 to the parameter MCF.
6. PP is requested to provide the public bid to justify the % value of waste along with the traceability of the same.
7. Why is the parameter 'Wj,x' not included in the list of monitoring parameters
8. PP is requested to clarify if there is any other residual waste added apart from the municipal solid waste.
9. PP is requested to clarify as to why the present referred enclosed flare does not come under the category of 'Low height flares'
10. With reference to the applied methodology, 'Management of SWDS', ' $\eta_{HG, PJ, j, y}$ ', are missing
11. The terminologies like ' $LFG_{total, y}$ ' ' $LFG_{flare, y}$ ' which are given in the list of monitoring parameters are not updated as per the latest version of the methodology.
12. Referring to step A.1 of the methodology, while estimating the ex-post determination of ' $F_{CH_4, PJ, y}$ ', why does the heat generation part not considered in PDD when leachate evaporation is a part of the project activity. PP is requested to clarify. The formula to calculate 'annual project emissions from flaring' given in Pg.31/87 of PDD do not match with that given in the tool.
13. As per the 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version-01, PP should document transparently in PDD as to which sources of electricity consumption were calculated with this tool and, for each source, which scenario (A, B or C, as described above) applies. The same was not found in the submitted PDD. PP is requested to clarify
14. As per the 'Tool to determine the mass flow of a greenhouse gas in a gaseous stream' version-02, PP should document in the CDM-PDD as to which calculation option is applied to calculate the parameter ' $F_{i, t}$ ' (mass flow of a greenhouse gas 'i' in a gaseous stream). The same was not found in the submitted PDD. PP is requested to clarify
15. PP is requested to provide the supporting document for 'Efficiency of LFG capture system' which is taken as 60% in the present project activity
16. While determining Determination of $F_{CH_4, BL, y}$, PP has stated that the project scenario comes under Case 1, "Case 1: No requirement to destroy methane exists and no existing LFG capture system". However from the description of the project activity it is evident that the landfill site had LFG capture and flaring arrangement already installed. PP to justify the mismatch in information.

CAR#019 is open.

Project Participant Response:

Date: 30/04/2013

1. The steps have been updated now in the revised PDD and annexure.
2. The information has been further updated. The primary flare is enclosed flare and open flare is only for back up and exigencies. However, both will be monitored,
3. The methane generation data has been considered based on all the years.
4. The information has been updated as per the applied tool now.
5. This was already seen by auditor during the site visit and is based on the confirmation that the requirements to consider $MCF = 1$ are existing at project site. Infact, the management of landfill is not going to change in future.
6. It was based on a study that was conducted in the month of Feb 2006 and same is provided now.
7. The parameter though is measured by the landfill operator, however in the context of the project

<p>activity, it is not expected that it should be monitored as it is only recommend for Application B.</p> <p>8. Only Municipal Solid Waste is received and that is dumped into the cells. There is no other waste being mixed with it.</p> <p>9. The flare specifications have been provided now.</p> <p>10. Management of SWDS is now included however other two are not relevant for project activity.</p> <p>11. The information has been updated in the revised PDD now.</p> <p>12. The information has been updated in the revised PDD now.</p> <p>13. The information has been updated in the revised PDD now.</p> <p>14. The information has been updated in the revised PDD now.</p> <p>15. As explained earlier, it was assumption based on the experience. However, the value prescribed as 50% is not considered for conservativeness. In any case, the actual ERs would be based on expost monitoring and not on this value.</p> <p>16. The information has been updated in the revised PDD now.</p>	
Documentation Provided by Project Participant:	
<p>Revised PDD Version 11 dated 30/04/2013</p> <p>Revised CER spreadsheet</p> <p>Revised IRR spreadsheet.</p> <p>Waste characterization study</p>	
Information Verified by Lead Assessor:	
<p>Revised PDD Version 11 dated 30/04/2013</p> <p>Revised CER spreadsheet</p> <p>Revised IRR spreadsheet.</p> <p>Waste characterization study</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 10/06/2013
<p>1. The revised PDD was checked. PP has updated the steps to calculate project emission from flaring as per the tool, version 2.0.0. This was accepted, CAR closed.</p> <p>2. PP has revised the PDD. This was checked by the assessment team. The primary flare is enclosed flare and open flare is only for back up and exigencies. Both the two flaring will be monitored and PP has explained the steps of Determination of flare efficiency as per the latest version of the "Project emissions from flaring". This was accepted by the assessment team. CAR closed.</p> <p>3. The methane generation data has been considered based on all the years. This was checked by the assessment team. CAR closed.</p> <p>4. PP has updated the PDD, and the monitoring frequencies has been corrected to once per minute to make it in line with the tool "Project emissions from flaring".</p> <p>5. This was accepted by the assessment team. CAR closed.</p> <p>6. The waste characterization study report "Waste characterization campaign at the fes controlled landfill" as submitted by PP was checked. The waste component as mentioned in the report was found to be consistent with the details as mentioned in the PDD. CAR closed.</p> <p>7. The project activity comes under the application A of methodological tool "Emissions from solid waste disposal sites", as this project mitigates methane emissions from a specific existing SWDS. Hence the parameter, 'Wj,x' not included in the list of monitoring parameters. The justification provided by PP was found to be correct. CAR closed.</p> <p>8. PP is requested to provide a declaration stating that no other waste being mixed. CAR open.</p> <p>9. The flare quotation from Zohn Zinc was checked by the assessment team. The dimension of the flame enclosure is "10'-0" diameter x 40'-0" overall height". Thus this comes under the definition of "Low height flare" of methodological tool, "Project emissions from flaring", (Version 02.0.0). Thus the assumption made in the PDD while determining flare efficiency was found to be correct. CAR closed.</p> <p>10. PP has correctly inserted "Management of SWDS" in the revised PDD, whereas $\eta_{HG,PJ,y}$ is not applicable in the context of the project activity, as it does not involve any emission reduction from any heat generating equipment. The revised PDD was checked and was found to be acceptable. CAR closed.</p>	

11. This was found to be Ok. CAR closed.	
12. This was found to be Ok. CAR closed.	
13. Revised PDD was checked and was found acceptable. CAR closed.	
14. Could not be traced in PDD. CAR open.	
15. The justification provided by PP was found to be acceptable. CAR closed.	
16. Revised PDD was checked and was found to be correct. CAR closed.	
Project Participant Response:	Date: 10/07/2013
8. Declaration by PP has been provided. Further, the parameter is already listed as monitored parameters and will also be monitored.	
Documentation Provided by Project Participant:	
Declaration	
Information Verified by Lead Assessor:	
The declaration provided by the PP has been checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/06/2013
PP has provided a declaration that no other waste being mixed apart from the wastes mentioned in the PDD, which has been checked and found to be satisfactory. Thus, CAR 19 was closed.	
Acceptance and Close out by Lead Assessor:	Date: 24/06/2013

Date:	14/07/2010	Raised by:	Assessment Team		
Type:	CL	Number:	20	Reference:	C
Lead Assessor Comment:					
The length of crediting period is mentioned as 10 years under Renewable crediting period. Please note that maximum length of each renewable crediting period can be for 7 years.					
Project Participant Response:				Date: 27/09/2010	
The length of crediting period under Renewable crediting period is changed 10 years					
Documentation Provided by Project Participant:					
4. Revised PDD Version4 (File: PDD_Fes_Version4.doc), Section C.2.1.2					
Information Verified by Lead Assessor:					
Revised PDD version 04 dated 27 th September 2010 was checked by the assessment team					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 29/03/2011	
In section C, 4. The start renewable crediting period is not mentioned. This must be a futuristic date i.e. expected date of registration and in brackets it can be mentioned “or date of registration”. OPEN 5. Length of crediting period is incorrectly mentioned as the length of renewable crediting period is 7+7+7 years. Please correct as per CDM guidance. OPEN 6. As per the futuristic start date, the ER calculation should be done for all the years of the crediting period. OPEN 7. If the lifetime is shorter than the crediting period, the crediting period and the expected amount of CERs should be adjusted (Please note that the crediting period considered for investment analysis must be same as decided at the time of investment decision. This is because the change in crediting period will impact methane generation potential which is associated with revenues due to electricity generation.)					
Project Participant Response:				Date: 14/04/2011	
1. The start of crediting period is added to the revised PDD 2. A fixed crediting period is used in the revised PDD 3. The ER calculation are done for all the years of the crediting period 4. The life time is longer than the crediting period					
Documentation Provided by Project Participant:					
Revised PDD Version 6 dated 14/04/2011.					
Information Verified by Lead Assessor:					
Revised PDD Version 6 dated 14/04/2011 was checked by the assessment team.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 21/07/2011	

1. The start date of crediting period is not futuristic. OPEN	
2. It is clarified that fixed crediting period of 10 years is applied. CLOSED	
3. ER calculation has been done for 10 years. CLOSED	
4. The operational lifetime is 20 years whereas crediting period is 10 years. CLOSED	
Project Participant Response:	Date: 14/08/2011
The start date of the crediting period has been changed to 1/1/2012	
Documentation Provided by Project Participant:	
Revised PDD, Version 07, dated 14/08/2011	
Information Verified by Lead Assessor:	
Revised PDD Version 07, dated 14/08/2011 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 02/01/2012
Although the start date has been revised in Section C of the PDD, sections A.4.4 and B.6.3 need to be corrected, Issue is OPEN. The investment decision date of April 2006 is not reflecting in the chronology of events.	
Project Participant Response:	Date: 31/07/2012
Same is included now in the revised PDD	
Documentation Provided by Project Participant:	
Revised PDD Version 09, dated 31/07/2012	
Information Verified by Lead Assessor:	
Revised PDD Version 09, dated 31/07/2012, section A.4.4 and B.6.3 was checked by the assessment team	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 04/10/2012
PP has made the corresponding corrections to the PDD, hence issue is resolved.	
Acceptance and Close out by Lead Assessor:	Date: 04/10/2012

Date:	30/08/2013	Raised by:	Assessment Team		
Type:	CAR	Number:	21	Reference:	Section A, B and C
Lead Assessor Comment:					
<p>7. Paragraph 30 of the CDM Project Standard states “<i>Project participants shall provide a description of the proposed CDM project activity or PoA that provides an understanding of the nature of the project and <u>its implementation</u>.</i>” However project description under Section A.1 of the PDD does not provide any indication on the implementation status or projected implementation timeline/ commissioning for the proposed project activity at the landfill site. PP is requested to clarify and modify the section A.1 of the PDD accordingly. CAR open.</p> <p>8. The description on the consideration of emission reduction due to the use of LFG in the leachate evaporation system is not found to be transparent. The description mentioned in Section A.1 (page 2), Section B.2 (page 11) & Section B.4 (page 17) of PDD, version 13 is not consistent. PP is requested to clearly and consistently describe the emission reduction scenario related to the leachate evaporation system- both for the case of methane avoidance and heat generation.</p> <p>iv. Section A.1 (page 2): “<i><u>Therefore, as part of the project activity, any emissions reductions that are occurring on account of combustion of LFG (methane avoidance) in the leachate evaporator system will be claimed by the project participant but there are no fuels being replaced here as currently there is no leachate evaporator system that can be considered part of the baseline or current situation.</u></i>”</p> <p>v. Section B.2 (page 11): “<i>Since, the leachate evaporation system is not existing in the baseline and is actually part of the project activity, it has been conservatively considered that <u>no emission reductions are claimed for the amount of heat generated in the project activity.</u></i>”</p> <p>vi. Section B.4 (page 17): “<i><u>Therefore, there are no emission reductions occurring on account of usage of LFG in the evaporation system as it does not replace any fossil fuel. Therefore, the emission on account of methane avoidance are going to be claimed as it would be done for LFG combusted in the flare system.</u></i>”</p>					

9. "Determination of the emission factor for electricity generation" does not justify which default value (1.3 tCO₂/MWh and 0.4 tCO₂/MWh) as per the Option A2 of Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01 has been adopted for the proposed project activity and the basis of adoption. Whereas the ex-ante ER calculation spreadsheet considered the Grid Emission Factor value as 0.4 tCO₂/MWh. Furthermore, Section B.6.2 also mentions both the default values as the **EF_{grid,y} or EF_{EL,k,y}**; which is not found to be justified. Please clarify. CAR open.
10. The Parameter table for "**EF_{grid,y} or EF_{EL,k,y}**" under "Choice of data" contains some strike out sentences without any justification. Please clarify. CAR open
11. In section A.2.4, the degree symbol is missing from the co-ordinates. CAR open.
12. In section C.2.2, the crediting period is stated as 01/10/2013 but this contradicts the statement in the section B.6.3 (below the table), which states the crediting period start date is 01/08/2013 and end date is 31/07/2013. Please clarify. CAR open.

Project Participant Response:	Date: 05/09/2013
<ol style="list-style-type: none"> 1. The requested information has now been included under section A.1 in the revised PDD and more precisely under heading Project Activities. 2. The information in the revised PDD in the referred section has been updated. However, for the sake of further clarity it is stated here that the emission reductions on account of heat generation in the leachate will not be claimed as there is no replacement of any fossil fuel. On the other hand, the emission reductions for the portion of LFG that will be combusted in the leachate evaporator system will be claimed as part of methane avoidance quite like if combusted in flare system. 3. It is clarified that both the values can be used by the project participant subject to the difference between baseline electricity consumption (here is it generation) and electricity consumption for project/leakage emissions. Therefore, if the net result electricity generation (BE) and consumption (PE/LE) is positive a value of 0.4 tCO₂e/MWh will be used and for situations where net result is negative then 1.3 tCO₂e/MWh will be used. At this time, it has been considered that net result would positive and therefore 0.4 tCO₂e/MWh has been used in the ER spreadsheet. However, in crediting period the situation can be on either side and therefore conservative value will be applied among these two. 4. The strikethrough text indicates that it has not been chosen (as it is given as choice) by the project participant and is only retained for the purpose that it has been excluded. 5. The degree symbol has been inserted in revised PDD in the referred section. 6. The information under section B.6.3 is now made consistent with the other referred sections of the PDD. 	
Documentation Provided by Project Participant:	
Revised PDD Version 14 dated 05/09/2013	
Information Verified by Lead Assessor:	
Revised PDD Version 14 dated 05/09/2013 was checked by the assessment team.	
Reasoning for not Acceptance or Acceptance and Close Out:	Date:
<ol style="list-style-type: none"> 1. The revised PDD, version 14, dated 05/09/2013 was checked by the assessment team. However the implementation status is not yet clearly mentioned. PP is requested to provide date of these activities, technical specification of the equipments installed along with documentary evidences (commissioning certificate/implementation schedule) to support it. CAR open. 2. The section A.1, B.2 & B.4 of the revised PDD version 14, dated 05/09/2013 was checked by the assessment team. PP has mentioned that the emission reductions on account of heat generation in the leachate will <u>not be claimed</u> as there is no replacement of any fossil fuel. On the other hand, the emission reductions for the portion of LFG that will be combusted in the leachate evaporator system <u>will be claimed</u> as part of methane avoidance. This information has been consistently used in the revised PDD. This was accepted by the assessment team. Closed. 3. PP has considered the emission factor value on ex-ante basis, then how the inclusion of two emission factor is appropriate. How the default emission factor value 1.3 tCO₂/MWh is applicable in this project activity? Further, the choice of emission factor as per the tool (EB 39, Annex 7) should be clearly mentioned and justified in section B.6.1, with reference to the project activity. PP is requested to take 	

a corrective action. CAR open.	
<ol style="list-style-type: none"> PP is requested to discuss the appropriate option in B.6.1 section of the PDD. Striking out is not the appropriate approach to justify the choice of option in the PDD, hence PP is requested to take a corrective action and justify the choice in B.6.1 instead of B.6.2. CAR open. The revised PDD, version 14, dated 05/09/2013 was checked and was found to be correct. CAR closed. Section B.6.3 of the revised PDD Version 14 dated 05/09/2013 was checked by the assessment team. The start date of crediting period was found to be consistent with that of the section C.2.2 of the PDD. Closed. 	
Project Participant Response:	Date: 10/09/2013
<ol style="list-style-type: none"> The proposed CDM project activity is not yet completely implemented and therefore there are no evidences available with regard to its implementation as yet. However, majority of pipes that are used in the gas collection wells have been purchased and even placed in the landfill by the project participants. An enclosed flare system and a leachate evaporator unit has also been purchased and is not yet commercially commissioned. The purchased documents/landing documents are attached with the reply for these equipment. However, the gas engines would be installed within 1st year of crediting period after evaluating the actual gas output from the landfill due to delay in the implementation of the project activity. However, for the purpose of description of the project activity and its component these are detailed in section A.3 Table 1 of the PDD already. Closed by auditor. It is unlikely that an emission factor value of 1.3 tCO₂e/MWh will be used, therefore it has been removed from the section. The justification of the choice has been indicated in clear manner under B.6.1 and B.6.2 of the revised PDD. In the revised PDD, the strikethrough text has been removed and the choice made by the PP has been made in clear manner. The choice was already indicated under section B.6.1 but now the value has been provided too. 	
Documentation Provided by Project Participant:	
Revised PDD Version 14.1 dated 10/09/2013 Bill for gas collection pipes (BL Pipes 1.pdf and BL Pipes 2.pdf) Bill of landing (BoL Evaporateur ED 300.pdf)	
Information Verified by Lead Assessor:	
Revised PDD Version 14.1 dated 10/09/2013 was checked Bill for gas collection pipes (BL Pipes 1.pdf and BL Pipes 2.pdf) was checked Bill of landing (BoL Evaporateur ED 300.pdf) was checked	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 11/09/2013
<ol style="list-style-type: none"> The justification provided by PP was found to be acceptable, further section A.1 & section A.3 of the PDD was checked by the assessment team. Thus closed. Already closed. PP has further removed the emission factor of 1.3 tCO₂/MW. The justification have been included in section B.6.2 of the PDD. Section B.6.2 of the PDD has been checked and was found to be correct. CAR closed. <p>The CAR was further reopened as-</p> <ol style="list-style-type: none"> The PP requested to substantiate the description of the technology employed by the project, since section B.2 from the PDD states that one of the uses of the LFG will be to generate steam to evaporate the leachate collected whereas section A.3 of the PDD states that the evaporation is made through direct heat exchange with the combustion chamber and direct contact of the combustion gases with the leachate. The PP is requested to provide a clarification on the inconsistency observed. PP is also requested to provide justification, how the applicability criteria (c) (ii) are applicable to the project activity, with supportive evidences. The PP is requested to provide information on prevailing waste management practices in the region 	

that has been affected by the land fill. The PP is also requested to provide a comparative assessment with verifiable sources of information regarding the amount of waste recycled in the region before and after the implementation of the project activity to demonstrate that the project activity, “do not reduce the amount of organic waste that would be recycled in the absence of the project activity” in line with paragraph 76 of VVS version 4.0.

4. The PP is requested to further substantiate that the basis for discarding the alternative LFG3, LFG4 & LFG5 and justify the exclusion of the alternatives with verifiable documentary evidences. While determining the baseline alternatives for the destruction of LFG, the PP is requested to justify how the paragraph 93 & 94 of VVS version 4.0 has been taken into consideration.
5. The PP is requested to clearly describe the type of flare used in the project activity. If an enclosed flaring has been used, the PP is requested to demonstrate if it is a low height flare as per the definition of tool to calculate ‘Project Emission from Flaring’. The PP is requested to revise the PDD accordingly.
6. In section B.6.1 of the PDD, the PP has mentioned that a default value of flare efficiency will be considered. Considering this fact, the PP is requested to justify, why the steps to calculate flare efficiency steps 2.1 to 2.4 of the tool “Project Emission from Flaring” has been included in the PDD in line with 97 and 98 of VVS version 4.0.
7. As per the page number 8/23 of methodology ACM 0001, version 13 “The gaseous stream the tool shall be applied to the LFG delivery pipeline to each item of electricity generation or heat generation equipment j, or the natural gas distribution system. $F_{CH4,EL,y}$ and $F_{CH4,HG,y}$ are then calculated as the sum of mass flows to each item of electricity generation or heat generation equipment j;”. The PP is requested to justify, how this point has been taken into account in the section B.7.1 of the PDD, while including the parameters to be monitored in line with paragraph 132 of VVS version 4.0.

Thus CAR #21 is open.

Project Participant Response:

Date: 28/02/2014

1.) Considering the leachate evaporator system raises concern over the applicability condition of the methodology it has now been removed from the project description from the revised PDD. The leachate evaporator system will not be implemented at the project site/project boundary. This can be verified by a verifying DOE in the first verification, if raised as FAR.

2.) As responded to item 1.) above, the leachate evaporator system is not part of the project activity therefore the concern with regard to applicability due to this has been addressed.

3.) PDD has been revised to address the concern and references have been included as foot notes. The quantity of MSW that is composted is less than 1% in the entire country as per the report (<http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). The quantity of recycle waste is 10% but that component is non-organic in nature. Therefore, it is not expected the project activity is going to affect and in particular reduce, in any way the organic matter that would have been recycled in the absence of project activity. Please refer PDD section for more references and details.

4.) The PDD has been revised to include the explanation as why LFG3, LFG4 and LFG5 are not plausible with suitable references.

5.) The design specification provided by the Flare Manufacturer are as under;

Flare dimensions: $W \times L \times H = 2229 \times 8298 \times 7434$ (in mm)

Stack height: Effective as 6630 mm and 8805 mm as Total.

The effective height of the stack has been given by the manufacturer as 6630 mm considering a portion of the flare would be utilized to house the 9 burners. The Width (synonymous with diameter in this case) has been prescribed as 2229 (in mm), therefore the height of the flare is approximately 3 times to that of its diameter.

The information with regard to the flare specification has been included in the revised PDD.

6.) The redundant information with regard to the measurement of flare efficiency has been removed. This was inappropriately kept in the PDD in the event PP develops the capability to monitor the required variables in

<p>future. However, now it has been removed and therefore related parameters are also removed in the revised PDD.</p> <p>7.) The revised PDD includes the parameters ($F_{CH_4,EL,y}$ and $F_{CH_4,sent_flare,y}$) separately.</p>	
<p>Documentation Provided by Project Participant:</p> <p>Revised PDD Version 15 dated 28/02/2014</p> <p>Revised IRR spreadsheet dated 28/02/2014 (IRR changed to 4.58%)</p> <p>Revised ER spreadsheet dated 28/02/2014 (No change in ERs, a caption corrected for evaporator)</p> <p>Extract of Flare Specifications and design (from Operation Manual)</p> <p>http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf</p> <p>http://www.un.org/esa/dsd/susdevtopics/sdt_pdfs/meetings2010/icm0310/1c_Samir_Bensaid.pdf</p>	
<p>Information Verified by Lead Assessor:</p> <p>Revised PDD Version 15 dated 28/02/2014 was checked by the assessment team.</p> <p>Revised IRR spreadsheet dated 28/02/2014 (IRR changed to 4.58%) was checked by the assessment team.</p> <p>Revised ER spreadsheet dated 28/02/2014 (No change in ERs, a caption corrected for evaporator) was checked by the assessment team.</p> <p>Extract of Flare Specifications and design (from Operation Manual) was checked by the assessment team.</p> <p>http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf was checked by the assessment team.</p> <p>http://www.un.org/esa/dsd/susdevtopics/sdt_pdfs/meetings2010/icm0310/1c_Samir_Bensaid.pdf was checked by the assessment team.</p> <p>http://www.animaweb.org/uploads/E@C_Morocco_Urban%20services_FINAL.pdf was checked by the assessment team.</p> <p>http://ec.europa.eu/environment/enlarg/med/pdf/morocco_en.pdf (page 146 under MSW) was checked by the assessment team.</p>	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 04/03/2014</p>
<p>1. The revised PDD, version 15, dated 28/02/2014 was checked by the assessment team. The PP has removed the heat generation part of the project activity, and the PP has confirmed that this heat generation equipment will not be installed as a part of the project activity. Now the LFG captured will only be used for generation of electricity in the gas engine and some portion may be flared. The applicability criteria was reassessed after this change in project description, and the assessment team is of the opinion that the applicability criteria of ACM 0001, version 13 has not been affected. In the revised PDD, the description in section A.3 is consistent with the remaining section of the PDD. Thus this point was closed.</p> <p>Consequently, the cost associated with the installation of Leachate evaporator system has been removed from the PDD and corresponding IRR sheet. The removal of cost has resulted in improvement of Equity IRR to 4.58%, which is still below the benchmark i.e., 12%. As the base Equity IRR has changed, there are also changes in the sensitivity threshold however none of the situation, which are realistic, raise the IRR to cross the benchmark. The revised PDD and revised IRR spreadsheet reflects the same. This was checked by the assessment team and was found to be correct. Appropriateness of the same has been checked and confirmed from financial expert involved in the project activity. Also PP submitted revised ER calculation sheet which changes terminology in cell E3, tab "Electricity Production" from "surplus LFG for flare & leachate" to "surplus LFG for flare" without change in emission reductions at all. This is checked and confirmed from Technical Area Expert involved in the project activity. Closed.</p> <p>2. Since, PP was not claiming emission reductions due to Leachate evaporator component of the project activity; hence it was accepted. However, PP has decided not to install any heat generating</p>	

equipment as a part of the project activity. The LFG captured will only be used in the gas engine to generate electricity and some portion may be flared. Thus the applicability criterion (C) of the applied methodology is being met by the project activity. Thus this point was accepted by the assessment team. Closed.

3. The PP has confirmed that the contract to build and operate the controlled sanitary landfill was signed in Dec 2001, which was initially for a period of 10 years that was extended to 20 more years (making it 30 years). The Delegated Management Agreement, dated December 2001, which was signed by Fes Urban Community and the PP, was checked by the assessment team. It is evident that the terms and conditions to operate the land fill site were agreed well before the start date (24/01/2008) of the CDM project activity. As per the agreement no recycling of the waste was required to be undertaken by the PP. This was also checked from the further addendum to the Delegated Management Agreement, ADDENDUM NO.2 TO AGREEMENT NO.1/2002 and no such requirement was there to recycle the incoming waste. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998, also did not suggest any recycling of incoming waste. Thus it was confirmed that there was no recycling of waste before or after the implementation of the project activity.

Further the assessment team also checked during the validation site visit and confirmed that there is no recycling facility in the land fill site.

The prevailing practice of MSW in the region is 1% waste is composted, 10% recycled, 28% land filled and remaining 62% is open dumped at a country level. This was checked from table 1 of Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). From the report the assessment team confirmed that in the host country only 10% of the waste is being recycled, however this is mostly the nonorganic part as confirmed from page number 9 of the report^{78/}. The recycled waste consists of mainly component with high economic value such as oils, metals, glass, paper and cardboard. The implementation of the project activity will not reduce the recycling of waste with high economic value.

Further, the collection of waste in urban area is 82% that goes to 10 operational land fill sites as confirmed from the above referred report. Thus in urban area the prevailing practice is dumping of waste in land fill sites that are in operation. This was also confirmed by the assessment team based on local and sectoral knowledge of the local assessor, who is a part of the assessment team. Thus the assessment team is of the opinion that there is no other prevailing practice of treating the collected waste other than being dumped in the landfill sites.

An assessment of prevailing government rules and regulations regarding treatment of incoming waste (for e.g. recycling) was carried out by the assessment team. The Household Waste Management National Program (HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM) was developed in cooperation between the ministries of the Interior, Finance, and the Environment. One aim of HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM is only to promote the recycling of waste, but does not talk about any mandate in this regard. It was also confirmed by the local assessor, who is a part of the assessment team, that there is no government regulation regarding recycling of MSW, and hence no government organisation is keeping a record of amount of waste recycled.

Further, the fact that in Morocco, land filling is the preferred option was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has stated that "The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....".

Thus the assessment team after validating the documentary evidences referred in the PDD (i.e., Feasibility Study conducted by Sadat International Inc', dated September 1998) , assessing the

prevailing waste management practice based on the local and sectoral knowledge of the assessment team, assessing the prevailing government rules and regulations and physical inspection during the validation site visit confirms that there is no recycling of incoming waste in the landfill site before or after the implementation of the CDM project activity. Further based on the above mentioned assessment the assessment team concludes that recycling is not a well established practice in host country, and the implementation of the project does not affect any recycling activity. The assessment team also confirms that the validation of these applicability criteria of the applied methodology ACM 0001, version 13, has been carried out as per the requirement of paragraph 74-76 of VVS, version 04.0.Closed.

4. **LFG3:** Recycling of organic waste has been ruled out by the PP as an alternative for organic waste. The Delegated Management Agreement, dated December 2001, which was signed by Fes Urban Community and the PP, was checked by the assessment team. As per the agreement no recycling of the organic waste was required to be undertaken by the PP. This was also checked from the further addendum to the Delegated Management Agreement, ADDENDUM NO.2 TO AGREEMENT NO.1/2002 and no such requirement was there to recycle the incoming organic waste. The Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998, also did not suggest any alternative such as recycling of incoming organic waste. Further the assessment team also checked during the validation site visit and confirmed that there is no recycling facility in the land fill site. Thus it was confirmed that recycling of organic waste cannot be an alternative for LFG destruction.

The prevailing practice of MSW in the region is 1% waste is composted, 10% recycled, 28% land filled and remaining 62% is open dumped at a country level. This was checked from table 1 of Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). The report further states that mainly non-organic part is being recycled as confirmed from page number 9 of the report^{78/}. This was confirmed from page number 9, section 2.2 of the report. It is evident from the report that there is no recycling of organic waste in the host country. The assessment team thus is of the opinion that there is no recycling of organic waste in the region. The opinion of local assessor for the host country, who is also a part of the assessment team also confirmed that no such treatment practice for organic waste is prevailing in the region where the project activity is located (i.e., the host country).

An assessment of prevailing government rules and regulations regarding recycling of organic waste was carried out by the assessment team. The Household Waste Management National Program (HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM) was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). One aim of HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM is only to promote the recycling of waste, but does not talk about any mandate in this regard. It was also confirmed by the local assessor for the host country, who is a part of the assessment team, that there is no government regulation regarding recycling of organic part of the waste.

Further, the fact that in Morocco, land filling is the preferred option was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has stated that "The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....". Thus the assessment team is of the opinion that recycling of organic waste cannot be an alternative for LFG destruction.

LFG 4: Aerobic treatment of organic waste has been ruled out by the PP as an alternative for LFG

destruction. The PP has confirmed that less than 1% of waste is being composted in the host country. The composting and open dumping is likely a phenomenon representing the fate of MSW in rural areas. However in the urban area waste is collected (82% collection efficiency) and is being dumped in the nearby land filling sites (10 operational sites). This information was checked from Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). The report further confirms that since 1960, 10 composting units were installed in Morocco, and as of now, all the units are shut down due to numerous technical and economical constraints. Thus the assessment team is of the opinion that the aerobic treatment of organic part of the waste cannot be alternative for LFG destruction.

An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried out by the assessment team. The Household Waste Management National Program (HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM) was developed in cooperation between the ministries of the Interior, Finance, and the Environment as confirmed from Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>). The aim of the HOUSEHOLD WASTE MANAGEMENT NATIONAL PROGRAM, as mentioned in the above referred report does not mention about aerobic treatment of organic waste. It was also confirmed by the local assessor for the host country, who is a part of the assessment team, that there is no government regulation regarding aerobic treatment of organic part of the waste.

Further, the fact that in Morocco, land filling is the preferred option was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has stated that "*The solid waste Law as well as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority in is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....*". Thus the assessment team is of the opinion that aerobic treatment of organic waste cannot be an alternative for LFG destruction.

LFG 5: Incineration has been ruled out as an alternative by the PP. This was supported by the Fes Solid Waste Management Feasibility Study conducted by Sadat International Inc', dated September 1998. The feasibility study rules out incineration on the basis of technical and economical aspects associated with incineration process. The study report also states that incineration is a highly energy intensive process and hence it cannot be taken up as an alternative to the LFG destruction. The feasibility study was checked by the assessment team and the justification provided was found to be acceptable.

An assessment of the prevailing practice of organic waste was carried out by the assessment team. No information regarding incineration of municipal solid waste could be traced in the host country. Incineration is adopted only for industrial hazardous waste & medical waste and these type of waste are not a part of municipal solid waste. This information was confirmed from the Country Report On The Solid Waste Management In Morocco, (link- <http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/CountryreportMorocco-En-mai2011.pdf>).

An assessment of prevailing government rules and regulations regarding aerobic treatment of organic waste was carried out by the assessment team. No government rules or regulation regarding incineration of organic part of the municipal solid waste could be traced. It was also confirmed by the local assessor for the host country, who is a part of the assessment team, that there is no government regulation regarding incineration of organic part of the waste.

Further, the fact that in Morocco, land filling is the preferred option for MSW, was also confirmed from the World Bank published interview of Mr. Jaafar Sadok Friaa, Task Team Leader of World Bank (<http://go.worldbank.org/IWWXXI4MC0>). Replying to the question asked "Is land filling the appropriate approach to municipal solid waste disposal and is there enough emphasis on Reduction/Reuse/Recycle in the reform program?", Mr Jaafar Sadok Friaa, has stated that "The solid waste Law as well

as the National Municipal Program have selected land filling as the most appropriate solution toward improving the current disposal practices. This is common to most of developing countries where immediate infrastructure priority is to replace open dumps with waste management facilities in ways that are protective of human health and the environment.....". Thus the assessment team is of the opinion that incineration of organic waste cannot be an alternative for LFG destruction.

Thus the point raised was successfully addressed by the PP and is closed.

5. The design specification provided by the Flare Manufacturer was checked and was found to be correctly mentioned in the PDD. The PP is requested to confirm if the flare is a low height flare as per the definition of "low height flare" as mentioned in EB 68, Annex 15 (page no 1). The PP is also requested to justify why the default flare efficiency of the enclosed flare has not been adjusted as per the requirement of "Enclosed Flare", under step 2 of EB 68, Annex 15 (page no 3). Open.
6. Section B.6.1 of the revised PDD was checked by the assessment team. The PP has correctly removed the steps to calculate the flare efficiency from the PDD. This was accepted by the assessment team. Closed.
7. PP submitted revised PDD version 15 dated 28/02/2014 which includes the parameters ($F_{CH_4,EL,y}$ and $F_{CH_4,sent_flare,y}$) separately. This is found to be in line with the applied methodology ACM0001 version 13.0. This is found to be appropriate and hence it is accepted.

OPEN.

Project Participant Response:	Date: 06/03/2014
The adjusted value i.e., 80% has been indicated in the revised PDD in section B.6.1 and B.6.2.	
Documentation Provided by Project Participant:	
Revised PDD Version 15.1 dated 06/03/2014	
Information Verified by Lead Assessor:	
Revised PDD Version 15.1 dated 06/03/2014 is checked for appropriateness of adjusted efficiency mentioned as per option A	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 07/03/2014
PP had mentioned adjusted flare efficiency as per option A as 80% in sections B.6.1 and B.6.2 of the revised PDD version 15.1 dated 06/03/2014. This is found to be appropriate and it is accepted.	
Thus CAR #21 is closed out.	
Acceptance and Close out by Lead Assessor:	Date: 07/03/2014

Date:	06/03/2014		Raised by:	Assessment Team	
Type:	FAR	Number:	#22	Reference:	Project Implementation
Lead Assessor Comment:					
PP had confirmed that PP won't install Leachate evaporator system at all. Hence, either captured LFG will be utilised for electricity generation or it will be flared. Verifying DOE needs to check the same at the time of verification of the project activity.					

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: **Vikas Bankar**

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	x
Technical Area(s): <i>TA 1.2 Energy generation from renewable energy sources</i>	
2. Energy Distribution	x
Technical Area(s): <i>TA 2.1 Electricity distribution TA 2.2 Heat distribution</i>	
3. Energy Demand	x
Technical Area(s): <i>TA 3.1 Energy Demand</i>	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by:

**Siddharth
Yadav**

Date:

17/07/2012

Statement of Competence

Name: Ahmed
Rekibuddin

Status

- Lead Assessor		- Expert	
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	

Scopes of Expertise

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

Approved Member of Staff by: Siddharth Yadav Date: 02/11/2012

Statement of Competence

Name: A.T.
Surendra

Status

- Lead Assessor		- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	
Technical Area(s):	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	x
Technical Area(s): TA 13.1: Waste handling and disposal	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 27/03/2012

Statement of Competence

Name: **Natacha Andre**

Status

- Lead Assessor		- Expert	
- Assessor		- Financial Expert	
- Local Assessor	Morocco	- Technical Reviewer	

Scopes of Expertise

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

Approved Member of Staff by: **Siddharth Yadav** Date: **02/07/2012**

Statement of Competence

Name: Chandra Prakash Singh

Status

- Lead Assessor		- Expert	
- Assessor		- Financial Expert	x
- Local Assessor		- Technical Reviewer	

Scopes of Expertise

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

Approved Member of Staff by: Siddharth Yadav Date: 29/10/2013

Statement of Competence

Name: Ramkrishna Patil

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	x
Technical Area(s): TA 1.2 Energy generation from renewable energy sources	
2. Energy Distribution	x
Technical Area(s): TA 2.1 Electricity distribution TA 2.2 Heat distribution	
3. Energy Demand	x
Technical Area(s): TA 3.1 Energy Demand	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 02/07/2012

Statement of Competence

Name: Sameer Rege

Status

- Lead Assessor	<input type="checkbox"/>	- Expert	<input checked="" type="checkbox"/>
- Assessor	<input type="checkbox"/>	- Financial Expert	<input type="checkbox"/>
- Local Assessor	<input type="checkbox"/>	- Technical Reviewer	<input type="checkbox"/>

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	<input type="checkbox"/>
Technical Area(s):	
2. Energy Distribution	<input type="checkbox"/>
Technical Area(s):	
3. Energy Demand	<input type="checkbox"/>
Technical Area(s):	
4. Manufacturing	<input type="checkbox"/>
Technical Area(s):	
5. Chemical Industry	<input type="checkbox"/>
Technical Area(s):	
6. Construction	<input type="checkbox"/>
Technical Area(s):	
7. Transport	<input type="checkbox"/>
Technical Area(s):	
8. Mining/Mineral Production	<input type="checkbox"/>
Technical Area(s):	
9. Metal Production	<input type="checkbox"/>
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	<input type="checkbox"/>
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	<input type="checkbox"/>
Technical Area(s):	
12. Solvent Use	<input type="checkbox"/>
Technical Area(s):	
13. Waste Handling and Disposal	<input checked="" type="checkbox"/>
Technical Area(s): <i>TA 13.1: Waste handling and disposal</i>	
14. Afforestation and Reforestation	<input type="checkbox"/>
Technical Area(s):	
15. Agriculture	<input type="checkbox"/>
Technical Area(s):	

Approved Member of Staff by:

Siddharth Yadav

Date:

12/04/2013