

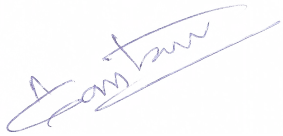


**Validation report form for post-registration changes for
CDM project activities
(Version 03.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Title:- Fes New Landfill Gas Recovery Reuse and Flaring Project UNFCCC Reference No.- 9761
Process track	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	01.2
Completion date of the validation report	10/02/2021
Type(s) of PRCs	<input checked="" type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ¹ <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input checked="" type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <input checked="" type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	16.1
Project participants	Ecomed Gestion des Dechets Commune Urbaine de Fes
Host Party	Morocco
Applied methodologies and standardized baselines	ACM0001: Flaring or use of landfill gas Version 13.0.0
Mandatory sectoral scopes	13: Waste handling and disposal
Conditional sectoral scopes, if applicable	1: Energy industries (renewable - / non-renewable sources)

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

Name and UNFCCC reference number of the DOE	Earthood Services Private Limited E-0066
Name, position and signature of the approver of the validation report	 Ashok K Gautam Director

SECTION A. Executive summary

The project activity is the installation of enhanced landfill gas extraction and flaring equipment for the destruction of the landfill gas and the installation of electricity generation equipment for the electricity generation. The project activity aims to have a total capacity of 2.134 MW consisting of two units each having capacity 1.067MW. However, only one unit of 1.067 MW has been installed so far. The captured LFG is being utilized in the gas engines to generate electricity and is exported to the grid.

The detailed technical specifications of the proposed CDM project activity components are included transparently in the revised PDD. The total estimated amount of annual average GHG emission reductions are 116,494 tCO₂e in the revised PDD.

Scope of Validation

The scope of the services provided by Earthood Services Private Limited for the project is to perform validation of the post-registration changes made for the project activity. The scope of validation is to assess the claims and assumptions made in the revised project design document (PDD) against the UNFCCC criteria, including but not limited to, CDM PS, CDM VVS, applied methodology and other relevant rules and requirements established for CDM project activities.

Validation Process

The validation process is undertaken by the validation team that involves the following:

- the desk review of documents and evidence submitted by the project participant in the context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation report for post-registration changes complying with the CDM requirements

An independent Technical Review team reviews the validation report prepared by the validation team. The final validation report that is accepted by Technical Reviewer is then approved on behalf of Earthood Services Private Limited and processed further as per CDM procedures.

Conclusion

The review of the revised PDD (both in track-change and clean versions), supporting documentation and subsequent follow-up actions (onsite visit and interviews) has provided Earthood with sufficient evidence to determine the fulfilment of stated criteria.

Earthood is of the opinion that the project activity “Fes New Landfill Gas Recovery Reuse and Flaring Project” as described in the final revised PDD version 16.1 dated 22/12/2020 meets all relevant requirements of CDM, meets host country criteria and has correctly applied the methodology ACM0001: Flaring or use of landfill gas Version 13.0.0. Therefore, the project is being recommended to CDM EB for request for its approval for proposed post registration changes with issuance track.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource source	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
2.	Meth. Expert (ACM0001)	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
3.	Technical Expert (TA 13.1)	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y

4.	Local Expert	EI	Boutaleb	Abderrahim	Central Office	Y	N	N	N
5.	Validator	IR	Gupta	Anshika	Central Office	Y	N	N	Y

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer	IR	Gautam	Ashok	Central Office
2.	Technical Expert (TA 13.1)	IR	Gautam	Ashok	Central Office
3.	Approver	IR	Gautam	Ashok	Central Office

SECTION C. Means of validation**C.1. Desk/document review**

The validation for the post registration changes is performed primarily as a document review of the project design document/06/ version (final) 16.1 dated 22/12/2020. The cross checks between information provided in the PDD and information from sources other than those used, if available, the validation team's sectoral or local expertise and, if necessary, independent background investigations.

The complete list of documents/evidences assessed by validation team is included under Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: 30/05/2018-31/05/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Project implementation and operation (project boundary, technology, project equipment, monitoring and metering equipment) and changes as per revised PDD	Wilaya de Fes-Boulemane, Morocco	30/05/2018	Kaviraj Singh
2.	Applicability of methodology(ies)		30/05/2018	Kaviraj Singh
3.	Project boundary and emission sources included in the project boundary.		30/05/2018	Kaviraj Singh
4.	Baseline validity, impact of national & sectoral policies.		31/05/2018	Kaviraj Singh
5.	Monitoring plan (validity of ex-ante parameters)		31/05/2018	Kaviraj Singh
6.	Closing meeting and issuance of findings		31/05/2018	Kaviraj Singh

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Labzae	Sami	ECOMED	30/05/2018 - 31/05/2018	Production facility, Maintenance and operation, Project financing etc..	Kaviraj Singh
2.	Bokkajja	Mohammed	ECOMED	30/05/2018 - 31/05/2018	PDD, ER Calculation, Monitoring Plan, Monitoring Frequency etc.	Kaviraj Singh

C.4. Sampling approach

Not applicable as there is no sampling approach applied.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	-	CAR#04	-
Corrections	-	-	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan	-	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	CL#01 CL#02	-	-
Changes to the project design	-	CAR#03	-
Changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	02	02	

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	The PDD form used is CDM-PDD-FORM version 11/04/, which was the appropriate form, and the latest version available at the time of validation. All the sections of the form were filled as per the guidelines and gave all the relevant details.
Findings	No findings raised.
Conclusion	The updated PDD is completed using the valid version of the PDD form. The information that is transferred in the current version of the PDD is materially the same as that in the registered PDD and in line with the para 279 of the VVS for PA version 02/03/

D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	The temporary deviation is proposed for the period 12/03/2015 to 30/04/2018 as no monitoring was taking place due to implementation delays. Furthermore, for the period from 01/06/2015 to 28/02/2018, the monitoring on ground was not exactly as per registered PDD in terms of frequency; the monitoring frequency of the parameter methane percentage in biogas was monitored on daily basis and not continuously as required by registered PDD. Hence, monthly values have been used to compute the ERs for this period. Further, in view of conservativeness PP has not considered the Emission reduction during the period till February 2018 for methane destruction and emission reduction for power generation is considered during this period. The assessment team has checked the calculation for the said period and found it correct and conservative.
Findings	CAR#04 was raised and resolved.
Conclusion	The deviation complies with the requirements of para 283 of "CDM project standard for project activities" for PA version 2.0./03/

D.3. Corrections

Means of validation	Section A.3 is updated and technical details are revised due to change in design capacity of the project. There are other editorial corrections in other sections of the PDD. There are other editorial corrections in line with the requirement of new CDM-PDD template. The correction doesn't affect the project design and is in compliance with project methodologies. /07/
Findings	No finding raised.

Conclusion	The correction made is line with the para 232 of PS for PA/04/ and para 288 of VVS for PA ver02.0/03/.
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D.4. Changes to the start date of the crediting period

Means of validation	There is no change in the start date of the crediting period as part of this request. However, crediting period was changed before the publication of MR of current MP.
Findings	N/A
Conclusion	N/A

D.5. Inclusion of a monitoring plan

Means of validation	There is no inclusion of monitoring plan.
Findings	N/A
Conclusion	N/A

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	<p>There are permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools as observed during onsite assessment are discussed below:</p> <ol style="list-style-type: none"> Revision in monitoring frequency for parameter Tt: Temperature of the gaseous stream in time interval t frequency of aggregation has been added. The assessment team has reviewed the revised PDD and compared with the registered PDD. The monitoring frequency is continuous for the parameter as per registered PDD. The frequency is updated and it is now as per actual implementation at site. The monitoring frequency is continuous and aggregated hourly as discussed in the revised PDD. The assessment team has found these in line with the requirement of the methodology. Revision in monitoring frequency for parameter Pt: Pressure of the gaseous stream in time interval t frequency of aggregation has been added. The monitoring frequency is continuous for the parameter as per registered PDD. The frequency is updated and it is now as per actual implementation at site. The monitoring frequency is continuous and aggregated hourly as discussed in the revised PDD. The assessment team has found these in line with the requirement of the methodology. Change in the unit of gas flow: Following the original registered PDD, the flow of the biogas ($F_{CH_4,EL,y}$ & $F_{CH_4,sent\ flare,y}$) require to be monitored and reported in m³/h. However, the gas flow for both the parameters were monitored and reported in Nm³/h in the SCADA system. It was observed that the gas flow meter has the inbuilt sensors for temperature and pressure and adjust the values to Nm³/h. The unit of these parameters is now corrected made consistent with the on site implementation. The change is also inline with the applied methodology.
Findings	CL#01 and CL#02 were raised and resolved
Conclusion	<p>The PDD has been validated and are inline with the VVS for PA para 296-299 version 02/03/ and PS for PA version 02/01/.</p> <ol style="list-style-type: none"> The applicability conditions of the applied methodologies were reviewed against the changes in the project activity. The changes are not impacting any of the conditions therefore the applicability of the applied methodology is intact. The monitoring plan in the revised PDD is in line to the registered monitoring plan and the applied methodologies.

D.7. Changes to the project design

Means of validation	The following changes to the project design are being proposed with this post-registration request.
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Reduction in the power plant capacity:

The originally registered PDD proposed the installed capacity of power plant as 3 MW which will consist of 8 individual gas engines of 375 KW each. However, during the commissioning of the project, the proposed installed capacity has been reduced to 2.134 MW which would consist of two separate gas engines of 1.067MW each. However, currently, only one gas engine of installed capacity of 1.067 MW has been installed and the second engine would be installed at the later stage.

Assessment of the changes:

The original project design document considered the installation of 3 MW of electricity generation capacity combining 8 units having capacity of 375KW each. However, based on the availability of landfill gas, PP has decided to reduce the installed power generation capacity to 2.134 MW. PP has decided to install only 2 units, each having a capacity of 1.067MW. This decision to reduce the capacity is mainly due to the lack of availability of landfill gas. The arguments presented by PP for a reduction in capacity was discussed and cross verified during site visit assessment and also a thorough document review was conducted and it is confirmed that the plant capacity has been reduced.

Since the additionality was carried out based on investment analysis in the original registered PDD, the assessment team has checked the impact of reduction and change in the power plant capacity on the additionality of the project through by reassessing the revised investment analysis and concluded that the project remains additional with the revised and reduced capacity of the power plant. The assessment team also confirms that the project participants have only modified the parameters in the original investment analysis spreadsheet calculations which are affected by the proposed or actual changes to the project activity. It is confirmed the IRR for the project activity with revised modified parameters is still found less than the benchmark and the project stands additional. The summary of the assessment conducted is explained in the following section of the report.

Particulars	Total Cost MAD (DH)	Source of information	MoV
Blowers and Gas Pretreatment	1,310,690	Blowers and Gas Pre-treat Quote from EII 2006	There is no change in this component and the cost remain unchanged. This cost was validated by the validating DOE during the registration of the project and also approved by UNFCCC. The assessment team has cross-checked the value with the registered documents and found it correct and consistent. Since there is no change in this value and the system, the assessment team considered this value correct.
Flare	1,370,656	Flare Quote from John Zinc 2006	This cost was validated by the validating DOE during the registration of the project. The assessment team has cross-checked the value with the registered documents and found it correct and consistent. Since there is no change in this value and the system, the assessment team considered this value correct.
Gensets	26,219,370	Offer Letter for the Gas	This cost is revised due to reduction in installed capacity of

			Generated dated 15/01/2013	the power generation plant. The revised cost is considered in the revised IRR calculation is taken from the offer letter dated 15/01/2013 by 2G solutions /9/. The assessment team has checked and reviewed the offer letter and found it correct and consistent with the details used for the calculation for the revised IRR. The assessment team has also cross verified the cost of GS engine mentioned in proposal with the actual cost paid for the purchase of one gas engine and found comparable/14/. Power generation data for the year 2016 was checked by the assessment team during onsite assessment to confirm the installed capacity of the generator is 1.067 MW on the date of the site visit. The capacity of the installed generator is also checked from the nameplate details during the physical inspection and found to be consistent with the revised PDD.
	HDPE Pipes	1,620,288	Pipes Quote from Plastima 2006	This cost is validated during the registration of the project and also approved by UNFCCC. The assessment team has cross-checked the value with the registered documents and found it correct and consistent. Since there is no change in this value and the system, the assessment team considered this value correct.
	TOTAL	30,521,003		

Results of the investment analysis:

The complete financial model and all assumption are provided in the excel spreadsheet as well as in revised PDD. Based on the assumptions in the financial model it is evident that the project activity has an equity IRR of 6.95% without considering the carbon revenues of the project.

Benchmark	12.0%
Project activity's Equity IRR without CDM revenues	6.95 %

The table above is the result of investment analysis and it indicates that the return on equity of the project activity is below the sectoral benchmark without taking into account CDM revenues. Thus, it is confirmed that the project is still additional.

Sensitivity analysis:

In the sensitivity analysis, the return on equity is subjected to sensitivities in key project assumptions. In line with EB62 Annex 5 guidance, only those values that constitute more than 20% of the total project costs or total project revenues should be subjected to a reasonable variation. Key assumptions for sensitivity analysis are provided in table below and subjected to sensitivities of +/- 10%. The impact of the

sensitivity analysis on the overall equity IRR of the project activity is presented below:

Variable	Sensitivity		
	-10%	0%	+10%
Capital Cost	8.98%	6.95%	5.29%
Electricity Tariff	4.07%	6.95%	9.82%
Electricity Generation	4.60%	6.95%	9.30%
O&M Cost	7.48%	6.95%	6.42%
Efficiency of gas engine	6.41%	6.95%	7.24%
Benchmark	12.0%		

Based on the outcome of the sensitivity analysis, the validation team has concluded that the equity IRR for this project activity does not cross the benchmark considering the above variations.

Furthermore, following additional analysis was also undertaken by PP and it is demonstrated that the equity IRR does not cross the benchmark if,

- a) The equity portion is changed from 50% to any other % i.e., 10% - 100%
- b) The availability of gas engines is increased from 85% to 100%
- c) The auxiliary load of gas engines and transmission losses are ignored
- d) The LFG recovery rate is increased from 60% to 100%
- e) The salvage value is considered from 10% to 100%
- f) The overheads and administrative cost considered 0
- g) The gas engine efficiency is considered 100% in place of 38%.

Therefore, it is extremely unlikely that any of the key assumptions will exceed to the breaching value and therefore we conclude that the sensitivity analysis confirms that the project activity is financially unattractive without considering the benefits of CDM.

The revised analysis sheet is reviewed by the assessment team and it is confirmed that all values considered are correct. The calculation is also reviewed and it is confirmed that the calculation is correct and in line with requirements of the investment analysis Tool. Hence, the assessment team has confirmed that there is no impact on additionality due to change in project design and the project still remains additional.

The revision would not lead to any increase in the emission reductions resulting from the project activity. The emission reduction are reduced due to reduce capacity of energy generation. All the formulas used to calculate emission reductions have been validated and approved by the DOE. Changes proposed in the report are as per the methodologies/7/

Findings	CAR#03 was raised and resolved.
Conclusion	<p>The changes requested by the project participant has been validated to be inline with the VVS for PA para 301-304 version 02/03/ and PS for PA version 02/01/.</p> <ol style="list-style-type: none"> 1. The capacity of the project is reduced leading to reduction in emission reduction units and applied changes does not impact the additionality of the project. 2. The applicability conditions of the applied methodologies were reviewed against the changes in the project activity. The changes are not impacting any of the conditions therefore the applicability of the applied methodology is intact. 3. The monitoring plan in the revised PDD is in line to the registered monitoring plan and the applied methodologies.

D.8. Changes specific to afforestation and reforestation project activities

Means of validation	NA
Findings	NA

Conclusion	NA
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SECTION E. Internal quality control

The draft validation report for post registration changes prepared by the validation team was reviewed by an independent technical review team to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team were independent of the validation team.

The technical review process may accept or reject the validation opinion or raise additional findings in which case these must be resolved before requesting for registration. The technical review process is recorded in the internal documents of ESPL and the additional findings gets included in the report.

The final report approved by the technical reviewer is authorized by Managing Director and issued to PP and/or submitted for request for registration, as appropriate on behalf of ESPL.

SECTION F. Validation opinion

The validation of “Fes New Landfill Gas Recovery Reuse and Flaring Project” for post registration changes was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities.

The project is having the total capacity of 2.134 MW consisting two units each having capacity 1.067MW.

It is demonstrated that the project is not a likely baseline scenario and the emission reductions attributable to the project are, hence, additional to any that would occur in the absence of the proposed CDM project activity. The project correctly applies the approved baseline and monitoring methodology/07/ ACM0001: Flaring or use of landfill gas Version 13.0.0. and is assessed against latest valid CDM PS, VVS and PS and/or other applicable CDM Decisions/Tools/Guidance/Forms.

The proposed CDM project activity is likely to achieve the anticipated emission reductions stated in the revised PDD provided the underlying assumptions do not change. The expected emission reductions (annual average) from the project activity are estimated to be 116,494 tCO₂e per year over the selected fixed 10 years crediting period. The proposed CDM project activity is likely to achieve the anticipated emission reductions stated in the PDD provided the underlying assumptions do not change.

ESPL has informed the project participants of the validation outcome through the draft validation report and final validation report. In case of negative validation outcome, the final validation report is only submitted to PP. The final validation report contains the information with regard to fulfilment of the requirements for validation, as appropriate.

ESPL applied the following validation process and methodology using a competent validation team;

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking/conducting site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation opinion based on the auditing findings and conclusions
- technical review of the draft validation opinion along with other documents as appropriate by an independent competent technical review team
- finalization of the validation opinion (this report)

The review of the PDD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria.

ESPL is of the opinion that the project activity “Fes New Landfill Gas Recovery Reuse and Flaring Project” as described in the final PDD /06/ does meet the stated criteria of CDM, meets host country criteria and has correctly applied the ACM0001: Flaring or use of landfill gas, Version 13.0.0/07/. Therefore, the project is being recommended to CDM EB for request for post registration changes.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
AM	Approved Methodology
ACM	Approved Consolidated Methodology
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon di oxide
CP	Crediting Period
DNA	Designated National Authority
DR	Desk Review
DOE	Designated Operational Entity
EB	Executive Board
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GW	Giga Watt
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kW	kilo Watt
kWh	kilo Watt hour
LoA	Letter of Approval/Authorization
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
N ₂ O	Nitrous Oxide
ODA	Official Development Assistance
OM	Operating Margin
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PLF	Plant Load Factor
PoA DD	Programme of Activities Design Document
PP	Project Participant
PRC	Post registration changes
PS	Project Standard
RFR	Request for Registration
tCO ₂ e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Kaviraj Singh		
Country	India		
Education	Ph.D. (Environmental Engineering), IIT Delhi Masters (Energy & Environmental), DAVV Indore		
Experience	15 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-II.D., ACM0006, AMS-I.A., AMS-I.C., AMS-II.B., AMS-III.H, ACM0002, ACM0001, AM0080		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1, TA 13.2)		
Reviewed by	Abhishek Mahawar	Date	26/09/2019
Approved by	Ashok Gautam	Date	26/09/2019

Competence Statement			
Name	Anshika Gupta		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	4 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.A., AMS-II.G., ACM0002, AMS-III.A.V.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	Yes (TA 1.2, TA 3.1)		
Reviewed by	Shreya Garg	Date	12/03/2019
Approved by	Kaviraj Singh	Date	12/03/2019

Competence Statement	
Name	Abderrahim Boutaleb
Country	Morocco

Education	Masters in Renewable Energy and Environment		
Experience	17 years		
Field	Energy, Environment		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	YES (Morocco)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Shreya Garg	Date	21/05/2018
Approved by	Anshika Gupta	Date	21/05/2018

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0009, AM0034, AMS.I.B, ACM0003		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shreya Garg	Date	25/05/2020
Approved by	Kaviraj Singh	Date	25/05/2020

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for PA	Ver. 2	Others
2	UNFCCC	Standard: CDM PCP for PA	Ver. 2	Others
3.	UNFCCC	Standard: CDM VVS for PA	Ver. 2	Others
4.	UNFCCC	Form: CDM-PDD-FORM	Ver. 11	Others
5.	UNFCCC	Approved PDD	Version 15.1 dated	Others

			06/03/2014	
6.	PP	Revised PDD	Version 16.1 22/12/2020	Others
7.	UNFCCC	ACM0001: Flaring or use of landfill gas.	Version 13	Others
8.	SGS	Validation report	Dated 13/03/2014	Others
9.	2G solutions	Offer letter for Gas Engine for power generation from landfill	Dated 15/01/2013	PP
10.	PP	Revised IRR calculation sheet	Dated 22/12/2020	PP
11.	PP	Revised ER calculation sheet	Dated 22/12/2020	PP
12.	UNFCCC webpage	List of projects in Morocco	List of projects	Others
13.	PP	Monitoring data	Monitoring data for the year 2016	PP
14.	PP	Invoices for the actual cost of Gas Engine	NA	Others

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	01	Section no.	D.6.	Date : 31/05/2018
Description of CL				
Registered PDD version 15.1 requires the monitoring of the parameters 'Temperature of the gaseous stream in the time interval t'. No monitoring and recording of this parameter was conducted separately, however, the temperature of the biogas is being monitored by gas flow meters.				
Project participant response				Date : 20/03/2020
<i>The changes are considered under post registration changes. The revised PDD is submitted to the DOE.</i>				
Documentation provided by project participant				
<i>Revised PDD.</i>				
DOE assessment				Date: 27/03/2020
PP has provided the revised PDD to the assessment team. Assessment team has reviewed the revised PDD and it is observed that the changes are transparently discussed in revised PDD. The assessment team found these changes in line with requirement of the methodology and as observed during onsite audit. Hence, CL#01 is considered to be closed.				

CL ID	02	Section no.	D.6.	Date : 31/05/2018
Description of CL				
Following the registered PDD version 15.1, the flow of the biogas ($F_{CH_4,EL,y}$ & $F_{CH_4,sent\ flare,y}$) require to be monitored and reported in m ³ /h. The gas flow for both the parameters was reported in Nm ³ /h in the SCADA system. However, it was observed that the gas flow meter has the inbuilt sensors for temperature and pressure and adjust the values to Nm ³ /h. The unit of the recording parameters are not inline with the registered PDD.				
Project participant response				Date : 20/03/2020
<i>The changes are considered under post registration changes. The revised PDD is submitted to the DOE.</i>				
Documentation provided by project participant				
<i>Revised PDD.</i>				
DOE assessment				Date: 27/03/2020
PP has provided the revised PDD to the assessment team. Assessment team has reviewed the revised PDD and it is observed that the changes are transparently discussed in revised PDD. The assessment team found these changes in line with requirement of the methodology and as observed during onsite audit. Hence, CL#02 is considered to be closed.				

Table 2. CARs from this validation

CAR ID	03	Section no.	D.7.	Date : 31/05/2018
Description of CAR				
Registered PDD version 15.1 section A.3 mentioned that there will be 8 gas engines of 375 kWe and the total of 3 MW will be installed. However, it was observed during the site visit, that only 1 gas engine of 1067 kW was installed. The above referred section of the PDD was not followed during onsite implementation of the project activity technology specifications.				
Project participant response				Date : 20/03/2020
<i>The changes are considered under post registration changes. The revised PDD and revised investment analysis calculation is submitted to the DOE.</i>				
Documentation provided by project participant				
<i>Revised PDD, IRR calculation sheet.</i>				
DOE assessment				Date: 27/03/2020
PP has provided the revised PDD to the assessment team. Assessment team has reviewed the revised PDD and it is observed that the changes are transparently discussed in revised PDD. The assessment team found these changes in line with requirement of the methodology and as observed during onsite audit. The assessment team has also checked the calculation details of revised investment analysis sheet. The revised values as considered in the calculation are checked against the supportive evidences and found correct and consistent. Based on the investment analysis review, the assessment team is in the opinion that that the project still stands additional. Hence, CAR#03 is considered to be closed.				

CAR ID	04	Section no.	D.2.	Date : 31/05/2018
Description of CAR				
The SCADA system was installed on 11/02/2018 and started recording of the parameters inline to the registered PDD. However, starting from 12/03/2015 to 11/02/2018, the monitoring frequency of the parameters for example methane percentage in biogas was monitored on daily basis and not continuously as required by registered PDD version 15.1. Similarly, in the above referred period the flow of the biogas, energy generation, and energy consumption was however monitored continually by the totalizers of respective meters but recording of the values in the plant records were done on monthly basis.				
Project participant response				Date : 20/03/2020
<i>The changes are considered under post registration changes. These are considered under temporary deviation and the revised MR is submitted to the DOE.</i>				
Documentation provided by project participant				
DOE assessment				Date: 27/03/2020
The above changes are considered under temporary deviation and PP has submitted the revised MR and the deviation is transparently discussed in revised MR. CAR#04 is closed.				

Table 3. FARs from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
There is no FAR from this validation.				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		