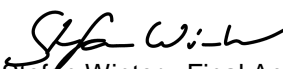




**Validation report form for renewal of crediting period for  
CDM project activities  
(Version 03.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Biogas Support Program - Nepal Activity-4 UNFCCC No: 5416
<b>Number and duration of the next crediting period</b>	2– Seven Years (13/12/2018 to 12/12/2025)
<b>Version number of the validation report</b>	1.1
<b>Completion date of the validation report</b>	11/02/2020
<b>Version number of PDD to which this report applies</b>	11.1
<b>Project participants</b>	Alternative Energy Promotion Centre (AEPC), Mr. Gyanu Karki ; Mr. Ruku Raut Karki
<b>Host Party</b>	Nepal
<b>Applied methodologies and standardized baselines</b>	AMS-I.E. Version 09, Switch from non-renewable biomass for thermal applications by the user Standardized baseline: N/A
<b>Mandatory sectoral scopes</b>	Scope: 1 / Technical Area: 1.2
<b>Conditional sectoral scopes</b>	Scope 13 / Technical Area 13.2
<b>Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period</b>	75,307
<b>Name and UNFCCC reference number of the DOE</b>	E-0022 TÜV NORD CERT GmbH (TÜV NORD)
<b>Name, position and signature of the approver of the validation report</b>	 Stefan Winter - Final Approver

**SECTION A. Executive summary**

Alternative Energy Promotion Centre has commissioned the TÜV NORD JI/CDM Certification Program to carry out validation of the request for renewal of crediting period (RCP) for the project:

“Biogas Support Program - Nepal Activity-4”

with regard to the relevant requirements for CDM project activities.

The project has been registered on 13/12/2011 under the UNFCCC registration No 5416. The PPs have chosen a 7 year crediting period and the project is now due for renewal i.e. of second crediting period. The PPs have thus notified the UNFCCC about their intention to request the renewal of the crediting period.

The objective of this RCP validation is the review by an independent entity whether the project is still compliant with the applicable sections of:

- the CDM project standard,
- the CDM cycle procedure
- the updated applied UNFCCC Methodology AMS-I.E. Switch from non-renewable biomass for thermal applications by the user -- Version 9.0 /METH/ and
- the methodological tool “Assessment of the validity of the original / current baseline and update of the baseline at the renewal of the crediting period” (Version 03.0.1)<sup>TVB/</sup>.

As per the requirements of the CDM Validation and Verification Standard<sup>VVS/</sup> the validation is based on

- the registered and/or latest updated version of the PDD (including revisions of the monitoring plan)<sup>PDD/, /PDD-Reg/</sup>,
- the updated emission reduction calculation spread sheet<sup>/XLS/</sup>,
- further supporting documents made available to the validator as well as
- information collected through performing interviews and during the on-site assessment.

Furthermore publicly available information, such as the host country legislation, was considered as far as available and required.

The Project activity involves in the implementation of biogas applications at individual households in Nepal. The project reduces GHG emissions due to displacing firewood by biogas from animal waste and human excreta. Only the replacement of non-renewable biomass is counted as emission reduction under CDM for this project.

Target group under the BSP are rural households who currently use non-renewable biomass (firewood). The BSP is centrally managed by Alternative Energy Promotion Centre (AEPC) with the support of Biogas Sector Partnership Nepal (BSP-NEPAL), AEPC is a public entity that executes all renewable/alternative energy programmes in Nepal including this PA

The total of 20,318 biogas digesters were implemented as part of this project as per the database maintained by AEPC. It was also confirmed through the interview that there is no change of equipment between the 1<sup>st</sup> and the 2<sup>nd</sup> crediting period.

The biogas digesters are implemented from 09/05/2006 to 21/06/2007.

Details of the project location are given in table A-1 below:

**Table A-1:** Project Location

No.	Project Location
Host Country	Nepal
Region:	Various locations across Nepal
Project location address:	Nepal
Latitude:	North 26.20° to North 30.45°
Longitude:	East 80.07° to East 88.20°

Basic technical details of the project are summarized in table A-2.

**Table - A-2:** Technical data of the project activity

Parameter	Unit	Value
Biogas digester model	-	GGC 2047
Digester capacity	m <sup>3</sup>	4, 6, 8 and 10
Digester type	-	Closed underground container made of concrete or other materials

## SECTION B. Validation team, technical reviewer and approver

### B.1. Validation team member

No.	Role	Type of resource	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	Interview(s)	Validation findings
1.	Team Leader	IR	Rami	Kunal	TÜV NORD CERT	X			
2.	Technical expert	EI	Lubanga	David		X			
3.	*Team Leader/Technical expert		G.	Ezhilarasu	TUV India Limited	X	X	X	X

\*till 06-02-2020

### B.2. Technical reviewer and approver of the validation report for RCP

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	Stöhr	Christina	TÜV NORD CERT
2.	Technical reviewer/Approver	IR	Winter	Stefan	TÜV NORD CERT

## SECTION C. Means of validation

### C.1. Desk/document review

During the desk review all documents initially provided by the client and publicly available documents relevant for the validation were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan<sup>/PDD/, /PDD-Reg/</sup>,
- the last revision of the validation report<sup>/VAL/</sup>,
- documentation of previous verifications<sup>/VER/</sup>
- the monitoring reports, including the claimed emission reductions for the project from the previous verifications<sup>/VER/</sup>,
- the emission reduction calculation spreadsheet<sup>/XLS/</sup>.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

## C.2. On-site inspection

Duration of on-site inspection: 24/05/2018 to 06/06/2018 <sup>1</sup>				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	Nepal	24/05/2018	G. Ezhilarasu
2	On-site inspection/ Interview with PP Representative and Operation Staff/ Discussion with End users	Nepal	24/05/2018 to 05/06/2018	G. Ezhilarasu
3	Documents check	Nepal	27/05/2018 to 03/06/2018	G. Ezhilarasu
4	Discussion on findings	Nepal	06/06/2018	G. Ezhilarasu
5	Closing Meeting	Nepal	06/06/2018	G. Ezhilarasu

## C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Pokhrel	Prem Kumar	Climate Change Expert AEPC	24/05/2018 to 06/06/2018	Project Implementation PDD/ CER sheets Sampling Monitoring Aspects, logistics, Communications with Biogas end users and Biogas companies	G Ezhilarasu
2	Manandhar	Rassu	Program Officer AEPC	27/05/2018 to 06/06/2018	Sampling , Internal quality Documentation, Sampling Record keeping Customer complaints	G Ezhilarasu
3	Dhakal	Nawa Raj	Director AEPC	06/06/2018	Finance obligations, Down times, training schedules, sampling, repairs Government policies	G Ezhilarasu
4	Prakash	Aryal	Senior Officer AEPC	24/05/2018 And 06/06/2018		
5	Karki	Saroj Bdr	Quality Control Officer AEPC	25/05/2018	QA/QC Procedures	G Ezhilarasu
6	Aryal	Shekar	NEDCO Chief Advisor	25/05/2018	Construction, Agreements, complaint management Repairs, User trainings, spares availability, interactions with the end users, scheduled inspections	G Ezhilarasu
7	Khakda	Kamal Bdr	MBN, Executive Chairman			
8	Dulal	Padam Kumar	DEU Biogas. MD			
9	Mahato	Pitarbo	MTR Biogas MD			
10	Bhakthi	Phani Narayanan	NBPA Biogas MD			
11	Mandal	Narayan	RAS Biogas			

<sup>1</sup> The onsite visit is combined for the RCP and verification of this project activity and 3 other CDM Project activities with UNFCCC Ref No, 0136, 0139, 5415 and CDM PoA with UNFCCC no 9572 and GS PoA 3110 Implemented by the same entity and with same technology in the same host country to minimize the travel time and transaction costs.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			MD			
12	Shrestha	Vivek	AEC Biogas MD			
13	Neupane	Bibek Kanta	Sustainable Energy and Technology Management P. Ltd. (SETM) Program Coordinator	05/06/2018 Telephonic	Survey / Sampling design Sample selection BUS reports Training QA/QC, Data Transfer	G Ezhilarasu
14	Coordinators From Biogas companies and Villagers		Guides	24/05/2018 to 05/06/2018	Presence of maintenance team General Usage Route Maps Baseline	G Ezhilarasu
15	Various End Users (170 households)		Sampled and non-sampled house holds	24/05/2018 to 05/06/2018	Status of Biogas and its usage, Energy used for cooking, Problems faced for maintenance and availability of trained personnel, down times, (if any), reasons for non-usage, cattle availability, household numbers, spares availability etc Baseline	G Ezhilarasu

#### C.4. Sampling approach

##### C.4.1 Sampling approach by the PP

<input type="checkbox"/>	No sampling approach has been used by the PP				
<input checked="" type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Name of the Parameter	Sampling approach <sup>1)</sup>	Sampling Type <sup>2)</sup>	Population	Sample Size
	BC <sub>BL,HH,y</sub>	StRS	PS	20,318	75

<sup>1)</sup>Sampling Approaches:

SiRS: Simple Random Sampling  
 StRS: Stratified Random Sampling  
 SS: Systematic Sampling  
 CS: Cluster Sampling  
 MSS: Multi-stage Sampling

<sup>2)</sup>Sampling Types:

PS: Parameter Sampling

##### C.4.2 Sampling approaches by the validation team

<input type="checkbox"/>	No sampling approach has been used by the VT to validate the fixed parameters				
<input checked="" type="checkbox"/>	A sampling approach has been applied by the VT for the following fixed parameter(s):				
	Parameter	Sampling approach <sup>1)</sup>	Sampling Type <sup>2)</sup>	Population	Sample Size
	Average annual consumption of woody	SiRS	AS	75	19

biomass per household before the start of the project activity BC <sub>BL,HH,y</sub>				
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<sup>1)</sup>Sampling Approaches:

SiRS:	Simple Random Sampling
StRS:	Stratified Random Sampling
SS:	Systematic Sampling
CS:	Cluster Sampling
MSS:	Multi-stage Sampling

<sup>2)</sup>Sampling Types:

AS:	Acceptance Sampling
PS:	Parameter Sampling
COM:	Full data check at higher data aggregation levels and sampling at original data levels

The PP choose 75 sample households for the estimation of the parameter, average annual consumption of woody biomass per household before the start of the project activity BC<sub>BL,HH,y</sub>. As per the guidelines "Sampling and surveys for CDM project activities and programmes of activities" version 04.0 the PP used the formula in Appendix 1 para 24 of the said guidelines. This is in line with the requirements of the methodology AMS-I.E. Version 9.0.

The Validation team took 19 households belonging to the project activity by considering AQL of 1%, UQL of 20% with 5% producer risk and 15% consumer risk. Also the host country, Nepal being a least developed country

(<http://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx>) the sampling taken for verification by the DOE is in line with paragraph 31 of the Standard for "Sampling and surveys for CDM project activities and programmes of activities" Version 07.0. Apart from this 19 samples from the project households that the VT Checked randomly another 20 non-project households have been inspected during the site visit who still use the fuel wood for cooking in all the regions of the host country (9 in Terai, 9 in Hill and 2 in remote hill during the combined site visit).

Based on the site visit, at an average the households indicated 5 to 6 kg per day fuel wood is used during the non-usage of biogas. However, the non- project households indicated that around 11-12 kg of fuel wood in the Terai region, 19-20 kg in hilly region, and 25-26 kg in remote hill region. Considering the distribution of 52.66% in Terai, 46.6% in Hill and 0.72% in remote hill for the project activity it is estimated as 14.82 kg per household per day which works out to be 5.4 t per household per year. Therefore, the value considered in PDD of 5.09 t /household as estimated through survey (BUS) is considered conservative as lower than the value found during DOE onsite inspection.

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

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	1	-	-
Application and selection of methodologies and standardized baselines	-	-	-
Validity of original baseline or its update	-	1	-
Estimated emission reductions or net anthropogenic removals	-	-	-
Validity of monitoring plan	-	1	-
Crediting period	1	-	-
Project participants	-	-	-
Post-registration changes	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	<b>2</b>	<b>2</b>	<b>-</b>

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

<b>Means of validation</b>	<p>A draft revised PDD was submitted to the validation team by the project participants. By means of the UNFCCC website it has been checked whether the latest applicable PDD template CDM-PDD-FORM has been used.</p> <p>Further it has been checked whether the latest instructions for filling out the PDD template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /PDD/</li> <li>• /PDD-T/</li> <li>• /unfccc/</li> </ul>		
<b>Findings</b>	<input checked="" type="checkbox"/>	The latest reporting template CDM-PDD-FORM as listed on the UNFCCC website has been used for the PDD.	
	<input type="checkbox"/>	The latest instructions for filling out the PDD have been followed. No adverse finding has been identified in the course of this validation.	
	<input checked="" type="checkbox"/>	<p>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</p> <p>- CL 1</p>	
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
	<p>The project participants used the latest version of the PDD form (version 11) for the updated PDD than the version of the PDD form of the registered PDD.</p> <p>It is confirmed that the information transferred to the latest version of the PDD form is materially the same as that of the registered PDD.</p>		

**D.2. Application and selection of methodologies and standardized baselines**

<b>Means of validation</b>	<p>By means of comparison of the PDD with</p> <ul style="list-style-type: none"> <li>(i) the applied CDM methodology</li> <li>(ii) all applicable CDM Meth tools and</li> <li>(iii) if applicable, a standardized baseline</li> </ul> <p>the verification team has checked whether the updated PDD is in compliance with the requirements of the applied methodology/tools/SB.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /PDD/</li> <li>• /AMS/</li> <li>• /METH/</li> <li>• /TVB/</li> <li>• /TA/</li> <li>• /unfccc/</li> </ul>								
<b>Findings</b>	<input checked="" type="checkbox"/>	The updated PDD is completely in accordance with the approved methodology applicable for the CDM project (AMS-I.E Version 09.0)							
	<input checked="" type="checkbox"/>	The breakdown of PDD accordance of the referenced tools is as follows:							
		1	<table border="1"> <tr> <td>Title (of the tool)</td><td>Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period</td></tr> <tr> <td>Version</td><td>03.0.1</td></tr> <tr> <td>PDD compliance</td><td> <input checked="" type="checkbox"/> full compliance  <input type="checkbox"/> findings have been raised  <input type="checkbox"/> N/A </td></tr> </table>	Title (of the tool)	Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period	Version	03.0.1	PDD compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A
Title (of the tool)	Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period								
Version	03.0.1								
PDD compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A								
		2	<table border="1"> <tr> <td>Title (of the tool)</td><td>Calculation of the fraction of non-renewable biomass (Tool 30)</td></tr> <tr> <td>Version</td><td>Version 01.0</td></tr> </table>	Title (of the tool)	Calculation of the fraction of non-renewable biomass (Tool 30)	Version	Version 01.0		
Title (of the tool)	Calculation of the fraction of non-renewable biomass (Tool 30)								
Version	Version 01.0								

		PDD compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A	
	<input type="checkbox"/>	The breakdown of PDD accordance of the applicable SB is as follows:		
		1	Title (of the SB)	n/a
			Version	-
			MP compliance	
<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:			
	CAR 1			
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.		
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
	<p>For both the methodology and applicable tools it is confirmed that all applicable references in the updated PDD are correct and all applicable tools have been correctly identified in the updated PDD, and in accordance with the applicable requirements in the Project standard.</p> <p>In detail:</p> <ul style="list-style-type: none"> <li>- The Project uses the bio gas collected from the bio digesters as fuel for cook stoves which displaces the use of non-renewable biomass. Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods and since this condition holds good during the first crediting period, (as per the registered PDD and Validation report for the first crediting period) the validation concludes that condition is met.</li> <li>- Bio Ethanol is not used for the project activity as only biogas generated from the biodigesters is used as cooking fuel.</li> <li>- Each biodigesters are having an unique Pipe number which can be visibly seen in the gas pipes as permanent mark and thus it enables the unique identification of each biodigesters under this project and thus double counting is avoided.</li> </ul> <p>Thus all applicability conditions of the updated methodology are met as the applicability conditions of version 05 of the applied methodology at the time of registration is same as the updated version 09 of the methodology.</p>			

### D.3. Validity of original baseline or its update

<b>Means of validation</b>	<p>In order to check the validity of the original baseline or its updates the validation team has applied the following stepwise approach in line with the tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period":</p> <p><b>Step 1: Assessment of the validity of the current baseline for the next crediting period</b></p> <p>Step 1.1: Check of assessment of compliance of the current baseline with relevant mandatory national and/or sectoral policies</p> <p>Step 1.2: Check of assessment of the impact of circumstances</p> <p>Step 1.3: Check of assessment of whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.</p> <p>Step 1.4: Check of assessment of the validity of the data and parameters</p> <p><b>Step 2: Check of the update to the current baseline and the data and parameters</b></p> <p>Step 2.1: Check of the update of the current baseline</p> <p>Step 2.2: Validity check of ex-ante determined parameters.</p>
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	<p>All necessary documentation has been either provided by the client or the validation team has acquired appropriate information required for assessment independently. For a detailed list of reviewed documentation please refer to appendix 3.</p>
<b>Findings</b>	<p><b><i>Step 1: Check of assessment to the validity of the current baseline for the next crediting period</i></b></p> <p>The baseline scenario of the project as per the registered project can be described as follows:</p> <p>“In the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs”</p> <p>As per the project standard this scenario is not subject to re-assessment and is thus deemed to be applicable for the next crediting period.</p> <p>However the baseline itself i.e. the calculation of baseline emissions has been checked regarding the continued validity of underlying assumptions and parameter values. The assessment steps are described in the following subsections.</p> <hr/> <p><b><i>Step 1: Check of assessment to the validity of the current baseline for the next crediting period</i></b></p> <p>The baseline scenario of the project as per the registered project can be described as follows:</p> <p>“In the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs”</p> <p>As per the project standard this scenario is not subject to re-assessment and is thus deemed to be applicable for the next crediting period.</p> <p>However the baseline itself i.e. the calculation of baseline emissions has been checked regarding the continued validity of underlying assumptions and parameter values. The assessment steps are described in the following subsections.</p> <hr/> <p><b><i>Step 1.1: Check of assessment to compliance of the current baseline with relevant mandatory national and/or sectoral policies</i></b></p> <p><b><i>Step 2: Baseline Scenario:</i></b> The baseline of the registered PDD has been assessed to be compliant with the national legislation and policies applicable for the project activity at the time of validation. During the first crediting period the PP has frequently reviewed the legal requirements and policies relevant for the baseline of the project. On the basis of this the PP has arrived at the conclusion that the baseline is still in line with all applicable legislations and policies.</p> <p>The validation team has independently reviewed the host country legislation as well as current policy of the Ministry of Forests and Environment, Government of Nepal: <a href="https://www.aepc.gov.np/uploads/docs/2018-06-19_RE%20Subsidy%20Policy,%202073%20(English).pdf">https://www.aepc.gov.np/uploads/docs/2018-06-19_RE%20Subsidy%20Policy,%202073%20(English).pdf</a></p> <p><a href="http://www.mofe.gov.np">http://www.mofe.gov.np</a> on biogas were reviewed and concluded that the government still encourages the promotion of biogas plants through subsidies and other programs.</p> <p>On the basis of this analysis the validation team confirms that the baseline is still in compliance with the currently applicable national legislation and other national and/or sectoral policies. Therefore the baseline did not need to be adjusted due to changes in this respect.</p> <p>The baseline scenario of the project as per the registered project can be described as follows:</p> <p>“In the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs”</p> <p>As per the project standard this scenario is not subject to re-assessment and is thus deemed to be applicable for the next crediting period.</p>

However the baseline itself i.e. the calculation of baseline emissions has been checked regarding the continued validity of underlying assumptions and parameter values. The assessment steps are described in the following subsections.

*Step 1.2: Check of assessment to the impact of circumstances*

As the baseline scenario might be affected by changed circumstances, e.g. market conditions, market prices etc. the PP has checked the baseline against such changes that have occurred since validation.

In the current case no such changes have been identified by the project participants as

- still no revenues other than from CDM are gained from the project activity and
- thus changed market conditions are not likely to impact the PA.

The validation team has independently checked whether there are changes in circumstances related to renewable energy policy of the government of Nepal which have an impact on the baseline. No such changes have been identified and thus it is deemed appropriate not to revise the baseline due to changes in circumstances.

*Step 1.3: Check of assessment to whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.*

For AMS-I.E. project the baseline equipment is the use of fixed mud stoves or three stone fired stoves and which cannot be exchanged. Furthermore no other reasons for possible investments have been identified.

Thus, the validation team confirms the conclusion that no changes to the baseline are required due to the likeliness of investments in equipment which impacts the baseline.

*Step 1.4: Check of assessment of the validity of the data and parameters*

The parameters which have been determined ex-ante in the registered PDD are basically still valid. The following changes were required:

Parameter	Previous value	Updated value	Reference
$f_{NRB,Y}$	0.86	0.861	Calculated based on Tool 30 and approved by the DNA of the host Country, Ministry of Forests and Environment Government of Nepal.
$EF_{projected\_fossilfuel}$	81.6 tCO <sub>2</sub> /TJ	63.7 tCO <sub>2</sub> /TJ	It is fixed as per methodology
$NCV_{biomass}$	0.015 TJ/t	0.0156 TJ/t	It is fixed as per methodology
$BC_{BL,HH,y}$	-	5.09 t/HH/yr	Biogas User Survey 2017/18

$B_y$  (Quantity of woody biomass that is substituted or displaced in t) is calculated by using the formula (option a) of para 21 of the methodology) Thus

$$B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$$

$N_{HH}$  = Number of households in the project activity, which are operation estimated as  $N_{HH} = N \times P_y$  where N is the number of households and P proportion stoves working estimated by sampling

$BC_{BL,HH,y}$  = Average annual consumption of woody biomass per household before of the project activity, t/household/year

$BC_{PJ,HH,y}$  = If it is found that pre-project devices were not completely displaced but to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, t/household/year

Where as in the previous first crediting period  $B_y$  is calculated by using the formula

$$B_y = N \times P_y \times AAFC$$

	<p>where,</p> <p><math>N</math> : Number of digesters installed in the Project</p> <p><math>P_y</math> : Percentage of digesters implemented that is operational in year <math>y</math></p> <p><math>AAFC</math> : Estimate of average annual consumption of woody biomass substituted per digester</p> <p>In this crediting period the value of Average annual consumption of woody biomass per household before the start of the project activity, t/household/year is estimated and fixed as 5.09 t/household/year, the increase in the value of <math>BC_{BL,y}</math> is due to the improvement in life style (more intake of milk / tea) and two times cooking when compared to 15 years back.</p> <p>Please refer CAR1 for further assessment</p> <p>These changes have been appropriately considered in the updated PDD. The PDD has been checked against the applied methodology, tool and the survey 2017/0218.</p> <p><b>Step 2: Check of the update to the current baseline and the data and parameters</b></p> <p><b>Step 2.1: Check of the update to the current baseline</b></p> <p>As per the check in step 1 above, it is confirmed that the current baseline does not need to be updated</p> <p><b>Step 2.2: Check of the update to the data and parameters</b></p> <p>Refer to the check results of step 1.4.</p> <table border="1"> <tr> <td><input checked="" type="checkbox"/></td><td>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</td></tr> <tr> <td></td><td>CAR 1</td></tr> </table>	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:		CAR 1
<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:				
	CAR 1				
<b>Conclusion</b>	<table border="1"> <tr> <td><input type="checkbox"/></td><td>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td></tr> <tr> <td><input checked="" type="checkbox"/></td><td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td></tr> </table> <p>The original baseline scenario of the project as per the registered PDD is still valid for the 2<sup>nd</sup> crediting period.</p> <p>However <math>f_{NRB}</math> is the changed from 0.86 to 0.861 for this crediting period. <math>B_y</math> is recalculated as per the equation 2 of the latest version of the applied methodology and emission factor and NCV of biomass is fixed as per the applied methodology.</p>	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.				
<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.				

#### D.4. Estimated emission reductions or net anthropogenic removals

<b>Means of validation</b>	<p>For validation of the estimated GHG emission reductions the client has provided the validation team with the following documentation:</p> <ul style="list-style-type: none"> <li>- Updated PDD<sup>/PDD/</sup></li> <li>- XLS spreadsheet<sup>/XLS/</sup>.</li> </ul> <p>Further, the validation team has downloaded from the UNFCCC website the applicable version of the CDM methodology and all referenced methodological tools<sup>/unfccc/</sup>.</p> <p><b>1) Baseline emissions <math>BE_y</math>:</b></p> <p>According to the applied methodology, in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs.</p> <p>Hence, Baseline emissions <math>BE_y</math> (tCO<sub>2</sub>e) are to be calculated as follows:</p> $BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\_fuel}$
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$BE_y$	Baseline emissions during the year y in tCO <sub>2</sub> e
$B_y$	Quantity of woody biomass that is substituted or displaced in t
$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass (fNRB)
$NCV_{biomass}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/t)
$EF_{projected\_fossilfuel}$	Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 t CO <sub>2</sub> /TJ

$B_y$  is calculated by using option a) of para 21 of the methodology

Thus

$$B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$$

Where:

- $N_{HH}$  = Number of households in the project activity, number
- $BC_{BL,HH,y}$  = Average annual consumption of woody biomass per household before the start of the project activity, t/household/year
- $BC_{PJ,HH,y}$  = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, t/household/year

$N_{HH}$  is taken as 20318 households,  $BC_{BL,HH,y}$  is 5.09 t/ household/ year as per the biogas User Survey for project activity 4 for 2017/18, this is conservative as the per capita fuel wood consumption data is 1192 kg and with the average family size of 4.6 in Nepal (refer to CAR 1 for further assessment) the value considered is conservative.

For  $BC_{PJ,y}$ , is estimated as 0.53 t/household /year. The parameter  $BC_{PJ,y}$  and  $N_{HH}$  are monitored parameters and will be estimated by sample survey.

Thus  $B_y = 20318 \times (5.09 - 0.53) = 92,650.08$  t/annum

$f_{NRB,y}$  is taken as 0.861, the calculation is based on value estimated based on Tool 30 by the PP and approved by the DNA of Nepal, the ministry of forests and Environment Government of Nepal.

## 2) Project emissions PE<sub>y</sub>:

There is no cultivation of biomass for the project activity. Hence project emission is zero.

## 3) Leakage emissions LE<sub>y</sub>:

The Leakage is due to the use/diversion of non-renewable woody biomass saved under the project activity. It is applied in line with the methodology, if  $B_y$  is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, then surveys will not be required.

Accordingly to account leakage  $B_y$  is multiplied by 95%.

As per methodology § 23, the tool 16 cannot be applied as the biomass is not cultivated or it is procured or it is sourced from the agro industrial process. Also § 25 is not applicable as no Charcoal is used in the project activity.

## 4) Emission reductions ER<sub>y</sub>:

$$\begin{aligned} ER_y &= 88017.58 \text{ (t)} \times 0.861 \times 0.0156 \text{ (TJ/t)} \times 63.7 \text{ (t CO}_2\text{/TJ)} \\ &= 75,307 \text{ t CO}_2\text{e} \end{aligned}$$

		<p>The estimated amount of GHG emission reductions of the project is 527,149 tCO<sub>2</sub>e during the second crediting period (7 years) from 13/12/2018 to 12/12/2025, resulting in estimated average annual emission reductions of <b>75,307 tCO<sub>2</sub>e</b>.</p> <p>The ER calculation has been duly checked. Further it has been checked whether the results have been correctly transferred to the updated PDD for determination of ex-ante ER. The validation team has further checked the updated PDD against the latest version of the applicable methodology incl. the referenced methodological tools for consistency. Special focus was laid on the changes against the previous crediting period.</p>
<b>Findings</b>	<input type="checkbox"/>	The calculation of ERs is done as per the applied methodology. The calculation in the Excel spreadsheet and the corresponding calculation tables in the PDD have been checked and no mistakes have been identified. The estimation of emission reductions for the 2 <sup>nd</sup> crediting period is deemed plausible and conservative.
	<input checked="" type="checkbox"/>	<p>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</p> <p>- CAR 1</p>
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		All changes due to the upgraded methodology and the re-assessment of the baseline have been considered appropriately and in line with the CDM PS. The calculation in the Excel spreadsheet and the corresponding calculation tables in the PDD have been checked and both are inline. The estimation of emission reductions for the 2 <sup>nd</sup> crediting period is deemed plausible and conservative.

#### D.5. Validity of monitoring plan

<b>Means of validation</b>		<p>The validation team has checked the monitoring plan of the updated PDD against the required changes due to the update of the baseline and other methodological changes. Further, changes due to editorial updates of the applicable templates have been checked.</p> <p>In detail all parameters, ex-ante values and applicable formulae have been checked to determine the required changes for the next crediting period.</p> <p>Besides, based on conducted site-visit and interviews with related personnel the validation team has assessed the feasibility of the required changes.</p>
<b>Findings</b>	<input checked="" type="checkbox"/>	<p>The monitoring plan in the PDD has been updated to comply with the latest applicable version of the monitoring methodology (AMS-I.E. ver 09.0).</p> <p>The basic changes from the current crediting period can be summarized as follows:</p> <p>The parameter <math>B_y</math> is calculated using the formula <math>B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})</math>, and <math>N_{HH}</math> the number of households and <math>BC_{BL,HH,y}</math> Average annual consumption of woody biomass per household before the start of the project activity, <math>BC_{PJ,HH,y}</math> If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity and t/household/year are monitored in this crediting period</p> <p>The validation team has duly assessed all the required changes due to the upgraded methodological requirements and the re-assessment of the baseline. The validation team has concluded that</p> <ul style="list-style-type: none"> <li>- all necessary changes have been appropriately reflected in the updated PDD,</li> <li>- the monitoring plan in the updated PDD is in compliance with the applied monitoring methodology,</li> <li>- the monitoring arrangements described in the updated PDD can be implemented and are feasible within the project design.</li> </ul>

Conclusion	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CAR 2
	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
<p>The Monitoring plan is in line with the requirements of the methodology AMS-I.E. version 09.0. The PP opted for sampling survey to monitor of the proportion of biogas digesters which are operational and the occasional use of pre project stoves, .i.e. the Parameter, <math>BC_{PJ,HH,y}</math> ff it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity and t/household/year is the new parameter required to be monitored as per the methodology. The PP has already estimated the parameter using sampling survey for Ex ante purpose. So the ability of the PP to implement the monitoring plan is deemed adequate.</p> <p>All necessary changes have been appropriately reflected in the updated PDD, the monitoring plan in the updated PDD is in compliance with the applied monitoring methodology, and the monitoring arrangements described in the updated PDD can be implemented and are feasible within the project design.</p>		

#### D.6. Crediting period

Means of validation	<p>The validation team has checked that the UNFCCC Secretariat has been notified within the specified timeframe, i.e., 180 days before the expiry of the first crediting period (i.e. before 16/06/2018) as per CDM project cycle procedure for project activities Version 01.0 (EB93 A06 –PROC) paragraph 263. But the PP informed the UNFCCC Secretariat on 12/06/2018 and the confirmation mail was also received from UNFCCC dated 13/06/2018 for the intention to renew the crediting period and giving nod for the DOE to further process. The mail communication is verified.</p> <p>But as per CDM project cycle procedure for project activities Version 02.0 (EB93 A06 –PROC) paragraph 273, “a submission shall be made no earlier than 270 days prior to, but no later than one year after, the expiry of the crediting period, thus the submission is to be between 18/03/2018 to 12/12/2019. Hence the start date of the renewed crediting period is defined as the first day after the end date of the previous crediting period, i.e.13/12/2018.</p>	
Findings	<input checked="" type="checkbox"/>	As the respective requirements are met, the project’s 2 <sup>nd</sup> crediting period may start immediately after the expiration of the 1 <sup>st</sup> one, given that all other applicable criteria are met.
		It is further confirmed that the start date (13/12/2018) and the length of the crediting period (7 years) are in compliance with the project standard.
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CL 2 is raised
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	It is thus confirmed that the start date and the length of the 2 <sup>nd</sup> crediting period (7 years) are in compliance with the project standard	

**D.7. Project participants**

<b>Means of validation</b>	The validation team has checked the revised PDD <sup>/PDD/</sup> and the UNFCCC website <sup>/unfccc/</sup> esp. the latest version of the Modalities of Communication <sup>/MOC/</sup> to check whether the listed project participants have duly been authorized and if communication requirements are met.	
<b>Findings</b>	<input checked="" type="checkbox"/>	The names of the project participants as listed in the revised PDD (sections A.4. and appendix 1) are consistent with those listed on the dedicated UNFCCC project website as well as in the last version of the modalities of communication <sup>/MOC/</sup> .
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
<b>Conclusion</b>	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	The validation team has reviewed the Host country approval <sup>/HCA/</sup> confirmed the project participants as Alternative Energy Promotion Centre (AEPC)	

**D.8. Post-registration changes**

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines or other methodological regulatory documents <sup>2</sup>	N	-	-
Corrections	N	-	-
Change to the start date of the crediting period	N	-	-
Inclusion of a monitoring plan	N	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	-	-
Changes to the project design	N	-	-
Changes specific to afforestation and reforestation project activities	N	-	-

<sup>2</sup> 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).

**SECTION E. Internal quality control**

Before the submission of the final Validation RCP report a technical review of the whole validation procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may have been confirmed or revised. Furthermore reporting improvements might have been achieved.

After the successful technical review an overall (esp. procedural) assessment of the complete validation has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting the renewal of crediting period is conducted.

**SECTION F. Validation opinion**

Alternative Energy Promotion Centre has commissioned the TÜV NORD JI/CDM Certification Program to re-validate the project "Biogas Support Program - Nepal Activity-4" for the purpose of renewal of the crediting period. The validation is based on the relevant UNFCCC requirements.

The review of the updated project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews have provided TÜV NORD JI/CDM Certification Program with sufficient evidence to validate the fulfilment of the stated criteria applicable for RCP.

In detail the conclusions can be summarized as follows:

- The current baseline of the project is in line with the national and/or sectoral policies and circumstances at the time of requesting renewal of crediting period.
- The monitoring plan of GHG parameters is transparent and adequate and in line with the applicable monitoring methodology (AMS-I.E., version 09.0).
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 75,307 tCO<sub>2</sub>e /year are most likely to be achieved within the second renewable crediting period of 7 years.
- The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the renewal of the crediting period

Essen, 11/02/2020




K. Rami  
TÜV NORD JI/CDM Certification Program  
Validation Team Leader



## Appendix 1. Abbreviations

<b>AEPC</b>	Alternate Energy Promotion Centre
<b>BAU</b>	Business as usual
<b>BUS</b>	Biogas User Survey
<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CL</b>	Clarification Request
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent
<b>CP</b>	Certification Program // Crediting Period
<b>DNA</b>	Designated National Authority
<b>EB</b>	CDM Executive Board
<b>ER</b>	Emission Reductions
<b>ETS</b>	Emission Trading Scheme
<b>FAR</b>	Forward Action Request
<b>GHG</b>	Greenhouse gas(es)
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>LOA</b>	Letter of Approval
<b>MOC</b>	Modalities of Communication
<b>PCP</b>	CDM Project Cycle Procedure
<b>PDD</b>	Project Design Document
<b>PP</b>	Project Participant
<b>PS</b>	CDM Project Standard
<b>QC/QA</b>	Quality control/Quality assurance
<b>RCP</b>	Renewal of Crediting Period
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VVS</b>	CDM Validation and Verification Standard

## Appendix 2. Competence of team members and technical reviewers



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TUV NORD J/CDM Certification Program

**Mr. Kunal Rami**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-03-26
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2020-03-26


Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
6.1	Construction
7.1	Transport
13.1	Solid waste and wastewater

224 - Rev. 8, Date: 2018-08-31

224\_201-VAB00-F20\_2018-08-31\_rev8.doc

201-VAB00-F20 rev3 / 2012-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TUV NORD J/CDM Certification Program

**Ms. Christina Stöhr**

SCHEME	STATUS	VALID UNTIL
CDM	Assessor (Validation, Verification) Technical Reviewer	2020-05-05
VCS / ISO 14064-2	Assessor/Technical Reviewer	2020-05-05


Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater

203 - Rev. 5 Date: 2019-05-05

203\_201-VAB00-F20\_2019-05-05\_rev5.doc

201-VAB00-F20 rev3 / 2012-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TUV NORD J/CDM Certification Program

**Mr. Stefan Winter**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2020-07-27


Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 - Rev. 5, Date: 2017-07-20

163\_201-VAB00-F20\_2017-07-20\_rev5

201-VAB00-F20 rev3 / 2012-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TUV NORD J/CDM Certification Program

**Mr. David Lubanga**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2021-10-20
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2021-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.2	Manure

251 - Rev. 7, Date: 2018-10-19

251\_201-VAB00-F20\_2018-10-19\_rev7.doc

201-VAB00-F20 rev3 / 2012-10-25

### Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1	PP	/LOA/	Host Party approvals	Letter of Approval from DNA of Nepal (Host party) Ref no : 954 dated 18 October 2011	UNFCCC
2	PP	/MAIL1/	Mail send by PP to UNFCCC to intimate about crediting period renewal	Notification mail by the PP to the UNFCCC indicating the intention to renew the crediting period, dated 12/06/2018	PP
3	PP	/MAIL2/	Acknowledgement from UNFCCC	Confirmation mail by the UNFCCC in response to /MAIL1/ dated 13/06/2018	PP
4	PP	/MOC/	Latest Modalities of Communication dated 12/04/2018	-	UNFCCC
5	PP	/PDD/	Revised PDD	Revised Project Design document "Biogas Support Program - Nepal Activity-4" <ul style="list-style-type: none"> <li>- Version No. 8.0, dated 08/05/2018</li> <li>- Version No. 09.0, dated 17/01/2019</li> <li>- Version No. 10.0, dated 24/06/2019</li> <li>- Version No. 10.0, dated 11/07/2019</li> <li>- Version No. 11.0, dated 11/07/2019</li> <li>- Version No. 11.1, dated 10/02/2020</li> </ul>	PP
6	PP	/PDD-Reg/	Registered PDD	Registered Project Design Document named "Biogas Support Program - Nepal Activity-4" (Version No. 7, dated 12/July/2013)	UNFCCC
7	PP	/XLS/	Emission reduction calculation spread sheet	RCP Emission reduction calculation spread sheet – 2 <sup>nd</sup> Crediting Period <ul style="list-style-type: none"> <li>- Version 1 with respect to PDD version 8 dated 08/05/2018</li> <li>- Version 2 with respect to PDD version 9 dated 17/01/2019</li> <li>- Version 3 with respect to PDD version 10 dated 24/06/2019</li> <li>- Version 3 with respect to PDD version 11 dated 11/07/2019</li> </ul>	PP
8	DOE	/CPM/	TÜV NORD JI / CDM Certification Program Manual (incl. procedures and forms)	TÜV NORD JI / CDM Certification Program Manual (incl. procedures and forms)	TÜV NORD
9	IPCC	/IPCC/	IPCC	<ul style="list-style-type: none"> <li>• IPCC Good Practice Guidance &amp; Uncertainty Management in National</li> </ul>	IPCC Website

No.	Author	Reference	Title	References to the document	Provider
				Greenhouse Gas Inventories, 2000 • Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual	
10	UNFCCC	/KP/	Kyoto Protocol (1997)	-	UNFCCC
11	UNFCCC	/MA/	Marrakesh – Accords	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))	UNFCCC
12	UNFCCC	/METH/	AMS-I.E., Version 09.0	AMS-I.E.: Switch from non-renewable biomass for thermal applications by the user --- Version 9.0 <a href="https://cdm.unfccc.int/UserManagement/FileStorage/QWJA0G7VOXCS4UPELMYN9HFDI3TZ85">https://cdm.unfccc.int/UserManagement/FileStorage/QWJA0G7VOXCS4UPELMYN9HFDI3TZ85</a>	UNFCCC
13	UNFCCC	/PCP/	CDM project cycle procedure	CDM project cycle procedure for project activities, version 2.0 EB 101, Annex 16 <a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092024737/PC_proc_03v02.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092024737/PC_proc_03v02.pdf</a>	UNFCCC
14	UNFCCC	/PDD-T/	Project Design Document Form	Project Design Document Form (CDM-PDD-FORM) - Version 10.1 including Attachment: Instructions for filling out the project design document form for CDM project activities	UNFCCC
15	UNFCCC	/PS/	CDM project standard	CDM project standard for project activities Version 02.0 EB 101 Annex 1 <a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092046526/Reg_stan_04v02.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20181221092046526/Reg_stan_04v02.pdf</a>	UNFCCC
16	UNFCCC	/TVB/	Methodological Tool	Methodological Tool: “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1 <a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf">http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf</a>	UNFCCC
17	UNFCCC	/VAL/	Validation Report	Validation Report for the CDM project “Biogas Support Program - Nepal Activity-4” no 8107119491 – 10/280 V01 dated 10/11/2011 And Post registration changes Annex 3 report 8109786192 – 13/010 dated 115/10/2013	PP
18	UNFCCC	/VVS/	CDM Validation and Verification Standard	CDM validation and verification standard for project activities Version 02.0	UNFCCC

No.	Author	Reference	Title	References to the document	Provider
				<a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20170502114945162/reg_stan06.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20170502114945162/reg_stan06.pdf</a>	
19	UNFCCC	/VER/	Previous periodic Verification Documents	Previous verification documents viewed from the project page <a href="https://cdm.unfccc.int/Projects/DB/RWTUV1321020993.82/view">https://cdm.unfccc.int/Projects/DB/RWTUV1321020993.82/view</a>	UNFCCC
20	DOE	/PHT/	Photographs	Photographs of taken during the site visit	DOE
21	PP	/TP/	Technical Particulars	Technical Particulars of the hydro power plant	PP
22	UNFCCC	/TA/	Tool 30	Calculation of the fraction of non-renewable biomass (Tool 30)	UNFCCC
23	PP	/BUS/	Biogas User Survey	Biogas User Survey 2017/18 for the project activity 4, May 2018	PP
24	PP	/dna/	Ministry of forests and Environment Government of Nepal	The authorization from the DNA of Nepal, the ministry of forests and Environment, Government of Nepal dated 25/11/2018 for f <sub>NRB</sub> Worksheets: calculation of f <sub>NRB</sub>	PP

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

Table 3. CL from this validation

<b>CL ID</b>	1	<b>Section no.</b>	All Sections	<b>Date:</b> 12/12/2018
<b>Description of CL</b>				
1. The PDD submitted for Renewal of Crediting period is not in track change mode as the changes are not tracked from the previous approved version of the PDD. 2. The PDD is not as per the filling guidelines 3. The other party PPs name is not in line with UNFCCC project page				
<b>Project participant response</b>				<b>Date:</b> 15/01/2019
1. The Track change PDD is submitted in track change mode without changing the key characteristics of the project. 2. The revised PDD is filled as per the filling guidelines 3. The name of Project participants is made in line with the UNFCCC project web page.				
<b>Documentation provided by project participant</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): All	New version No.: 9	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Others			
<b>DOE assessment</b>				<b>Date:</b> 22/01/2019
1. The PP provided the PDD in track change mode without changing the material information from the registered PDD of the first crediting period. The changes related to version change in methodology and baseline alone is revised. 2. The PP revised the PDD and filled the same with the instructions to fill the PDD as per given in the version 10.1 of the PDD Template ; CDM-PDD-FORM 3. The Name of the PP is consistent made consistent as per the latest information available in the UNFCCC project web page and The names of the project participants in the updated PDD are consistent with the names of the project participants in the latest version of the MoC statement as per paragraph 412 (vi) of VVS version 2.0.				
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

<b>CL ID</b>	2	<b>Section no.</b>	C.3.2	<b>Date:</b> 12/12/2018
<b>Description of CL</b>				
Please clarify the start date of crediting period.				
<b>Project participant response</b>				<b>Date:</b> 15/01/2019
The start date of the crediting period is the immediate date after the end of the First crediting period that is 13/12/2018, the same is revised in the PDD section C.3.2				
<b>Documentation provided by project participant</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): C.3.2	New version No.: 9	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Others			
<b>DOE assessment</b>				<b>Date:</b> 22/01/2019
The section C.3.2 of the PDD indicates that 13/12/2018 as the start date of the crediting period for the 2 <sup>nd</sup> crediting period is immediately after the end of the 1 <sup>st</sup> crediting period which is as per VVS version 2.0 para 412 (V) i.e. "The next crediting period of the project activity commences on the day immediately after the expiration of the current crediting period".				
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

Table 4. CAR from this validation

<b>CAR ID</b>	1	<b>Section no.</b>	PDD: Many	<b>Date:</b> 12/12/2018
<b>Description of CAR</b>				
1. The methodology version used is not the latest version 2. $f_{NRB}$ calculations presented do not represent the latest data and also not as per the tool 30. 3. How the parameter $BC_{BL,HH,y}$ "Average annual consumption of woody biomass per household before the start of the project activity calculated is not included in the PDD". Please clarify				
<b>Project participant response</b>				<b>Date:</b> 15/01/2019
1. The latest methodology AMS-I.E. version 09 is used in the revised PDD 2. The $f_{NRB}$ calculations are based on the latest data available for Nepal and it is also authorized by the Ministry of forests and environment, Government of Nepal. 3. The parameter $BC_{BL,HH,y}$ is included and the value is estimated based on the sample survey conducted. The Biogas User Survey of 2017/2018 is submitted.				
<b>Documentation provided by project participant</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): Many	New version No.: 9	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s):All	New version No.: 2	
<input type="checkbox"/>	Other:	All Sections ,		
<b>DOE assessment</b>				<b>Date:</b> 22/01/2019
1. The PP revised the PDD with the latest valid version of the applicable methodology AMS-I.E., Switch from non-renewable biomass for thermal applications by the user --- Version 9.0. 2. The $f_{NRB}$ is calculated based on the latest available data from the state of forest Nepal <a href="http://frtc.gov.np/">http://frtc.gov.np/</a> and also as per tool 30 "Calculation of the fraction of non-renewable biomass" version 01 and arrived as 86.1%. The calculation of the NRB and RB is checked and found correct. The authorization from the DNA of Nepal, the ministry of forests and Environment, Government of Nepal dated 25/11/2018 submitted by the PP is also verified. Hence accepted. 3. The parameter $BC_{BL,HH,y}$ Average annual consumption of woody biomass per household before the start of the project activity is estimated as 5.09 tons / household/ year. The publically available data shows that per capita fuel consumption in Nepal for TCS (the Cook Stove user) is around 1192.85 kg, with the average population of 4.6 person per household the fuel wood consumption is 5,48 tons/ household. This increase is due to the increase in life style and twice cooking by the family when compared 7 years back The above information is assessed from the following websites and assessed on 06/02/2019 <a href="https://www.researchgate.net/figure/Fuel-Wood-Consumption-per-Capita-per-Year_fig2_271843843">https://www.researchgate.net/figure/Fuel-Wood-Consumption-per-Capita-per-Year_fig2_271843843</a> <a href="http://codefornepal.org/2018/03/average-size-family-nepal/">http://codefornepal.org/2018/03/average-size-family-nepal/</a>				
<b>Conclusion</b> Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

<b>CAR ID</b>	2	<b>Section no.</b>	B.7.1, B.7.2 and Appendix 5	<b>Date:</b> 12/12/2018
<b>Description of CAR</b>				
1. The parameters monitored are not in line with the latest version of the methodology. 2. Justify how the Sample size calculation presented in the PDD is in line with the CDM requirements.				
<b>Project participant response</b>				<b>Date:</b> 15/01/2019
1. The parameter $B_y$ is calculated by the formula $B_y = N_{HH} * (BC_{BL,HH,y} - BC_{PJ,HH,y})$ where $N_{HH}$ is the household with operational biogas digester for the particular monitoring period and $BC_{PJ,HH,y}$ Average annual consumption of woody biomass per household in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent, and these parameters will be monitored through Biogas user Survey and $BC_{BL,HH,y}$ "Average annual consumption of woody biomass per household before the start of the project activity is fixed ex ante 2. The sample size calculation is revised and the formula used and as per the guidelines "Sampling and surveys for CDM project activities and programmes of activities" version 04.0				
<b>Documentation provided by project participant</b>				
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.7.1, B.7.2 and Appendix 5	New version No.: 9	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input checked="" type="checkbox"/>	Changes in XLS	Worksheet(s): Proportion- sample Calculation	New version No.: 2	
<input type="checkbox"/>	Other:	All Sections ,		
<b>DOE assessment</b>				<b>Date:</b> 22/01/2019

<p>1. The Monitoring parameters mentioned in the revised PDD are in line with the Version 09 of the methodology and the monitoring plan described in the PDD is applicable to the project.</p> <p>2. The sampling plan and the sample size calculation are in line with standard for Sampling and surveys for CDM project activities and programme of activities version 07 and guidelines for Sampling and surveys for CDM project activities and programme of activities version 04. The sample size is calculated based on the formulae provided in the standard guidelines. The Sample size is increased to 75 from the required 66 to compensate for the uncertainties. Also the PP used 90 per cent confidence interval and a 10 per cent margin of error requirement with annual sampling as per the para 33 of the methodology. Hence accepted.</p>	
<p><b>Conclusion</b> Tick the appropriate checkbox</p>	<p><input type="checkbox"/> Additional action should be taken (finding remains open)</p> <p><input checked="" type="checkbox"/> The finding is closed</p>

Table 5. FAR from this validation

FAR ID	xx	Section no.	Date:DD/MM/YYYY
Description of FAR			
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"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN) and version 02.0 of the “CDM project cycle procedure for project activities” (CDM-EB93-A06-PROC);</li><li>• Make editorial improvements.</li></ul>
02.0	31 October 2017	Revision to align with the requirements of 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: Renewal of crediting period Keywords: crediting period, project activities, validation report		