




**Validation report form for renewal of CDM programme of activities period  
(Version 02.0)**

*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 programme of activities (PoA)</b>	Title: Nepal Biogas Support Program-PoA UNFCCC ref no: 9572
<b>Number and duration of the next period</b>	2 <sup>nd</sup> Crediting period. Duration: 31/01/2020 to 30/01/2027
<b>Version number of the validation report</b>	2.0Aa
<b>Completion date of the validation report</b>	17/09/2019
<b>Version number of PoA-DD to which this report applies</b>	Version 17 of 05/09/2019
<b>Coordinating/managing entity (CME)</b>	Alternative Energy Promotion Centre (AEPC)
<b>Host Parties</b>	Nepal
<b>Applied methodologies and standardized baselines</b>	AMS.I.E. Switch from non-renewable biomass for thermal applications by the user (Version 09.0)
<b>Mandatory sectoral scopes</b>	1.1
<b>Conditional sectoral scopes, if applicable</b>	NA
<b>Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next programme of activities period</b>	65,106 tCO <sub>2</sub> e
<b>Name and UNFCCC reference number of the DOE</b>	RINA Services S.p.A. (RINA) UNFCCC reference number: E-0037
<b>Name, position and signature of the approver of the validation report</b>	<b>Laura Severino</b> (Authorized officer signing for the DOE) Head of Sustainability & Food Certification Compliance Unit 

## SECTION A. Executive summary

### >> Purpose and general description and location:

The Programme of activities involves the implementation of biogas applications at individual households in Nepal. The different sizes of the digesters included in the programme are 2, 4, 6, 8 and 10 m<sup>3</sup>. The programme uses only one design i.e. GGC 2047 model. Each digester replaces fire-wood which otherwise would have been used for household thermal application (cooking/heating). Thereby, the PoA reduces GHG emissions from firing of fire-wood at household level. The programme is managed by Alternative Energy Promotion Centre with the support of Biogas Sector Partnership Nepal (BSP-Nepal) and other support partners, the implementing agency of AEPC.

The programme of activities are implemented in rural households throughout Nepal.

### Validation scope:

The objective of the Validation is to have an independent evaluation of a PoA with each generic component project activity (CPAs) and any CPA proposed to be included in the PoA by a designated operational entity against the requirements of the CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the Programme Design Document (POA-DD) and of the Component Project Activity Design Document (CPA-DD). In particular, the demonstration of additionality of the PoA as a whole, the eligibility criteria for inclusion of a CPA in the PoA, the baseline determination for each generic CPA, the monitoring plan for each generic CPA, the estimated emission reduction from any CPA proposed in the project and the programme's compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoA projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is to review the PoA-DD/CPA-DD against the UNFCCC criteria for CDM.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the procedures for registration of programme of activity as a single CDM and the subsequent decisions by the CDM Executive Board.

Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

### Validation process:

Validation was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The validation consisted of the following three phases:

- Document review;
- Follow-up actions;
- The resolution of outstanding issues and the issuance of the final validation report.

### Conclusion:

Alternative Energy Promotion Centre (AEPC) has commissioned RINA to carry out the validation (renewal of crediting period) of the PoA "Nepal Biogas Support Program-PoA" in Nepal, with regard to the relevant requirements for CDM activities.

This report summarizes the findings from the validation of the updated PoA-DD, performed on the basis of UNFCCC criteria for CDM, as well as criteria given by the CDM Validation and Verification Standard for PoA, CDM Project Cycle Procedure for PoA and CDM Project Standard for PoA and included an assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period.

(b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

In conclusion, it is RINA's opinion that the PoA meets all the relevant requirements for the renewal of the crediting period.

**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	Menon	Rekha	RINA India	√	X	√	√
2.	Validator	IR	Buragohain	Champak	RINA India	√	X	√	√
3.	Technical Expert (TA 1.1)	IR	Augustus	Cyril	RINA India	√	X	√	√

**B.2. Technical reviewer and approver of the validation report for renewal of PoA period**

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	Liu	Hui Feng	RINA China
2.	Approver	IR	Severino	Laura	RINA HQ

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

>> The PoA-DD version 15 of 09/05/2019, version 16 of 16/06/2019 and version 17 of 05/09/2019 **/01/**, in particular the applicability of the methodology, the baseline determination, the monitoring plan, the emission reduction calculations provided in the form of a spreadsheet (9572\_ER and sample calculation.xlsx) version 01 of 09/05/2019 and version 02 of 05/09/2019 **/02/** were assessed as part of the validation.

Appendix 3 lists the documentation that was reviewed during the validation.

**C.2. On-site inspection**

Duration of on-site inspection: N/A				
No.	Activity performed on-site	Site location	Date	Team member
1.	-	-	-	-

Site visit has not been performed for the validation of the renewal of crediting period, in accordance with CDM validation and verification standard for programmes of activities, version 02.0, paragraph 183, as the estimated emission reductions per CPA is 65,106 tCO<sub>2</sub>e. Representatives from CME have been interviewed, publicly available authentic sources were reviewed for cross checking information necessary for validation of the PoA. Moreover, FAR 01 has been raised in order to have all technical data thoroughly checked, to confirm their consistency with presented information, during next first verification of the PoA.

**C.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Adhikari	Madhusudhan	AEPC (Executive Director)	30/04/2019	Status of the project activity and any modifications with respect to the registered	Champak Buragohain
2.	Dhakal	Nawa Raj	AEPC (Director)			

					PoA, The lifetime of the project activity; National and local policies and changes; Monitoring plan and changes	
3.	Pokhrel	Prem Kumar	AEPC (Climate and Carbon Financing Expert)	30/04/2019	PoA-DD preparation, Applicability to the latest methodology; Emission Factors and their updates; Baseline of the project and its updates.	Champak Buragohain, Rekha Menon

#### C.4. Sampling approach

>> Not applicable.

#### 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
<b>Programme of activities</b>			
Compliance with PoA-DD form		1	
Programme of activities period			
Coordinating/managing entity and the project participants			
Post-registration changes			
<b>Generic component project activities</b>			
Application and selection of methodologies and standardized baselines		1	
Validity of original baseline or its update	1		
Estimated emission reductions or net anthropogenic removals			
Validity of monitoring plan			
Eligibility criteria for inclusion of CPAs		1	
Others (please specify)- technical features of CPAs			1
<b>Total</b>	<b>1</b>	<b>3</b>	<b>1</b>

### SECTION D. Validation findings

#### D.1. Programme of activities

##### D.1.1. Compliance with PoA-DD form

<b>Means of validation</b>	The PoA-DD was cross-checked with the latest PoA-DD template available at UNFCCC and with the instructions for filling out.
<b>Findings</b>	CAR 01 was used as the latest template of PoA-DD was not used to which PP has updated the design documents using latest PoA-DD template. Hence, CAR is closed.
<b>Conclusion</b>	RINA confirms that the updated PoA-DD is in compliance with the latest version of the PoA-DD form (version 09.0) and the instructions therein for filling out the PoA-DD form. RINA also confirms that the CME has updated the relevant sections of the PoA-DD in accordance with the relevant requirements in the Project Standard for PoA. RINA further confirms that the information transferred to the updated version of the PoA-DD is materially the same as that in the registered PoA-DD.

**D.1.2. Programme of activities period**

<b>Means of validation</b>	The PoA period is 7 years renewable. This is the second PoA period and its start date is 31/01/2020, which is day immediately after the expiration of current PoA period (i.e. 31/01/2013 to 30/01/2020).
<b>Findings</b>	NA
<b>Conclusion</b>	RINA confirms that the second PoA period for the PoA commences on the day after the expiration of the current PoA duration from 31/01/2010 which is as per paragraph 390 (v) of VVS for PoA version 02.

**D.1.3. Coordinating/managing entity and the project participants**

<b>Means of validation</b>	Cross checking the CME and project participants name from the list of project participants and CME of the PoA from the view page at UNFCCC website and latest MoC statement. RINA also reviewed the letter of approval (Ref.838) dated: 31/12/2009 issued from the DNA of Nepal authorizing AEPC as CME and letter of approval from NDA of Germany (dated 16/11/2017) authorizing First Climate Markets AG as project participant and letter of approval dated 09/02/2015 from DNA of Germany authorizing Atmosfair gGmbH as project participant. The latest MoC dated: 17/04/2019 to confirm the name of the project participant.
<b>Findings</b>	NA
<b>Conclusion</b>	RINA confirms that the CME and project participants of the PoA is listed in the updated PoA-DD and this information is consistent with the information provided in the latest MoC and hence meets paragraph 384 of VVS PoA version 02.

**D.1.4. Post-registration changes**

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Corrections	N		
Inclusion of 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 programme design	N		
Addition of CPA inclusion template	N		
Changes specific to afforestation and reforestation activities	N		
Change of coordinating/managing entity	N		

**D.2. Generic component project activities****D.2.1. Application and selection of methodologies and standardized baselines**

<b>Means of validation</b>	The CME has applied the methodology AMS-I.E Version 09. This version of the methodologies is the latest version and currently valid for the submission of the PoA. The PoA meets the criteria defined in the baseline methodology as described below:	
	Criteria	Means of verification
	This methodology comprises of activities to displace the use of non-renewable biomass by introducing renewable energy technologies. Examples of these technologies include, but are not limited to biogas stoves, bio-ethanol stoves, solar cookers, passive solar homes.	The project technology involves household biogas system (renewable) which replaces use of non-renewable biomass. There is no change in the design of the program technology and hence meets the methodology requirement.
	Project participants are able to	As per latest biogas user survey conducted by CME in 2018 for the

	show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	program confirms the use of non-renewable biomass since 31 december 1989. The finding that NRB was used is also backed by independent report such as "The Environmental Impact of Poverty: Evidence from Firewood Collection in Rural Nepal"/10/.
	Project participants or coordinating and managing entities shall describe in the PDD/PoA-DD how the double counting of emission reductions has been addressed (e.g. between end users, distributors and producers of stoves)	PP has addressed the double counting issue by way of applying a unique code for each Digester which shall not be repeated and recorded in the database. Each Digester's will also be segregated according to the CPA in the database system which will help to differentiate the di-gesters according to respective CPA. All digesters implemented under the Biogas Support Program are listed in the database and hence the database system will help to prevent double counting of the digester since the database will not accept the same unique code twice. Therefore, the DOE confirmed using the system already in place that double-counting will not occurred as will be detected automatically by the system.
	For project activities introducing bio-ethanol cookstoves, project participants or coordinating and managing entities shall demonstrate that the bioethanol cookstoves are designed, constructed and operated to the requirements (e.g. with regard to safety) of a relevant national or local standard or comparable literature. Latest guidelines issued by a relevant national authority or an international organisation may also be used.	The PoA does not include the bio-ethanol cookstoves and hence this is not applicable for this PoA.
<b>Findings</b>	CAR 02 was raised as few applicability points were found not listed in the updated PoA-DD to which CME has updated all applicability conditions in the PoA-DD consistent with the latest methodology. Hence, CAR is closed.	
<b>Conclusion</b>	RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed PoA for renewal of crediting period. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology and there is no deviation from the selected methodology.	

### D.2.2. Validity of original baseline or its update

<b>Means of validation</b>	<p>The CME has included the assessment of the validity of the original baseline as per the tool "Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of a crediting period", Version 3.0.1 /09/, which has been concluded to be still valid and applicable for the PoA</p> <p>The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline</p>
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is not valid anymore for the next crediting period.

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

There is no mandatory legal requirement for installation of biogas system in households of Nepal. The policies relevant to the program are 'the Rural Energy Policy', 'the Renewable (Rural) Energy Subsidy Policy' and 'the Renewable (Rural) Energy Subsidy Delivery Mechanism'. The Renewable (Rural) Energy Subsidy Policy 2016 has made provisions of financial subsidy support for the installation of the household biogas plants. The above policies only provide the incentives for the installation of household biogas plants and do not provide any obligations or enforced targets, nor do they ban the use of fuel wood for cooking. Therefore, the baseline (use of non-renewable biomass) is still valid as per the original registered PoA and that original baseline scenario will remain valid for next crediting period.

Step 1.2: Assess the impact of circumstances

The PoA involves household biogas plants replacing firewood based cooking system. In the absence of the PoA, firewood would have been used for cooking purpose. There are no new national/sectoral policies/legislation/circumstance that could affect the baseline scenario during the renewal of the crediting period. There is no change observed in this regard and it can be concluded that the conditions used to determine the baseline emissions in the previous crediting period are still valid.

Step 1.3: Assess 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.

The baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment. The continuation of the current practice does not need any further investment. The baseline scenario identified during validation confirmed that NRB is used in Nepal since 31 December 1989. A recent survey by CME in 2018 /11/ confirms the NRB use with following indicators: Increase in time needed to gather firewood or increase in distance travelled to gather firewood and Increasing trend in fuel wood price. These scenarios justifies that the baseline scenario is not impacted during the renewal of crediting period.

Step 1.4: Assessment of the validity of the data and parameter

"Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity".

Following data parameters are updated from registered PoA-DD:

Data/Parameter	Value in registered PoA-DD	Value in updated PoA-DD	Assessment
Emission factor for the projected fossil fuel consumption in the baseline ( $EF_{\text{projected\_fossilfuel}}$ )	81.6	63.7	The updated value is in consistent with latest applied methodology AMS-I.E, version 9. Hence, accepted
Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable	86%	86.1%	The value is calculated as per tool 'Calculation of the fraction of non-renewable biomass' consistent with the

	biomass ( $f_{NRB,y}$ )			applied methodology. The value is further approved validated by the Ministry of Forest and Environment, Government of Nepal /12/. Hence, accepted.
	The quantity of woody biomass substituted or displaced per household (By)	3.3	4.5	The value is updated considering latest user survey prior to renewal of crediting period. The survey was carried out covering year 2017-18 which resulted the fire-wood consumption in absence of biogas is 4.5 ton/household per year /11/. In consistent with the methodology to determine 'By' as per equation 2 ( $B_y = N_{HH} * (BC_{BL,HH,y} - BC_{PJ,HH,y})$ ), $BC_{BL,HH,y}$ is fixed ex-ante as described in section D.2.3 below and $BC_{PJ,HH,y}$ shall be monitored.
<p>Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2.</p> <p>Step 2: Update the current baseline and the data and parameters Since, the existing baseline scenario is still valid, this step is not applicable.</p> <p>Finally, it is concluded that the original baseline scenario is valid and assessment is complete as per "Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1".</p>				
<b>Findings</b>	CL 01 was raised to clarify the basis on which quantity of woody biomass substituted or displaced per household is updated to which CME has provided valid justification and source of the same. Hence, CL is closed.			
<b>Conclusion</b>	RINA concludes that the original baseline is valid and assessment is done as per methodological tool 'Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1'. The assessment meets VVS Standard v.2.0 paragraph 382.			

### D.2.3. Estimated emission reductions or net anthropogenic removals

<b>Means of validation</b>	The emission reductions for the project activity is estimated as per equation 6 of AMS-I.E version 09 as follows:
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$$ER_y = BE_y - PE_y - LE_y$$

Where:

$ER_y$  = Emission reductions during year  $y$  in t CO<sub>2</sub>e

$BE_y$  = Baseline Emissions

$PE_y$  = Project Emissions

$LE_y$  = Leakage Emissions

Baseline emissions are estimated as per equation 1 of AMS-I.E version 09 as follows:

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\_fuel}$$

Where:

$BE_y$  = Baseline emissions during the year  $y$  in t CO<sub>2</sub>e

$B_y$  = Quantity of woody biomass that is substituted or displaced in tonnes

$f_{NRB,y}$  = 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/tonne)

$EF_{projected\_fossil\_fuel}$  = 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 determined as per equation 2 of AMS-I.E version 09 as follows:

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

Where:

$N_{HH}$  = Number of households in the project activity, number. A cap of 20,000 household is considered in each CPA.

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

Average annual consumption of woody biomass per household before the start of the project activity, tonnes/household/year ( $BC_{BL,HH,y}$ ) is determined as per baseline survey and if pre-project device is continue to be use  $BC_{PJ,HH,y}$  shall be monitored and considered accordingly. Number of households in the project activity ( $N_{HH}$ ) shall be monitored and reported accordingly.  $BC_{BL,HH,y}$  is 5.04 ton/HH/year as per survey report /11/. The survey meets the latest version of the 'standard: sampling and survey for CDM project activities and programme of activities' following 'Guidelines for sampling and surveys for CDM project activities and programme of

	<p>activities' version 04 in determining sample size. Determination of <math>BC_{BL,HH,y}</math> is consistent with the options provided in the applied methodology AMS-I.E version 09.</p> <p><math>f_{NRB,y}</math> is calculated as per procedures outlined in tool 'Calculation of the fraction of non-renewable biomass' version 02. The input value and calculation of <math>f_{NRB}</math> has been approved by Ministry of Environment and Forest, Nepal /12/. The value is 86.10%.</p> <p>Total Baseline emissions from one CPA would be = <math>20,000 \times 89\% ^1 \times 4.5 \times 86.10\% \times 0.0156 \times 63.7</math> = 68,532.99 tCO<sub>2</sub>e.</p> <p>Project emissions: As per the applied methodology, the project does not have any project emissions.</p> <p>Leakage Emissions: The project activities are not meant to use biomass as either fuel or feedstock and therefore, 'tool: project and leakage emission from biomass' is not applicable. In consistent with methodology paragraph 24, leakage emissions (from use/diversion of nonrenewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources) from the project is accounted multiplying By with 0.95 as default.</p> <p>Accordingly, the emission reductions estimated from a single CPA is = <math>68,532.99 \times 0.95 = 65,106</math> tCO<sub>2</sub>/year</p>
<b>Findings</b>	N/A
<b>Conclusion</b>	<p>RINA confirms, the PoA-DD correctly lists assumption and data used by the PP for estimating emission reduction including their references and sources.</p> <p>Source of data and assumptions are correctly quoted and interpreted in the PoA-DD.</p> <p>All values used in the PoA-DD are considered reasonable in the context of the proposed CDM PoA.</p> <p>The baseline methodology and corresponding tools have been correctly applied to calculate project, baseline and leakage emissions, and emission reductions.</p> <p>All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PoA-DD.</p>

#### D.2.4. Validity of monitoring plan

<b>Means of validation</b>	<p>The monitoring plan in the PoA-DD is consistent with the latest methodology, AMS-I.E Version 09. Validation team confirmed from the document review that the list of parameters including the means of monitoring is described in accordance with the applied methodology. Following are the parameters to be monitored:</p> <ul style="list-style-type: none"> <li>a) The share of digesters implemented that is operational –the parameter shall be monitored CPA wise at least biennially (as part of Biogas User Survey) following sampling approach as per the applied methodology. This parameter shall be used to arrive By value.</li> <li>b) Date of commissioning of project device of type i- Actual date of commissioning of any digester included in a CPA shall be recorded in CPA specific database and shall be verified during verification. Commissioning reports shall be used to cross check the actual date of commissioning.</li> <li>c) 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 (<math>BC_{PJ,HH,y}</math>) shall be monitored thorough survey at least once every two years (biennial). The result shall be used to determine 'By' during each verification.</li> </ul> <p>The monitoring plan is still same in consistent with the latest methodology and hence valid for the next crediting period. RINA is of the opinion that monitoring plan</p>
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<sup>1</sup> Ex-ante operational status of number of biogas plants are considered to be 89% as per latest survey report.

	is feasible within the project design.
<b>Findings</b>	N/A
<b>Conclusion</b>	RINA confirms that the monitoring plan included in the updated PoA-DD is valid as per the applied methodology and conforms the registered PoA-DD.

#### D.2.5. Eligibility criteria for inclusion of CPAs

<b>Means of validation</b>	<p>The managing entity employs clear and unambiguous criteria for the inclusion of the CPA. The eligibility criteria's have been stated are in line with the applicability of the applied methodology AMS.I.E version 09. Following has been included as eligibility criteria for CPAs to this PoA –</p> <ol style="list-style-type: none"> <li>1. Geographical boundary - The CPAs has to be implemented within geographical boundary of Nepal</li> <li>2. Double counting - requirement is to allocated unique identification no, to each digester &amp; CPA, geographical location of CPA and checking of CDM website</li> <li>3. Technology – All digester that meets the description as listed in PoA will only be qualify for CPAs to be included.</li> <li>4. CPA Start date - Shall be later than 22nd June 2007</li> <li>5. Compliance with applied methodology – Households that used firewood would be considered in this project. Furthermore, the CPA shall meet all applicability criteria of applied methodology i.e AMS I.E, Version 09.</li> <li>6. Diversion of ODA - CPA implementation should not result in ODA diversion</li> <li>7. Target Group and distribution mechanism – Target group is household having at least one cattle head and a direct home to home installation should be done</li> <li>8. Threshold check - Not more than 20,000 digester shall be implemented within one CPA.</li> <li>9. Local stakeholder consultations and environmental impact analysis - A local stakeholder consultation has been carried out at PoA leve.</li> <li>10. Others – each digester user should have signed agreement relinquishing the carbon rights to AEPC and it should be a voluntary action</li> </ol>
<b>Findings</b>	CAR 03 was rasied to clarify the the reason for not considering additionality as eligibility criteria for inclusion of CPA in PoA to which PP clarified that the PoA is deemed additional as described in the PoA DD and hence additionality is not discussed. Further in consistent with requiremnents for renewal of crediting period, additionality is not required to discuss. Hence, CAR is closed.
<b>Conclusion</b>	RINA confirms that the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. The eligibility criteria will be checked at each CPA inclusion by the CME and shall be confirmed by the DOE to be fulfilled during CPA inclusion. The eligibility criterias are consistent with the first crediting period.

#### SECTION E. Internal quality control

>>The draft final validation report before being submitted to request for registration is subjected to an independent internal technical review to confirm that all validation activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

#### SECTION F. Validation opinion

>> RINA has undertaken the validation for renewal of the second crediting period for the registered PoA, "Nepal Biogas Support Program-PoA" (UNFCCC Ref 9572). The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism, CDM Validation and Verification Standard for Programme of Activities (VVS-PoA) Version 02.0 and host country criteria.

The program of activity involves implementation of biogas applications at individual households in Nepal. The different sizes of the digesters included in the programme are 2, 4, 6, 8 and 10 m3. Each digester replaces fire-wood which otherwise would have been used for household thermal application (cooking/heating). Thereby, the PoA reduces GHG emissions from firing of fire-wood at household level.

To arrive at the final validation conclusions and opinion, RINA carried out review of project documents, assessment of compliance with and application of the approved baseline and monitoring methodology as

well as the approved methodological tools and interview with CME. Validation team confirms that project information remains materially same as in the registered PoA-DD.

The validation team is of the opinion that the PoA correctly applies the small scale methodology AMS-I.E Version 09 and conforms to all the relevant UNFCCC requirements for the CDM as well as the host country's national requirements and that the monitoring arrangements described in the monitoring plan are feasible within the project design. The CME is able to implement the monitoring plan and it is deemed likely that the forecasted emission reductions of 65,106 tCO<sub>2</sub>e per year from a single CPA during the second crediting period will be achieved, given that the underlying assumptions do not change. Therefore, RINA requests the renewal of crediting period of "Nepal Biogas Support Program-PoA" (UNFCCC Ref: 9572) to the CDM Executive Board.

## Appendix 1. Abbreviations

Abbreviations	Full texts
AEPC	Alternative Energy Promotion Center
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH <sub>4</sub>	Methane
CL	Clarification Request
CME	Coordinating and managing entity
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CPA	Component project activity
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
kW	Kilo Watt
LoA	Letter of Approval
MoC	Modalities of Communication
MoV	Means of Verification
MR	Monitoring Report
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PoA	Program of Activities
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

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



### CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:  
We declare that Mr/Mrs/Ms:

Rakha MENON

è qualificato come<sup>1</sup>:  
is qualified as:

CDM-TEC, -VAL, -VER, -TL  
ITRP, REG-EXP<sup>2</sup>

per le seguenti aree tecniche:  
for the following technical areas:

1.2, 2.1, 13.1, 13.2, 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity Distribution	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

In accordo alle Istruzioni dell'unità Sostenibilità & Cambiamenti Climatici.  
In accordance with the Instructions of the Sustainability & Climate Change Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	05-03-2008	-
11	31-03-2017	Update qualification as ITRP
12	23-07-2018	Update qualification as REG-EXP

Il Resp. CCPLS  
Head of CCPLS

#### <sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
GS: Gold Standard  
SCS: SocialCarbon Standard  
JI: Joint Implementation

#### <sup>2</sup> India, Indonesia, Malaysia, Myanmar, Vietnam, Cambodia, Laos, Sri Lanka, Nepal, China, Philippines, Thailand, Africa, Latin America and Iran

RNA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS.

RNA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports.

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**CERTIFICATO DI QUALIFICA**  
**QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:  
*We declare that Mr/Mrs/Ms:*

**Champak BURAGOHAIN**

è qualificato come<sup>1</sup>:  
*is qualified as:*

**CDM -TEC, -VAL, -VER, -TL  
ITRP, REG-EXP<sup>2</sup>**

per le seguenti aree tecniche:  
*for the following technical areas:*

**1.2, 2.1, 13.1, 13.2**

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13
13.2	Manure	13

in accordo alle istruzioni dell'unità Sostenibilità & Cambiamenti Climatici.  
*in accordance with the instructions of the Sustainability & Climate Change Unit.*

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19-01-2011	-
11	31-03-2017	Update qualification as ITRP
12	20-07-2018	Update qualification as REG-EXP

Il Resp. CCPLS  
*Head of CCPLS*

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
GS: Gold Standard  
SCS: Social Carbon Standard  
JI: Joint Implementation

<sup>2</sup> India, Nepal, Sri Lanka, Thailand, Indonesia, Vietnam.

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## CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

Amalorpavanathan Cyril AUGUSTUS AROKIASAMY

We declare that Mr/Mrs/Ms:

è qualificato come<sup>1</sup>:  
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL,  
ITRP, REG-EXP<sup>2</sup>

per le seguenti aree tecniche:  
for the following technical areas:

1.1, 1.2, 3.1, 5.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy Demand	3
5.1	Chemical industry	5
13.1	Solid Waste and wastewater	13

in accordo alle istruzioni della Divisione Certificazione.  
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	30/06/2010	-
13	31/03/2017	Updated qualification as ITRP
14	20/09/2018	Update qualification as REG-EXP

Il Resp. CCPLS  
Head of CCPLS

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
GS: Gold Standard  
SCS: Social/Carbon Standard  
JI: Joint Implementation

<sup>2</sup> Ghana, Azerbaijan, China, Sri Lanka, Bangladesh, Nepal, Thailand, Indonesia, Singapore, Malaysia, Cambodia, Vietnam, Philippines, UAE and Iraq, Brazil, Japan.

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS.

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# CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

Hui Feng LIU

We declare that Mr/Mrs/Ms:

è qualificato come<sup>1</sup>:  
is qualified as:

CDM -TEC, -VAL, -VER, -TL  
ITRP, REG-EXP<sup>2</sup>

per le seguenti aree tecniche:  
for the following technical areas:

1.1, 1.2, 8.1, 9.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
8.1	Mining and mineral processes	8
9.2	Iron, steel and ferro-alloy production	9
13.1	Solid waste and wastewater	13

in accordo alle istruzioni dell'unità Sostenibilità & Cambiamenti Climatici.  
in accordance with the instructions of the Sustainability & Climate Change Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	10/09/2010	-
11	31/03/2017	Updating qualification as ITRP
12	30/07/2018	Updating qualification as REG-EXP

Il Resp. CCPLS  
Head of CCPLS

<sup>1</sup> Legend:

VAL: Validator  
VER: Verifier  
TEC: Technical Expert  
TL: Team Leader  
FIN-EXP: Financial Expert  
DET: Determiner

CDM: Clean Development Mechanism  
VCS: Verified Carbon Standard  
GS: Gold Standard  
SCS: SocialCarbon Standard  
JI: Joint Implementation

<sup>2</sup> China

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	AEPC	Updated PoA-DD for the PoA 'Nepal Biogas Support Program-PoA' in Nepal	Version 15 of 09/05/2019, version 16 of 16/06/2019 and version 17 of 05/09/2019	CME
2	AEPC	Registered PoA DD for the PoA 'Nepal Biogas Support Program-PoA' in Nepal	Version 14 of 13/01/2013	CME
3	AEPC	Emission reduction worksheet for the PoA '9572_ER and sample calculation.xlsx'	Version 01 of 09/05/2019 and version 02 of 05/09/2019	CME
4	TUV Sud	Validation report for the PoA 'Nepal Biogas Support Program-PoA- PoA 9572' in Nepal	Report no. 600500123 dated 31/01/2013	CME
5	UNFCCC	UNFCCC webpage: PoA 9572 : Nepal Biogas Support Program-PoA	<a href="https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/7BSCYZMH2U05TWXFJKELND18PRQ96O/view">https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/7BSCYZMH2U05TWXFJKELND18PRQ96O/view</a>	Others
6	UNFCCC	Small-scale methodology 'Switch from non-renewable biomass for thermal applications by the user'	Version 09 of 31/08/2018	Others
7	UNFCCC	Validation and verification standard for PoA	Version 02 of 29/11/2018	Others
8	UNFCCC	CDM Project Standard for PoA	Version 02 of 29/11/2018	Others
9	UNFCCC	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- EB 66 Annex 47	Others
10	Jean Marie Baland	Jean Marie Baland, "The Environmental Impact of Poverty: Evidence from Firewood Collection in Rural Nepal", Boston University - The Institute for Economic Development Working Papers Series, 30 June 2007	2007	Others
11	Prakriti Consult (P) Ltd.	Biogas user survey 2017/18 for Biogas Support Program-Nepal (BSP-Nepal) Activity-1, Activity-2, Activity-3 and Activity-4	May 2018	CME
12	Ministry of Forest and Environment	Confirmation on fNRB value of Nepal	Letter dated 25/11/2018	CME

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

Table 1. CL from this validation

CL ID	01	Section no.	D.2.2	Date:	10/06/2019
Description of CL					
Kindly clarify the appropriateness of using By value as 4.5 ton/HH.					
Project participant response					Date:
					16/06/2019

As given in section I.6.1 of the revised PoA-DD, survey for the similar biogas project activities has been conducted in FY 2017/18 to identify the woody biomass consumption before and after the project activity implemented following the approved sampling and survey methodology for particular project activities. The total woody biomass replaced by the project activities are calculated by deducting the values estimated before and the values estimated after biogas project activities which varies from 4.50 to 4.67 ton/household/year. See section 3.3 of the corresponding Biogas User Survey Reports. Since, established sampling and survey guideline was followed to estimate the value for woody biomass consumption. So, CME confirm that the value for the woody biomass that would be replaced by the PoA is taken as 4.5 ton/HH/year for this crediting period and is appropriate as the demand for the cooking requirement has been increased with the increased life style.

<b>Documentation provided by project participant</b>	
<i>BUS 2017.18_PA_1.pdf</i> <i>BUS 2017.18_PA_2.pdf</i> <i>BUS 2017.18_PA_3.pdf</i> <i>BUS 2017.18_PA_4.pdf</i>	
<b>DOE assessment</b>	<b>Date:</b> 19/06/2019
The value is updated considering latest user survey prior to renewal of crediting period. The survey was carried out covering year 2017-18 which resulted the fire-wood consumption in absence of biogas is 4.5 ton/household per year /11/. Therefore the updated value is accepted for the next crediting period. Hence, CL is closed.	

**Table 2. CAR from this validation**

<b>CAR ID</b>	01	<b>Section no.</b>	D.1.1	<b>Date:</b> 10/06/2019
<b>Description of CAR</b>				
<i>Latest PoA-DD template is not used.</i>				
<b>Project participant response</b>				<b>Date:</b> 16/06/2019
Latest Version (version 9) of the PoA-DD has been used and the revised PoA-DD has been provided with this response.				
<b>Documentation provided by project participant</b>				
<i>PoA-DD_9572_V16_Clean.doc</i> <i>PoA-DD_9572_V16_Trackchange.doc</i>				
<b>DOE assessment</b>				<b>Date:</b> 19/06/2019
RINA confirms that the updated PoA-DD is in compliance with the latest version of the PoA-DD form (version 09.0) and the instructions therein for filling out the PoA-DD form. RINA also confirms that the CME has updated the relevant sections of the PoA-DD in accordance with the relevant requirements in the Project Standard for PoA. RINA further confirms that the information transferred to the updated version of the PoA-DD is materially the same as that in the registered PoA-DD. Hence, CAR is closed.				

<b>CAR ID</b>	02	<b>Section no.</b>	D.2.2	<b>Date:</b> 10/06/2019
<b>Description of CAR</b>				
<i>Not all eligibility criteria as per the applied methodology is discussed in the PoA-DD section I.2</i>				
<b>Project participant response</b>				<b>Date:</b> 16/06/2019
<i>The applicability of the applied methodology has been discussed as per the AMS I.E Version 9 and corrected accordingly in section I.2 of the revised PoA-DD.</i>				
<b>Documentation provided by project participant</b>				
<i>PoA-DD_9572_V16_Clean.doc</i> <i>PoA-DD_9572_V16_Trackchange.doc</i>				
<b>DOE assessment</b>				<b>Date:</b> 19/06/2019
CME has updated all applicability conditions in the PoA-DD consistent with the latest methodology and justified the conditions met by the PoA. Hence, CAR is closed.				

<b>CAR ID</b>	03	<b>Section no.</b>	D.2.5	<b>Date:</b> 10/06/2019
<b>Description of CAR</b>				
<i>Kindly clarify why demonstration of additionality is not considered as one the eligibility Eligibility criteria for inclusion of CPA .</i>				
<b>Project participant response</b>				<b>Date:</b> 16/06/2019

*The PoA was registered in 31<sup>st</sup> January 2013. The PoA DD is prepared for the second crediting period which starts from 31<sup>st</sup> January 2020. As per the requirement of crediting period renewal, the additionality of the PoA is not required to re-assess or updated. So, the assessment of additionality is kept as same as given in the first crediting period. Please see last para of section A.4.3 of the registered PoA-DD for the assessment of additionality and has been clearly mentioned that "The PoA is thus additional and there is no need for further assessment and demonstration of additionality". So the demonstration of the additionality is not considered as one of the eligibility criteria for the inclusion of CPAs.*

**Documentation provided by project participant**

*Link for registered PoA DD:*

*[https://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/7BSCYZMH2U05TWXFJKELND18PRQ960/view](https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/7BSCYZMH2U05TWXFJKELND18PRQ960/view)*

**DOE assessment**

**Date:** 19/06/2019

As per the registered PoA, the program is automatic additional as per UNFCCC tools and guidelines. Further the requirement of renewal of crediting period does not require to reassess additionality during renewal of crediting period. Therefore, the additionality criteria is automatically justifies in CPAs to be included and hence requirements are met. In summary, CAR is closed.

**Table 3. FAR from this validation**

<b>FAR ID</b>	01	<b>Section no.</b>	C.2	<b>Date:</b> 10/06/2019
<b>Description of FAR</b>				
<i>As no site visit has been performed during the validation of the renewal of crediting period and all validation of technical data of equipment has been done based on documents, pictures and interview, the verifier shall reconfirm the technical data.</i>				
<b>Project participant response</b>				<b>Date:</b> 16/06/2019
<i>This PoA is registered in 2013 and 4<sup>th</sup> consecutive verifications and issuance of the CERs are happened already and the verifying DOEs verified all the technical data of the equipments during consecutive verification. The PoA is now in the process of the crediting period renewable and all the existing CPAs cannot be changed as they are already installed. For the future CPAs, the technical data for the equipments will be same.</i>				
<b>Documentation provided by project participant</b>				
NA				
<b>DOE assessment</b>				<b>Date:</b> 19/06/2019
Verifying DOE shall check thoroughly all data information to confirm their consistency with presented information.				

- - - - -

**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	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 programmes of activities” (CDM-EB93-A08-STAN) and version 02.0 of the “CDM project cycle procedure for programmes of activities” (CDM-EB93-A09-PROC);</li><li>• Make editorial improvements.</li></ul>
01.0	29 December 2017	Initial publication.

Decision Class: Regulatory  
Document Type: Form  
Business Function: Renewal of crediting period  
Keywords: crediting period, programme of activities, validation report