Verification report form of GS project	
BASIC INFORMATION	
Title and GS reference number of the project activity	National Biodigester Programme, Cambodia GS reference number: 751
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	2
Completion date of the verification and certification report	26/10/2021
Monitoring period number and duration of this monitoring period	2nd Monitoring; 01/01/2020-31/12/2020
Version number of the monitoring report to which this report applies	1.4
Crediting period of the project activity corresponding to this monitoring period	01/01/2019 – 31/12/2025
Project participants	National Biodigester Programme (NBP)
Host Party	Cambodia
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Estimated amount of GHG emission reductions or GHG removals and SDG contribution for this monitoring duration in the registered PDD	SDG 2: 44,475 ha SDG 7: 108,473 number of beneficiaries SGD 13: 72,480 tCO_2e
Certified amount of GHG emission reductions or GHG removals and SDG contribution for this monitoring period	SDG 2: 10,267 ha SDG 7: 79,256 number of beneficiaries SDG 13: 62,820 tCO2e
Name and GS reference number of the VVB	AENOR International, S.A.U (GS S.No.: 3)
Name, position and signature of the approver of the verification and certification report	José Luis Fuentes Climate Change Manager

SECTION A. Executive summary

AENOR INTERNACIONAL S.A.U (AENOR) has been contracted by National Biodigester Programme (NBP) to undertake this verification of the registered GS programme titled “National Biodigester Programme, Cambodia” (GS reference number: 751). The verification has been performed through a process of document review based on the MR, initially submitted for verification and the subsequent revisions, registered PDD, follow-up interviews, resolution of outstanding issues and issuance of the verification report.

The programme’s aim is to install biodigesters at household level to treat animal manure to generate biogas as cooking and lighting fuel and the bio-slurry from the systems is used as organic fertilizer. Animal manure is fed into the biodigester and anaerobically degraded by microbes to produce biogas. The biogas is captured in an integrated gasholder and stored for various household thermal energy services, mainly for cooking and lighting. A typical system is comprised of a biodigester, an overflow pit, a biogas lamp, number of biogas stoves and the necessary piping. A toilet connected to the biodigester is optional (recommended by the programme). The installation of a slurry compost facility for the effluent from a biodigester further decomposes the slurry under aerobic conditions. The composted slurry is utilized as an organic fertilizer and/or fish feed.

The technology of the programme reduces GHG emissions with (1) displacement of firewood used for cooking; (2) avoidance of methane emissions from the animal waste; and (3) displacement of chemical fertilizers.

The key parameters of the biodigesters and the number of units installed during the monitoring period are given in table below:

Size (m^3)	**2**	**3**	**4**	**6**	**8**	**10**	**15**	**sum**
units	56	753	16,694	9,922	894	249	115	**28,683**
share (%)	0.20%	2.60%	58.20%	34.60%	3.10%	0.90%	0.40%	**100%**

The details of the project location are given in Table below:

Description	**Project Location**
Host Country	Cambodia
Region	17 active out of 20 provinces in Cambodia
Project location address	17 / 20 provinces in Cambodia during crediting period

Latitude/longitude

#	Province	Latitude (xx° xx' xx" N)	Longitude (xx° xx' xx" W)
1	Kampong Cham	11° 59' 00" N	105° 27' 00" E
2	Kandal	11° 78' 30" N	104° 81' 70" E
3	Svay Reang	11° 05' 00" N	105° 48' 00" E
4	Takeo	10° 59' 00" N	104° 47' 00" E
5	Kampong Speu	11° 27' 00" N	104° 30' 00" E
6	Kampong Chhnang	12° 00' 00" N	104° 30' 00" E
7	Kampot	10° 36' 00" N	104° 10' 00" E
8	Kampong Som	10°38′00” N	103°30′00” E
9	Kep	10°29′00” N	104°18′00” E
10	Prey Veng	11°29' 00" N	105°19' 00" E
11	Siem Reap	13°21′44″ N	103°51′35″E

12	Pursat	12°32′00” N	103°55′00” E
13	Battambang	13°06′00” N	103°12′00” E
14	Kampong Thom	12°42′00” N	104°53′00” E
15	Tbong khmum	11°54′34″N	105°38′49″E
16	Phnom Penh	11°33′43” N	104°53′18” E
17	Banteay Meanchey	13°45′00” N	103°00′00”E

Scope of the verification

The scope of the verification is to assess all aspects described in the Gold Standard for the global Goals, Principles and Requirements, v1.2. /7/ related to all aspects of GHG reduction involved in the programme. The verification is based on the validated project design document /1/ Version 02.1, dated 22/02/2019 (hereinafter validated or registered PDD) and previous verification report /10/. These documents were also reviewed against the requirements of Gold Standard for the Global Goals, Community Services Activities Requirements, v1.2. /8/.

The objectives of this verification are to verify and certify emission reductions reported for the programme for the monitoring period from 01/01/2020 to 31/12/2020 (first and last day included); and to verify that the data reported are complete and transparent.

This report summarizes the findings of the verification of the programme, performed on the basis of GS criteria as well as criteria given to provide for consistent programme operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board’s decisions.

The information in these documents is reviewed against Gold Standard for the Global Goals, Principles and Requirements, v1.2. /7/, the recommendations in the CDM Validation and Verification Standard for programmes of activities version 3.0 /9/ Kyoto Protocol requirements and associated interpretations. AENOR has used a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generations of GS-VERs.

The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the monitoring.

Verification process

The verification team determines the conformity of the actual programme and its operation with the validated project design document. The audit team has, by means of a desk review and remote interviews, assessed that all physical features of the proposed programme proposed in the PDD are in place, and that the project participants have operated the programme as per the PDD. Thus, the verification team has concluded that the programme was implemented and operated as per PDD, and that all physical features of the project are in place.

The verification team, based on the remote interviews and document review, was able to conclude that the programme has been commissioned and implemented as per the PDD. The start date of this monitoring period is 01/01/2020 and by considering the end date of the previous monitoring period, the verification team has accepted the same.

The verification team has planned and performed the work to obtain the information and explanations that is considered necessary to provide sufficient evidence for it to give reasonable assurance that the amount of calculated GHG emission reductions for this monitoring period were fairly stated.

The monitoring report for this monitoring period is in compliance with the monitoring plan /2/ of the registered PDD. The programme was registered by applying the GS methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1 /13/ and the verification was carried out in accordance with the applied methodology. It was confirmed that the programme during the current verification is in accordance with the applicability criteria of the methodology.

The project participants were requested to address all verification findings and finally provided the verification team with sufficient evidence to determine that the applicable GS requirements have been met. The project participant modified the initial MR to resolve the verification team concerns and resubmitted a final version of the MR. AENOR has prepared this report based on the final MR.

All Corrective Action Requests (CAR) and Clarification Actions (CL) have been checked by the validation team and have been adequately resolved.

All the validation findings are summarized in section C.5 below and documented in more detail in Appendix 3.

As a final step of the verification, the verification report has to undergo internal quality control by means of a technical review following the procedures of AENOR. The technical reviewer is a competent person from AENOR, independent of the team that carried out the validation of the project activity.

In AENOR's opinion, the GHG emissions reductions of the monitoring period from 01 January 2020 – 31 December 2020, were calculated correctly and amount 62,820 tonnes of CO2 equivalent.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	IR	Arroyo Bovea	Marina	AENOR	Yes	No	Yes	Yes
2.	Verifier	IR	Arribas Alonso	Luis Javier	AENOR	Yes	No	Yes	Yes

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Llorente Pérez	Elena	**AENOR**
2.	Approver	IR	Fuentes Pérez	José Luis	**AENOR**

SECTION C. Means of verification

C.1. Desk/document review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

The following documents were reviewed as part of the validation:

- MR /3//4/, including excel calculations /6/.
- Gold Standard for the Global Goals Safeguarding Principles & Requirements Version 1.2 /1/
- Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1 /13/.
- Decision 3/CMP.1 and relevant decisions and guidelines from the EB
- Gold Standard for the Global Goals, Principles and Requirements, v1.2. /7/
- Gold Standard for the Global Goals, Community Services Activities Requirements, v1.2./8/.

The initial version of the monitoring report /3/ version 1.0 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests and clarification requests (CAR and CL) which are presented in Appendix 3 of this report. In response, PP has submitted MR /4/ version 1.4. A complete list of all documents and records reviewed is as attached in Appendix 2 of this report.

C.2. On-site inspection

In the case of this verification process of the programme, in accordance with the Rule Update: Covid 19: Interim Measures /11/ latest published on 17.05.2021 (and valid up to 31/12/2021, based on the alternative measures proposed in paragraph 4.1.1. b), the on-site visit has been replaced by remote interviews as a means of verification, due to the extraordinary world situation as consequence of the Coronavirus, and specifically in Cambodia.

Besides AENOR has considered additional circumstances to justify that the onsite visit to the programme during this verification process is not required, as we detail below:

a) It is not an initial verification;

b) The previous verification was carried out recently, less than a year, and the last onsite visit was carried out in April 2019.

d) There has been no significant change in the design of the project, scope, boundary of reporting or any other issue affects the estimated emission reductions since the previous verified statement;

(f) The GHG emission reductions achieved by the programme are lower than the estimated in the registered PD and the last verification when an on-site inspection was conducted.

Due to the circumstances and the reasons explained above, the verification team of AENOR considers that alternative means of audit indicated in paragraph 4.1.1.b of the Rule (i.e. document review of project documentation and remote interviews (by telephone, email, online communication systems, etc) will be enough for the purpose of verification of the compliance of the project with GS rules, and thus a site visit is not necessary.

Duration of on-site inspection: --/--/---- to --/--/----				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
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C.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Buysman	Eric	Carbon Consultant	24/09/2021	Verify the correct implementation of the project and the monitoring plan.	Marina Arroyo Bovea Luis Javier Arribas Alonso
2.	Nimol	Im	NBP / Database Manager			
3.	Savoeun	Kim	NBP / Programme Director			
4.	Seang	Soklim	NBP / Programme Manager			
5.	Chan	Sokyeng	BDTrust			

C.4. Sampling approach

The sampling plan is developed using guidance of the applied GS methodology and the registered PDD which prescribes a 90% confidence interval with a 10% error margin. The CMS sample size is 165 households, which is divided between the number of clusters calculated.
A cluster is a district, and there are 139 districts in NBP. The calculated number of clusters is then 8. As per PDD, the number of clusters is at least k, or 8 in this case, but preferably more. Therefore, the PP defines for this MP, like all other MP's in CPII, this number was set at 15. The cluster size is consequently 165/15, it is means 11 household per cluster or district.

The verification team has checked on the sampling plan and considered appropriate.
According to the Standard for sampling and surveys for CDM project activities and programme of activities /24/, the verification team determined the following sample size for the remote check:
• AQL of 1%
• UQL of 20%
• Producer Risk of 5%
• Consumer Risk of 5%
Therefore, according to the sampling guidelines, 22 surveyed householders are required to be checked by the VVB and the acceptance number is 1, which means that number of discrepancies between VVB check and PP result must not exceed this number.
The selected households were interviewed by NBP officers who recorded the interview to the householder and sent it to the verification team, including the interview reports with the answers of the householder /15/.

List of randomly selected 22 households for interview are included below:

Biodigester size	Biodigester code	Household Name (NBP database)	Province	District	Commune	Village
3	2102174934	Chruy Kong	Takeo	Bati	Tang Doung	Tuol Lhong
2	0506162705	Chhim Mao	Kampong Spue	Phnom Sruoch	Moha Sang	Sereivoan
2	0506162706	Suon Mom	Kampong Spue	Phnom Sruoch	Moha Sang	Sereivoan
2	0506162696	Chhuon Chanthy	Kampong Spue	Phnom Sruoch	Moha Sang	Sereivoan
3	2107185117	Sao Samach	Takeo	Samraong	Soengh	Trapeang Kei
3	2107185119	Ros Tim	Takeo	Samraong	Soengh	Prey Khla
4	2102091260	El Nob	Takeo	Bati	Doung	Krang Prateal
4	2102174913	Veong Sok	Takeo	Bati	Doung	Krang Prateal
4	0506152630	Dom Sokhum	Kampong Spue	Phnom Sruoch	Tang Sya	Krang Slaeng
4	0506152549	Sou Vorn	Kampong Spue	Phnom Sruoch	Ou	Krang Pnov
4	0506142158	Soth Kheth	Kampong Spue	Phnom Sruoch	Choam Sangkae	Kbal Tuek Leu
4	2106123190	Phai Sreymom	Takeo	Prey Kabbas	Kdanh	Veal
4	2106091577	E Vavy	Takeo	Prey Kabbas	Pou Rumchak	Sama Leav
4	2107154125	Eng Savut	Takeo	Samraong	Soengh	Soengh
4	2107195182	Saray Kim Srun	Takeo	Samraong	Samraong	Svay
6	2102123430	Ouk Num	Takeo	Bati	Krang Leav	Mean Chouk
6	0506090594	Moung Moeun	Kampong Spue	Phnom Sruoch	Prey Kmeng	Sre Trapang
6	2106070446	Ngorn Seng Ay	Takeo	Prey Kabbas	Tang Yab	Trapeang Tea
6	2107154505	Ouch Hing	Takeo	Samraong	Trea	Ruessei Chum
6	2107143830	Paen Sorn	Takeo	Samraong	Trea	Dountei
6	210717485	Chab Vuth	Takeo	Samraong	Trea	Kbal

	1					Samraong
6	2107185084	Kan Chanvoleak	Takeo	Samraong	Trea	Tnaot Ter

Due to the exceptional situation of Covid-19 and the difficulties to access certain regions of Cambodia/obtaining response from households, an alternate list for sampling was provided in case more were necessary:

Biodigester size	Biodigester code	Household Name (NBP database)	Province	District	Commune	Village
4	2102174937	Oar Vey	Takeo	Bati	Doung	Krang Prateal
4	2106070045	Phork Nha	Takeo	Prey Kabbas	Prey Kabbas	Prey Kabbas Ka
6	2109123313	Bin Ol	Takeo	Tram Kak	Kus	Trapeang Ta Sokh
4	2109174847	Sem Chhorn	Takeo	Tram Kak	Leay Bour	Angk Ta Chan
4	2109154153	Nget Samiet	Takeo	Tram Kak	Cheang Tong	Totueng Thngai
4	2102154432	Choem Kdoeb	Takeo	Bati	Komar Reachea	Kanhchang
6	2102091298	Men Rithy	Takeo	Bati	Komar Reachea	Kanhchang
4	2102154275	Yang Mardy	Takeo	Bati	Komar Reachea	Kanhchang
4	2106144042	Dul Chok	Takeo	Prey Kabbas	Kampeaeng	Trapeang Angk
4	2106123387	Prak Bach	Takeo	Prey Kabbas	Prey Kabbas	Prey Prum
4	2106112745	Sun Sroeun	Takeo	Prey Kabbas	Snao	Roka
4	2106112547	Ton Sokhon	Takeo	Prey Kabbas	Kdanh	Veal
6	2109164579	Phorn SreySdoeung	Takeo	Tram Kak	Tram Kak	Kol Kom
6	2109091452	Sin Song	Takeo	Tram Kak	Cheang Tong	Ti Pat
6	2109101892	Sei Sokhom	Takeo	Tram Kak	Cheang Tong	Nomou
6	2109154106	Om Pheap	Takeo	Tram Kak	Cheang Tong	Angk Kralanh
6	2109123137	Nhaem Khan	Takeo	Tram Kak	Kus	Trapeang Pring
4	0506142131	daM esog	Kampong Spue	Phnom Sruoch	Choam Sangkae	Kbal Tuek Kraom
6	2106112522	Ton Sengkim	Takeo	Prey Kabbas	Kdanh	Veal
4	2106112501	Boch Phanrith	Takeo	Prey Kabbas	Kdanh	Angk

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	CAR 1	-
Compliance of the project implementation and operation with the registered PDD	-	-	-

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	CL 1	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	CAR 2 CAR 3 CAR 4	-
Assessment of reported sustainable development co-benefits	-	-	-
Local stakeholder consultation	-	-	-
Others	-	-	-
Total	1	4	0

SECTION D. Verification findings

D.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The verification team has determined whether the monitoring report was completed using the valid version of the applicable monitoring report form /12/. The verification team has checked whether all the sections of the monitoring report follow the guidelines provided in the template itself.
Findings	CAR 1 was raised. Appendix 3 summarizes the findings from the desk review of the Monitoring Report /4/, the calculation spreadsheets /6/ the Monitoring Plan /2/ and other supporting documents as well as findings from the interviews.
Conclusion	PP has used the valid version of the MR template prescribed by GS which is current and active. The monitoring report has been prepared as per the instructions provided in the GS requirements. The verification team has concluded that the monitoring report was completed using the valid version of the applicable monitoring report form and is followed the guidelines given in the template.

D.2. Remaining forward action requests from validation and/or previous verifications

The audit team has reviewed the previous verification report and validation report observed that there were no FARs pending to close from the previous verification and the validation report of the renewal of the crediting period.

D.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	The compliance of the project implementation with the registered project design document was verified through the interviews and desk-review of documents provided by the project participants (All revised documents are listed in Appendix 2). The audit team reviewed that the main technical features of the programme and other equipment are operational as per specifications mentioned in the PDD. The audit team verified the correct operation of the programme by reviewing different technical documentation and Operation registers. Project participant has provided all necessary information and documentation to demonstrate compliance of the implemented registered programme and monitored GHG emission with all applicable requirements to the methodology and applicable GS4GG rules.
Findings	No finding was raised regarding this issue.
Conclusion	AENOR confirms that: • The implementation status and equipment installation of the programme

	are consistent with the registered PDD. • The actual operation of the Programme is as per the registered PDD. • Information (data and variables) provided in the monitoring report is in accordance with that stated in the registered PDD. • The actual GHG emission reductions achieved by the programme in the current monitoring period that have been reported in the monitoring report are lower that the estimated for the same monitoring period in the PDD.

D.4. Post-registration changes

D.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

There was a temporary deviation for this monitoring period from the registered PDD due to the Covid-19 situation as explained below:

- During the implementation of the survey one selected district could not be visited due to a COVID outbreak in Prey Veng Svay Antor commune. The survey team skipped that district and continued surveying in Romeah Heak and then Kampong Rou district. In order not to increase the monitoring expenses, a district was randomly sampled among the districts between Kampong Rou and Phnom Penh to compensate for the skipped district. The selected district randomly selected out of 20 districts between Kampong Rou and Phnom Penh is Prey Chor. Idem for the usage survey, one household was selected in Sihanouk Ville province was skipped (household with ID 1801143482) due to a Covid-19 outbreak. However, as oversampling is applied in the usage survey with 5 households, it was not necessary to replace this household with another.

D.4.2. Corrections

A correction has been applied to parameters fixed at validation, as it is detailed below:

- A BFT_LPG was organized to address the limitations of the previous BFTLPG. That BFT only assessed LPG usage and not fuel stacking. In order to capture the full range of fuels usage for cooking, a new BFT was organized for fuel scenario 3 –user that mainly use LPG as cooking fuel.

D.4.3. Changes to the start date of the crediting period

There is no change to the start date of the crediting period in this monitoring period.

D.4.4. Inclusion of a monitoring plan

Not applicable

D.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Not applicable

D.4.6. Changes to the project design

There is no such change.

D.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	The compliance of monitoring plan with the monitoring methodology was verified by reviewing whether the GS programme was in accordance with the applied methodology and if any other monitoring aspect of the programme that is not specified in the methodology was established. During the desk review, the audit team was able to review different records and whether the monitoring methodology has been adequately considered and documented. The audit team verified the monitoring of reductions in GHG emissions to result from the proposed GS programme and whether it was implemented in accordance with the registered PDD and the project participant is recording the data and parameters following the monitoring methodology applied. Regarding this issue, the verification team reviewed: • The monitoring of reductions in GHG emissions to result from the proposed GS programme was implemented in accordance with the Monitoring Plan. • The monitoring plan and the applied methodology had been properly implemented and followed by the project participant. • Trainings were performed in order to ensure the correct monitoring of parameters /2//22/. • All parameters stated in the monitoring plan, the applied methodology and other requirements have been sufficiently monitored and updated. • The responsibilities and authorities for monitoring and reporting were in accordance with the responsibilities and authorities stated in the monitoring plan. The audit team has verified that the monitoring of reductions in GHG emissions to result from the proposed GS programme is implemented in accordance with the monitoring plan.
Findings	CL 1 was raised during the verification process and has been closed. Appendix 3 summarizes the findings from the desk review of the Monitoring Report, the calculation spreadsheets, the Monitoring Plan and other supporting documents as well as findings from the interviews.
Conclusion	The verification team reviewed whether the monitoring plan was in accordance with the applied methodology and any other monitoring aspect of the programme that is not specified in the methodology was established. The verification team confirms that the monitoring plan is in accordance with the applied methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1 /13/ based on the following reasons: • During the desk review monitoring parameters included in the applied methodology were compared with the ones included in the Monitoring plan of the registered PDD, and they were found consistent. • The monitoring plan perfectly fulfils the criteria stated in the monitoring methodology. • No other relevant aspects for monitoring not included in the methodology were identified. Therefore, AENOR confirms that the monitoring plan is in compliance with the approved methodology applied by the GS programme and applicable tool.

D.6. Compliance of monitoring activities with the registered monitoring plan

D.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Data and parameters fixed ex ante were verified through desk-review of final version of monitoring report, registered PDD and methodology applied. The fixed parameters used for calculating the emission reduction have been indicated and verified as follows:

Data / Parameter:	$EF_{,CO2}$
Unit	$kgCO_2/TJ$ fuel
Description:	CO_2 emission factor arising from use of fuels in the baseline

	scenario and continued use of baseline fuels in the project scenario
Source of data	2006 IPCC Guidelines defaults, see chapter 2 Stationary Combustion: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html /14/
Value(s) applied	Fuel *b* / $EF_{CO2,}$ (kg/TJ) LPG: 63100 Charcoal in wood eq: 112000 Firewood: 112000
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Calculation of baseline and project emissions
Additional comment	CO2 and non-CO_2 emissions factors for charcoal may be estimated as above or alternatively by researching a conservative wood to charcoal production ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood.

Data / Parameter:	EF_{CH4}
Unit	kgCH_4/TJ fuel
Description:	CH_4 emission factor arising from use of fuels in the baseline scenario and continued use of baseline fuels in the project scenario
Source of data	2006 IPCC Guidelines defaults see chapter 2 Stationary Combustion: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html, table 2.9 /14/
Value(s) applied	Fuel *i* / $EF_{CH4,}$ (kg/TJ) LPG: 11.95 Charcoal in wood equivalent: 1224 Firewood: 1224
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Additional comment	CO2 and non-CO_2 emissions factors for charcoal may be estimated as above or alternatively by researching a conservative wood to charcoal production ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood. Some of the EF values in table 2.9 are ranges; in that case the average value is taken. The wood stove value taken is the value that has reference number 7. This stove is assumed more closely resembling the stoves in Cambodia as it is a value obtained from neighbouring countries.

Data / Parameter:	$EF_{i,N2O}$
Unit	kgN_2O/TJ fuel
Description:	N_2O emission factor arising from use of fuels in the baseline scenario
Source of data	2006 IPCC Guidelines defaults, see chapter 2 Stationary Combustion, table 2.9 http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html /14/
Value(s) applied	

Fuel *i*	$EF_{N20,}$ (kg/TJ)
LPG	2.1
Charcoal in wood equivalent	11.25
Firewood	11.25

Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Additional comment	CO2 and non-CO2 emissions factors for charcoal may be estimated as above or alternatively by researching a conservative wood to charcoal production ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood. Some of the EF values in table 2.9 are ranges; in that case the average value is taken. The wood stove value taken is the value that has reference number 7. This stove is assumed more closely resembling the stoves in Cambodia as it is a value obtained from neighbouring countries.

Data / Parameter:	NCV_i
Unit	TJ/Gg
Description:	Net calorific value of the fuel i used in the baseline
Source of data	2006 IPCC Guidelines defaults, see chapter 1 Energy table 1.2 http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html /14/
Value(s) applied	

Fuel *i*	NCV_i (TJ/Gg)
LPG	47.3
Charcoal in wood equivalent	15.6
Firewood	15.6

Choice of data or measurement methods and procedures	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Additional comment	In case charcoal is expressed in wood equivalents, the NCV of firewood will be applied

Data / Parameter:	Charcoal to wood ratio
Unit	[_]
Description:	Charcoal to wood conversion ratio

Source of data	SAR IPCC
Value (s) Applied	1:6
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Calculation of baseline and project emissions
Any comment:	From IPCC 1996 revised guidelines, Chapter 1, page 45: http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf

Data/Parameter	$B_{b1,wood}$
Unit	Tonnes/year
Description	Amount of woody biomass used in the baseline scenario b1
Source of data	BFT study MPI – file CPIII MPI spreadsheet sheet BFT_wood /6/
Value(s) applied	1.145815
Choice of data or measurement methods and procedures	Baseline fuel consumption will be determined with a Kitchen Performance Test as per the requirements of the TPDDTEC methodology.
Purpose of data	Calculation of baseline emissions
Additional comment	Fixed for CPIII. The test achieved a level of precision/confidence of 90/8 and thereby meeting the requirements. See in the same file sheet Gen_analysis Next to woody biomass, households also used 13.04897 kg LPG on average per year, this is included in the scenario B1 as emission source.

Data/Parameter	$B_{b2,charcoal}$
Unit	Tonnes/year
Description	Amount of charcoal (in fuel-wood equivalents) used in the baseline scenario b2
Source of data	BFT study MPI – file CPIII MPI spreadsheet sheet ER_Fuel cell D27 /6/
Value(s) applied	3.6685 (expressed in wood equivalents)
Choice of data or measurement methods and procedures	Households have been asked how much charcoal they use for cooking and undergo a Kitchen Performance Test as per the requirements of the TPDDTEC methodology.
Purpose of data	Calculation of baseline emissions
Additional comment	The test achieved a level of precision/confidence of 90/12 and thereby meeting the requirements. See in the same file sheet Gen_analysis Next to charcoal, households also used 29.701 kg LPG and 24.277 kg wood on average per year, this is included in the scenario B2 as emission source.

Data / Parameter:	GWP_{CH4}
Unit	tCO_2e per tCH4
Description:	Global Warming Potential (GWP) of methane
Source of data	AR4 IPCC /16/
Value (s) applied	25
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Calculation of baseline and project emissions
Additional comment:	25 for the second commitment period. Shall be updated to any future COP/MOP decisions

Data / Parameter:	GWP_{N2O}
Unit	tCO_2e per tN_2O
Description:	Global Warming Potential (GWP) of nitrous oxide
Source of data	AR4 IPCC /16/
Value (s) applied	298
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Calculation of baseline and project emissions
Additional comment:	298 for the second commitment period. Shall be updated to any future COP/MOP decisions

Data / Parameter:	$VS_{(T)}$
Unit	kg dry matter per animal per day
Description:	Daily volatile solid excreted for livestock category T
Source of data	Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10 (online: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html) /14/
Value (s) applied	Animal: kgVS/day Pig: 0.3 Buffalo: 3.9 Cow: 2.3
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Additional comment:	Any comment: 365 = basis for calculating annual VS production, days per year, region Asia and for animal weights of 319 kg for cow, 380 for buffalo and 28 kilo for market and breeding swine. The VS value will be proportionally adjusted when credible animal weight data is available as per equation 3 of AMS-III.D v21.

Data / Parameter:	$Bo_{(T)}$
Unit	m^3 CH_4 per kg of VS excreted
Description:	Maximum methane production capacity for manure produced by livestock category T
Source of data	Volume 4 of the 2006 IPCC Guidelines for National

	Greenhouse Gas Inventories, chapter 10 (online: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html) /14/
Value (s) applied	Animal T | $Bo_{(T)}$ $m^3CH_4/kgVS$ Pig | 0.29 Buffalo | 0.10 Cattle | 0.10
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of baseline and project emissions
Additional comment:	N/A

Data / Parameter	MCF(k)
Unit	%
Description	Methane conversion factors for each manure management system by climate region k (Cambodia 27.7 C)
Source of data	IPCC default values for the region Asia from volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10 (online: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html) /14/
Value(s) applied	Anaerobic lagoon | Slurry | Dry lot | Daily spread | Solid storage | Other | Pasture 80% | 78 % | 2% | 1.0% | 5% | 1% | 2%
Choice of data or measurement methods and procedures	As per requirement of the methodology and sourced from Tables 10.A-4 through A-9., Chapter 10, Volume 4 of the 2006 IPCC Guidelines The IPCC is a standard, credible source of emissions factors.
Purpose of data	Calculation of baseline and project emissions
Additional comment	IPCC (2006); May be updated according to any future changes by the IPCC Categry other includes manure that is sold, or not collected and the lowest MCF is adopted (of daily spread) which is conservative

Data / Parameter:	$LE_{p,y}$
Unit	tCO_2e/year
Description:	Leakage in project scenario during year y
Source of data	N/A
Value (s) applied	0
Choice of data or Measurement methods and procedures	N/A

Purpose of data	Calculation of leakage emissions
Additional comment:	According to the methodology applied "leakage risks deemed very low can be ignored as long as the case for their insignificance is substantiated" (p.16). Section *B.6.2 table 6* of the PDD provides an overview of potential sources of leakage, including their applicability and justification for excluding the sources of leakage. The assessment deemed the leakage source negligible and are therefore not monitored. As also stated, leakage due to continuation of baseline fuels and AWMS emission from manure not fed in the biodigester and physical leakage are included in the project emission and monitored on an annual interval.

Data / Parameter:	$EF_{awms,T}$
Unit	$kgCH_4$ per animal per year for livestock type T in the project
Description:	Animal waste methane emission factor by average temperature
Source of data	Baseline survey and data from IPCC default values for the region Asia from volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, chapter 10 (online: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html) /14/
Value (s) applied	Animal T: Cow — Value: 5.952 Animal T: Pig — Value: 14.928 Animal T: Buffalo — Value: 14.266
Choice of data or Measurement methods and procedures	Calculated as per requirement of the methodology and sourced from Tables 10.A-4 through A-9., Chapter 10, Volume 4 of the 2006 IPCC Guidelines The IPCC is a standard, credible source of emissions factors.
Purpose of data	Calculation of baseline emissions
Additional comment:	IPCC (2006); May be updated according to any future changes by the IPCC

Data / Parameter:	$\eta_{biogasstove}$
Unit	[-]%
Description:	Combustion efficiency of the biogas stove
Source of data	Centre for Energy Studies, Institute of Engineering for the Nepal Biogas Support Programme[1]
Value (s) applied	99.4%
Choice of data or Measurement methods and procedures	N/A
Purpose of data	Calculation of project emissions
Additional comment:	BSP is the mother programme of NBP. The combustion efficiency is according to the study 99.4%. That figure is

[1]https://www.researchgate.net/profile/Asheesh_Kumar4/post/what_are_all_the_methods_that_we_can_employ_to_increase_the_combustion_efficiency_when_LPG_is_used_as_the_fuel/attachment/59d6207e79197b807797ef48/AS%3A273821083340822%401442295441788/download/efficiency_measurement_of_biogas_kerosene_and_lpg_stoves_nepal_2001.pdf

	assumed reasonable and conservative Verification of data generation, aggregation and recording in this case is not applicable since they are fixed parameters from the registered PDD. The value for the fixed parameters in the registered PDD has been correctly used in calculation and reporting of emissions reductions for the monitoring period verified.
Findings	No finding was raised regarding this issue.
Conclusion	Data parameters fixed at validation, used for calculating the emission reduction, are in accordance with registered PDD, methodology and other requirements. All data sources and assumptions are appropriate, and calculations are correct as applicable to the proposed programme.

D.6.2. Data and parameters monitored

Means of verification

The audit team carried out a review of information flows for generating, aggregating and reporting the monitoring parameters to assess a completeness of monitoring in line with the monitoring plan and the applied methodology, including:

- The measurement/determination method used.
- Relevant monitoring equipment, their features and the control and calibration procedures.
- Significant inaccuracies occurred in case of measured or estimated values of some parameters.
- Measuring, reading and/or recording frequency.
- QA/QC procedures applied to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

Data and monitored parameters were verified through the interviews and desk-review. The monitoring system and all applied procedures are in compliance with the monitoring plan and the applied methodology based on the information included in the final monitoring report. The list of all monitored parameters and the means of verification used are detailed as follows:

SDG 13

Data/Parameter	$B_{b3,LPG}$
Unit	Tonnes/year
Description	Amount of LPG used in the baseline scenario b3
Source of data	Excel file CPIII MPI spreadsheet BFT_LPG cell L17 /6/
Value(s) applied	0.078849
Choice of data or measurement methods and procedures	It is not practical to establish LPG consumption using the KPT for reasons of safety. Instead, households were be asked how often they buy a bottle and the bottle size will be recorded. Annual consumption was be calculated as: $Annual\ LPG\ consumption\ (\frac{kg}{year}) = \frac{Bottle\ size\ (kg)}{Usage\ period\ (days)} \times 365$
Purpose of data	Calculation of baseline emissions
Additional comment	Fixed for CPIII A level of confidence/precision of 90/10% was achieved and thereby meeting the minimum requirements stipulated by the methodology. See cell L18 in the same spreadsheet Next to LPG, households use 314.386 kg wood per year (cell F71)

Data / Parameter:	$f_{NRB,y}$
Unit	Fraction of Non-Renewable Biomass
Description:	Non-renewability status of woody biomass fuel in scenario i during year y
Measured/calculated /default	UNFCCC default value
Source of data	fNRB assessment NBP report /18//19/
Value(s) of monitored parameter	95.01%
Monitoring equipment	N/A
Measuring/reading/recording frequency:	Fixed by baseline study for a given crediting period, updated if necessary, as specified in section 3.1 of the applied methodology
Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data	Calculation of baseline and project emissions
Additional comment	The fNRB default value was valid at the start of this MP.

Data/parameter:	$B_{p,y}$
Unit	kg/ project household-year
Description	Quantity of biomass fuel that is consumed in the project scenario in year y
Measured/calculated/default	Measured
Source of data	Excel file CPIII MPI spreadsheet ER_fuel /6/
Value(s) of monitored parameter	Fuel: Charcoal in wood eq — Average per household (kg/year): 4.186 Fuel: Firewood — Average per household (kg/year): 69.466
Monitoring equipment	Determined using survey methods, newton scale
Measuring/reading/recording frequency:	Biennial, starting from MPI
Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting The test, including LPG, achieved a level of precision/confidence of 90/27 and thereby meeting the requirements. See in the same file sheet Gen_analysis
Purpose of data:	Calculation of project emissions
Additional comments:	N/A

Data/parameter:	$B_{p,LPG}$
Unit	kg/ project household-year

Description	Amount of LPG used in the project scenario
Measured/calculated/default	Determined using survey methods
Source of data	Excel file CPIII MPI spreadsheet ER_fuel /6/
Value(s) of monitored parameter	16.423
Monitoring equipment	Determined using survey methods, newton scale
Measuring/reading/recording frequency:	Measured
Calculation method (if applicable):	It is not practical to establish LPG consumption using the KPT for reasons of safety. Instead, households were be asked how often they buy a bottle and the bottle size will be recorded. Annual consumption was be calculated as: $Annual\ LPG\ consumption\ (\frac{kg}{year}) = \frac{Bottle\ size\ (kg)}{Usage\ period\ (days)} \times 365$
QA/QC procedures:	N/A
Purpose of data:	Calculation of project emissions
Additional comments:	See Bp,y for the achieved confidence/precision interval

Data/parameter:	**$B_{b,ratio}$**
Unit	%
Description	Baseline scenario ratios
Measured/calculated/default	Measured
Source of data	Excel file CPIII MPII spreadsheet ER_fuel /6/
Value(s) of monitored parameter	
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual

Baseline scenario	% of users	
Households with main fuel wood	Bb1,ratio	96.4%
Households with main fuel charcoal	Bb2,ratio	1.8%
Household with main fuel LPG	Bb3,ratio	1.8%
Households using other fuels	n/a	0%

Calculation method (if applicable):	Households will be asked which baseline scenario they fell into before receiving a biogas digester. The four baseline scenarios are defined by asking the households “what is your primary fuel source for cooking purposes?”. The purpose of this question is to allocate a household to a baseline scenario, whereby ‘primary’ fuel consumption is defined as that fuel meeting more than 50% of their fuel needs for cooking purposes. The households that respond “firewood”, for example, are subsequently allocated to the baseline scenario b1. This means that households in, for example, baseline scenario b1 may also use small amounts of fossil fuels (i.e. secondary and tertiary fuels) for cooking, which will be included in the baseline emissions.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of baseline emissions
Additional comments:	N/A

Data/parameter:	**$MS_{(T,S,k)}$**
Unit	[-] %
Description	Fraction of livestock category T's manure fed into the bio-digester, S in climate region k
Measured/calculated/default	Measured
Source of data	Excel file CPIII MPII spreadsheet MS AWMS cell C12:C14 /6/
Value(s) of monitored parameter	**Livestock** / **% fed into Biodigester** cow / 55.87% Pig / 47.67% Buffalo / 46.47%
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	See section D3
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of contribution to SDG13
Additional comments:	There is only one climate region k in Cambodia

Data/parameter:	**$MS_{(P,S,K)}$**
Unit	[-]
Description	Fraction of livestock category T’s manure not fed in the biodigester ,S in climate region k
Measured/calculated/default	Measured and calculated
Source of data	Excel file CPIII MPII spreadsheet MS AWMS cell D12:J14 /6/

Value(s) of monitored parameter	The MS of all the AWMS systems is shown below. The share not fed, is the sum of the non-biodigester AWMS systems: Slurry / An lagoon / Dry lot / Daily spread / Solid storage / Other / Pasture Cow: 1.01% / 0.00% / 0.79% / 2.10% / 20.21% / 0.85% / 19.16% Pig: 0.47% / 12.02% / 0.00% / 0.26% / 22.65% / 14.37% / 2.56% Buffalo: 0.79% / 0.00% / 0.42% / 3.17% / 9.54% / 3.86% / 35.75%
Monitoring equipment	Determined using survey methods
Measuring/reading/ recording frequency:	Annual
Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of contribution to SDG13
Additional comments:	The sum of the MS in the table in values applied is MS_{notfed}. The PP applies IPCC Tier 2 approach and will monitor the AWMS of the MS not fed into the digester. There is only one climate region k in Cambodia. Assumed is that manure excretion is on constant during the day and night on average and that the ratio of time not stabled is MS pasture. Thus if 8 hours are spent not stabled, the MS pasture is 8/24/100 = 30%

Data/parameter:	**$N_{(T)}$**
Unit	[-]
Description	Number of animals of livestock category T
Measured/calculated/default	Measured
Source of data	Excel file CPIII MPII spreadsheet ER_AWMS /6/
Value(s) of monitored parameter	Animal (T) / $N_{(T),h}$ Cow / 4.618 Pig / 1.642 Buffalo / 0.624
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	See section D3
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of contribution to SDG13
Additional comments:	N/A

Data/parameter:	**PL**
Unit	%
Description	Physical leakage of the biodigester

Measured/calculated/default	Measured
Source of data	Excel file CPIII MPII spreadsheet ER_AWMS cell F51 /6/
Value(s) of monitored parameter	0.6%
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	The PP may opt to calculate the percentage of leakage as per section A6.3 of the applied methodology. On page 68 of section A.6.3 it is stated: "Where project participants use lower values or percentage of physical leakage, they should provide measurements proving that this lower value is appropriate for the project activity." The measurement is as follows: In case households report that their digester leak, in case there is an obvious biogas smell, or when there is visible leakage, i.e. bubbling, it is assumed that the biodigester leaks. PL is therefore calculated as: PL = 10% * %BDleak where %BDleak = the share of households with a leaking biodigester and 10% is the IPCC default value for physical leakage. In case the PP does not measure the leakage, %BDleak is 100% meaning that all plants are assumed to leak as per IPCC estimate.
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of project emissions
Additional comments:	Physical leakage of the bio-digester

Data/parameter:	**$W_{(site)}$**
Unit	(kg)
Description	Average pig weight at the project site (kg)
Measured/calculated/default	Measured and calculated
Source of data	Excel file CPIII MPII spreadsheet ER_AWMS cell E14 /6/
Value(s) of monitored parameter	64.23
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	The weight of fattening pigs and piglets is the average between the weight entering the farm and leaving the farms. Pigs that stay for a long time at the farm, which are sows and boars, will be determined using credible methods from the literature as described in section E. In section E it is described how based on the girth and the length of the pig the weight can be determined reliably[2].
QA/QC procedures:	At least 25% of all sows shall be measured. Boars are relatively rare and in case less than 5 boars can be measured the average sow weight will be adopted as boar weight. This is conservative as male pigs attain higher weights than female pigs
Purpose of data:	Calculation of VS excretion
Additional comments:	N/A

This parameter also applies to SDG 7 and 2:

Data/parameter:	**$U_{p,y}$**
Unit	Percentage
Description	Percentage of bio-digesters in use in monitoring period y
Measured/calculated/default	Measured and calculated
Source of data	Usage survey spreadsheet USAGE_sampling and analysis sheet 'analysis' cell G21 /5//21/
Value(s) of monitored parameter	55.160%
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual

[2] As per the method described on this website http://www.thepigsite.com/articles/541/weighing-a-pig-without-a-scale/

<table>
<tr><td></td><td>
<table>
<tr><td>Calculation method (if applicable):</td><td>An assessment of the drop-off rate of usage requires that digesters of different age groups are assessed. Monitoring shall be carried out on a random sample of digesters of different ages. The minimum total sample size is 100, with at least 30 samples for biogas digesters of each age bracket (measured in annual increments) being surveyed.

The usage rate of thermal applications will be monitored annually using survey methods to satisfy the requirements put forth by the methodology ‘Technologies and practices to displace decentralized thermal energy consumption’ V3 1

Up will be calculated as follows:

$U_p = U_{us} \times UP_{us} \times C_y$

Where
<table>
<tr><td>Up</td><td>=</td><td>Percentage of biodigesters in use</td></tr>
<tr><td>Uus</td><td>=</td><td>Percentage of biodigesters in use during the usage survey</td></tr>
<tr><td>UPus</td><td>=</td><td>Fraction of the year that digesters were temporarily out of use due to repairs or sale of animals on average in the MP</td></tr>
<tr><td>Cy</td><td>=</td><td>Correction factor of the number of days out of operation biodigesters were in operation during monitoring year y. Calculated as

$C_y = 1 - \frac{OUT_y}{TOT_y}$

Where,
OUTy = cumulative plant years in operation of plants that went out of operation during in year y ((Total number of plants out of operation in the respective monitoring period* days in operation) / 365)
TOTy= Plant-year of all plants in operation in year y (plants in operation x years in monitoring period, e.g. times 1 year during annual monitoring)</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Transparent data analysis and reporting</td></tr>
<tr><td>Purpose of data:</td><td>Calculation of share of units in use</td></tr>
<tr><td>Additional comments:</td><td>To account for void responses and lack of availability of some households on the day of the survey, additional households within each age group should be questioned.

To ensure conservativeness, participants in a usage survey with technologies in the first year of use (age 0-1) must have technologies that have been in use on average longer than 0.5 years. For technologies in the second year of use (age 1-2), the usage survey must be conducted with technologies that have been in use on average at least 1.5 years, and so on</td></tr>
</table>
</td></tr>
</table>

This parameter also applies to SDG 7 and 2:

Data/parameter:	**$N_{b,y}$**
Unit	units
Description	Number of biogas plants commissioned
Measured/calculated/default	Measured
Source of data	CPIII MPII ER spreadsheet tab 'GEN_analysis cell D31 /6/
Value(s) of monitored parameter	28,683
Monitoring equipment	N/A
Measuring/reading/recording frequency:	Continuous
Calculation method (if applicable):	N/A
QA/QC procedures:	100% of all plants are checked after completion of the construction by the PBP technician or by the BCAs. . The main goal of NBP is to develop a market-based biogas programme and will gradually allow experienced BCAs to take over the commission check. The results of the commissioning check are recorded in Form 9, this is currently a physical document but in the coming years this may transit to using tablets. Only when Form 9 is approved by NBP, data is entered into the central database. All Form 3, the hard copies, are stored at NBP.
Purpose of data:	Calculation of emission reductions
Additional comments:	Np,y will be determined on a monthly basis. The applied value in the calculations, however, will be the value of the previous month to allow for a 1 month period for starting up the biodigester. This is conservative because in most cases within 2 weeks biogas is being produced

SDG 2 Indicator 2.4.1 "Proportion of agricultural area under productive and sustainable agriculture

Data/parameter:	**$\%BS_y$**
Unit	percentage
Description	Share of households that uses bio-slurry for crop production in year y
Measured/calculated/default	Measured using survey methods
Source of data	Excel file CPIII MPII spreadsheet SDG2&7 calculation cell F9 /6/
Value(s) of monitored parameter	97%
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of SDG contribution
Additional comments:	This question cannot be answered by farmers that have recently installed their digester outside the cropping season. They are often storing bio-slurry in their compost hut awaiting the cropping season. If these farmers are committed to apply bio-slurry during that season, they will be counted towards contributing this SDG.

Data/parameter:	**Abs,h**
Unit	hectare
Description	Total area on which bio-slurry is applied
Measured/calculated/default	Measured
Source of data	Excel file CPIII MPII spreadsheet SDG2&7 calculation cell F10 /6/
Value(s) of monitored parameter	0.67
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of SDG contribution
Additional comments:	N/A

SDG7 SDG 7.2.1: Proportion of population with primary reliance on clean fuels and technology

Data / Parameter	**Bdaily,y**
Unit	percentage
Description	Share of biogas users that uses biogas at least once per day for cooking in year y
Measured/calculated /default	Measured using survey methods
Source of data	Excel file CPIII MPII spreadsheet SDG2&7 calculation, cell F19 /6/
Value(s) of monitored parameter	98%
Monitoring equipment	N/A
Measuring/reading/recording frequency:	Annual

Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Measuring/reading/recording frequency:	Annual
Purpose of data	Calculation of SDG contribution
Additional comment	N/A

Data/parameter:	**$H_{s,y}$**
Unit	Household size
Description	Number of family members permanent residing in the household in year y
Measured/calculated/default	Measured using survey methods
Source of data	Excel file CPIII MPII spreadsheet SDG2&7 calculation cell F20 /6/
Value(s) of monitored parameter	5.12
Monitoring equipment	Determined using survey methods
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	N/A
QA/QC procedures:	Transparent data analysis and reporting
Purpose of data:	Calculation of SDG contribution
Additional comments:	N/A

All data and supporting evidence were verified and found consistent and correct, which are detailed in the appendix 2 of this report.

Findings	No finding was raised regarding this issue.
Conclusion	AENOR verification team confirms that: • The monitoring has been carried out in accordance with the monitoring plan in the registered PDD. • All parameters required by the monitoring plan have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements. • The registered monitoring plan has been properly implemented and followed by the project participants. • All parameters stated in the registered monitoring have been monitored and updated as applicable • The equipment used for monitoring is controlled and calibrated in accordance with the registered monitoring plan, the applied methodology and the national standard. • Monitoring results are consistently recorded as per the approved frequency. • Quality assurance and quality control procedures have been applied in accordance with the registered monitoring plan.

D.6.3. Implementation of sampling plan

Means of verification	The verification team has checked whether the PP has applied a sampling approach to determine the monitored values.

	Further it has been checked whether the PP has correctly applied the implemented sampling plan including (i) description of the implemented sampling design (ii) collected data (iii) analysis of collected data (iv) demonstration on whether the required confidence/precision has been met.
Findings	No finding was raised regarding this issue.
Conclusion	The sampling results must meet the 90% confidence and 10% precision limit. This analysis was carried out using sample size calculator tool provided as appendix 6 to Guidelines to sampling and surveys for CDM project activities and programme of activities, Version 04.0 The PP demonstrates, by means of the sample size calculator tool provided as appendix 6 to Guidelines to sampling and surveys for CDM project activities and programme of activities, version 04.0 /23/ that the 90/10 confidence/precision is achieved so the estimated values are considered correct and no need for additional sampling efforts is required.

D.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	AENOR has verified the information stated in all the calibration certificates of the different equipment installed in the project and also their technical specifications from manufacturers in the current verification process.
Findings	No finding was raised regarding this issue.
Conclusion	AENOR verification team confirms that the calibration is conducted at the frequency specified by the methodology and the registered monitoring plan.

D.8. Assessment of data and calculation of emission reductions or net removals

D.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	Regarding to the Goal 2 contribution (SDG 2.4.1: Proportion of agricultural area under productive and sustainable agriculture) and Goal 7 contribution (SDG 7.2.1: Proportion of population with primary reliance on clean fuels and technology), the baseline outcome benefit is zero in both cases. SDG 13: Baseline estimate/ emission reductions According to the applied methodology the baseline emissions involve emission from use of fossil fuel and non-renewable biomass for cooking and heating, and emissions from the handling of animal waste in the baseline situation. **BE_y = 66.199 t_{CO2e}** **Baseline emission from the thermal energy demand (BE_{th})** These emissions are the comparison of fuel consumption in a project scenario to the baseline scenario according to the approved revised GSPDD. In the baseline scenario the fossil fuel is LPG whilst the non-renewable fuel is firewood and charcoal. The equation applied: BEb,y = Bp,y x ((fNRBy x EFb,fuel,CO2) + EFb,fuel,CO2) x NCVb,fuel Where: $BE_{b,y}$ Emissions for baseline scenario b during the year y in tCO2e $B_{b,y}$ Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors (cases with project

	performance field test only) $f_{NRB, y}$ Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario) $NCV_{b,fuel}$ Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton) $EF_{b,fuel,CO2}$ CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel $EF_{b,fuel,nonCO2}$ Non-CO_2 emission factor of the fuel that is substituted or reduced **Baseline emissions of methane from the AWMS ($BE_{awms,h}$)** The emissions from the animal waste management system of the baseline are determined using the IPCC 2006 Tier 2 approach. This approach is applicable for households with distinctive animal waste management system, where the majority of the waste is collected and where the animals are kept near the houses. The following formulas are used to estimate the animal waste management emissions. $BE_{awms,h} = GWP_{CH4} * \sum_T (EFawms(T) * N(T),h)$ Where $BE_{awms,h}$ = The baseline emission from handling of animal waste in premise h (tCO_{2e} per year) N(T),h = Number of animals of livestock category T in premise h $EF_{awms,(T)}$ = Emission factor for the defined livestock category T, (tonC per animal per year) GWP_{CH4} = Global warming potential of methane (tCO_2e per tCH4): 25 the second commitment period. It shall be updated to a future COP/MOP decision The emission factor ($EF_{awms(T))}$ for tier 2 approach is calculated as follows (equation 16 of the applied methodology), $$EF_{awms(T)} = (VS_T \times 365) \times \left[Bo_T \times \frac{0.67kg}{m^3} \times \sum_k^1 \frac{MCF_{T,k}}{100} \times MS_{(T,k)} \right]$$ Where: $EF_{awms(T)}$ = CH_4 emission factor for livestock category T, (tCH_4 per animal per $VS_{(T)}$ = Daily volatile solid excreted for livestock category T, kg VS.animal 365 = Basis for calculating annual VS production, days yr^{-1} Bo_T = Maximum methane producing capacity for manure produced by an m^3 CH_4 kg^{-1} of VS 0.67 = Conversion factor of m^3 methane to kg methane $MCF_{T,K}$ = Methane conversion factors for the animal waste handling syster livestock category T of MS system k $MS_{T,k}$ = Fraction of livestock category T's manure in the animal management system k
Findings	No finding was raised regarding this issue.
Conclusion	AENOR verification team confirms that: • A complete set of data for the monitoring period is available. • Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied

	methodology. • Appropriate emission factor, IPCC default values and other reference values have been correctly applied. • No errors, miscalculations, omissions, misstatements or incomplete information have been identified.

D.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The project emission for the goal 2 contribution (SDG 2.4.1: Proportion of agricultural area under productive and sustainable agriculture) are calculated, considering the households that reply on bio-slury as sustainable organic fertilizer, with the following formulae: $A_{bs,y} = N_{b,y} \times U_y \times \%BS_y \times A_{bs,h,y}$ The project emission for the Goal 7 contribution (SDG 7.2.1: Proportion of population with primary reliance on clean fuels and technology), are calculated, considering the households that reply on bio-slurry as sustainable organic fertilizer, with the following formulae: $P_{clean,y} = N_{b,y} \times U_y \times B_{daily} \times H_{s,y}$ As per PDD, only the following project emissions are calculated as project emissions for SDG 13: 1. Continued use of baselines fuels in the project scenario 2. Emissions attributed to AWMS in the project scenario, incomplete combustion and physical leakage **1. Continued use of baselines fuels in the project scenario** The project scenario is defined by the fuel consumption of end users within the targeted population that adopts the biodigester technology. This formula calculates the project emissions per household (as per equation 5 of TPDDTEC v3.1) $PE_{p,y} = B_{p,y} * ((f\,NRB, y * EF_{p,fuel}, CO2) + EF_{p,fuel}, _{nonCO2}) * NCV_{p,\,fuel}$ Where: $PE_{p,y}$ Emissions for project scenario p during year y in tCO2e $B_{p,y}$ Quantity of fuel consumed in project scenario p during year y, in tons, and as derived from the statistical analysis conducted on the data collected during the project performance field tests (cases when no baseline performance field test is performed, e.g. by-default baseline factors) *f*NRB, y Fraction of biomass used during year y that can be established as nonrenewable biomass (drop this term from the equation when using a fossil fuel baseline scenario) $NCV_{p,fuel}$ Net calorific value of the project fuel (IPCC default for wood fuel, 0.015 TJ/ton). This is equal to the baseline fuel NCV in projects which use the same fuel. $EF_{p,fuel,CO2}$ CO_2 emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel, 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel $EF_{p,fuel,nonCO2}$ Non-CO2 emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel. **2. Emissions attributed to AWMS in the project scenario, incomplete combustion and physical leakage** The project emissions involve emissions from the bio-digester, which include physical leakage and incomplete combustion of biogas, as well as emissions from

	the animal waste not treated in the bio-digester. The EF_{AWMS} in the project scenario has been calculated using the IPCC Tier 2 approach using default values for the maximum methane potential (Bo), volatile solids excretion (VS) and methane density and the manure management category biodigester. **PE_y = 3,378t_{CO2e}**
Findings	CARs 2, 3 and 4 were raised during the verification process and have been closed. Appendix 3 summarizes the findings from the desk review of the Monitoring Report, the calculation spreadsheets, the Monitoring Plan and other supporting documents as well as findings from the interviews.
Conclusion	AENOR verification team confirms that: - A complete set of data for the monitoring period is available. - Calculations of project emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology. - Appropriate emission factor, IPCC default values and other reference values have been correctly applied. - No errors, miscalculations, omissions, misstatements or incomplete information has been identified. In AENOR's opinion, monitoring practices are deemed appropriate and consistent with the monitoring plan.

D.8.3. Calculation of leakage GHG emissions

Means of verification	Most household keep their baseline stove for logical reasons, a small percentage give their stove away which does not lead to additional fuel usage. This result supports the PDD argument that leakage is negligible and can be ignored in this CPIII as it was in CPI and CPII (Ly=0).
Findings	N/A
Conclusion	N/A

D.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	According to the methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1, the emissions reductions due to the SDG 13 are calculated as follows: $$\mathbf{ER_y} = \sum_{b,p1} N_{p1,y} * U_{p,y} * \left(f_{NRB} * ER_{b,p,y,CO2} + ER_{b,p,y,non-CO2}\right) - \sum LE_{p1,y}$$ Where: $\sum_{b,p}$ Sum over all relevant (Baseline b/project p) couples $N_{p,y}$ Cumulative number of biodigesters months[3] included in the project database for project scenario p in against baseline scenario b in year y. $N_{p,y}$ applied is the value of last month to allow for a 1 month period for digester starting up. This is conservative because in most cases within 2 weeks biogas is being produced $U_{p,y}$ Cumulative usage rate for technologies in project scenario p1 in year y, based on cumulative adoption rate and drop off rate (fraction) $ER_{b,p,y,CO2}$ Specific CO_2 emission savings for an individual technology of project p1 against an individual technology of baseline b1, b2, b3 in year y, in tCO_2/year, and as derived from the statistical analysis of the data collected from the field tests $ER_{b,p,y,non-CO2}$ Specific non-CO_2 emission savings for an individual technology of project p1 against an individual technology of baseline b1, b2, b3 in

[3] Contrary to the methodology NBP measures this in months and not days as it takes 2 weeks before biogas is produced. In each case, the next month after installation is taken as the technology starting date of operation which is conservative.

	year y, converted in tCO_2/year, and as derived from the statistical analysis of the data collected from the field tests f_{NRB} Fraction of biomass used that can be established as non-renewable biomass $LE_{p1,y}$ Leakage for project scenario p1 in year y (tCO_2e/yr) The project participant has provided the verification team with all data (spreadsheets) corresponding to the monitoring period verified. Conservative assumptions have been taken by the project participant when incidents happened. AENOR has verified that data in ER spreadsheets are consistent with sources. Based on the above description, the emission reductions have been conservatively calculated to be 62,820 tCO_2e. The net benefits due to the SDG2 and SDG 7 are the same as the project value. The summary of ex-post values of each SDG outcome for the current monitoring period is indicated below:

SDG	Unit	Baseline estimate	Project estimate	Net benefit
SDG2	Hectares on which bio-slurry is applied	0	10,267	**10,267**
SDG7	Total number of households using primarily biogas	0	79,256	**79,256**
SDG13	tCO2	66,199	3,378	**62,820**

Findings	No finding was raised regarding this issue.
Conclusion	AENOR verification team confirms that: - A complete set of data for the monitoring period is available. - Calculations of emission reductions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology. - Appropriate emission factor, IPCC default values and other reference values have been correctly applied. - No errors, miscalculations, omissions, misstatements or incomplete information has been identified.

D.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

0Means of verification	The actual values achieved during the current monitoring period are lower than the values stated in the registered PDD, due to a reduction in the usage rate and a smaller than average area on which bio-slurry is applied.

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 2	44,475	10,267
SDG 7	108,473	79,256
SDG 13	72,480	62,820

Findings	No finding was raised regarding this issue.
Conclusion	AENOR verification team confirms that: A comparison of actual GHG emission reductions or net anthropogenic GHG removal of the programme achieved during this monitoring period with the

	estimates in the registered PDD has been provided. The verification team considers that the calculation of the comparison is correct.

D.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The actual emission reductions achieved during the current monitoring period are lower than the emission reductions stated in the registered PDD.
Findings	No finding was raised regarding this issue.
Conclusion	The comparison of emission reductions is transparently included in the Monitoring report. It is not necessary to provide a justification because the emission reductions achieved during the current monitoring period are lower than the emission reductions stated in the registered PDD.

D.9. Local stakeholder consultation process

During the interview with people, the verification team confirmed that local stakeholders are satisfied about the project, in general, because although some specific situation can cause discomfort in someone the communication channels with the project staff are clear and available and appropriate answer to each problem is provided quickly.
Moreover, the audit team verified for 2020 the external communication record where all the input/grievances received are registered and the evidence of some answer delivered due to the input/grievances received. Hence accepted by the verification team /17/.

D.10. Double counting of emissions reductions

According to the rules stated by Gold Standard, to assure that no double counting could happen AENOR has verified during the desk review and the interviews that all biogas obtained from the programme is registered and used by the GS project and no other carbon project exist close that can use the same biogas or installations.
AENOR thus confirms that there is no evidence of a possible double counting of emissions reductions during the current monitoring period.

SECTION E. Internal quality control

Following the completion of the assessment process by the verification team, all documentation undergoes an internal quality control through a technical review before the request for Issuance of VERs is submitted. The Technical reviewer is a qualified member of AENOR, independent from the team that carried out the verification of the programme. The technical reviewer or the team appointed for the technical review is qualified in the technical area(s) and sectoral scope(s) of the programme.

SECTION F. Verification opinion

AENOR has performed the verification of the emission reductions of the “National Biodigester Programme, Cambodia” for the period from 01/01/2020-31/12/2020.
The verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, Montreal COP/MOP 1, Nairobi COP/MOP 2 as well as those defined by the CDM Executive Board and GS4GG.
AENOR planned and performed the verification to obtain the information, explanations and evidence considered necessary to provide sufficient evidence to give reasonable assurance that the amount of GHG emission reductions for the reporting period, prepared on the basis of both the registered monitoring plan and the final monitoring report, are fairly stated.
AENOR conducted the verification with regard to the monitoring plan included in the registered Project Design Document, and the applied methodology as registered for the project. This assessment included:

- Collection of evidence supporting the reported data

- Checking whether the provisions of the monitoring plan, were consistently and appropriately applied.

AENOR has verified whether the information included in the final monitoring report is correct and that the emissions reductions achieved have been determined correctly.
In AENOR's opinion, GHG emissions reported for the project in the final monitoring report are fairly stated.
The GHG emission reductions were calculated without material errors, omissions or misstatements in a conservative and appropriate manner according to the approved methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" version 3.1 and the monitoring plan and formulae provided in the registered PDD.

SECTION G. Certification statement

AENOR is able to certify that the results achieved by the "National Biodigester Programme, Cambodia" for the period from 01/01/2020-31/12/2020 amount to 62,820 GS VERs.

SDG	Unit	Net benefit
SDG2	Hectares on which bio-slurry is applied	**10,267**
SDG7	Total number of households using primarily biogas	**79,256**
SDG13	tCOe2	**62,820**

Madrid, October 26, 2021.

Marina Arroyo Bovea
Team Leader

José Luis Fuentes
Climate Change Manager

Appendix 1. Abbreviations

Abbreviations	Full texts
AENOR	AENOR INTERNACIONAL S.A.U.
AWMS	Animal waste management system
AR	Assessment report
BFT	Baseline performance field test
CAR	Corrective action request
CDM	Clean Development Mechanism
CH_4	Methane
CL	Clarification action
CP	Crediting period
EF	Emissions factor
ER	Emission reduction
FAR	Forward action request
GHG	Greenhouse Gases
GS	Gold Standard
GS4GG	Gold Standard for Global Goals
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KPT	Kitchen Performance Test
LPG	Liquified petroleum gas
MP	Monitoring Period
MR	Monitoring Report
N/A	Not applicable
NBP	National Biodigester Programme
PDD	Project Design Document
PP	Project Participant

QA/QC	Quality assessment/quality control
SDG	Sustainable Development Goal
tCO_2e	Carbon dioxide equivalent tonnes
TJ	Tera Joules
TPDDTECC	Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 3.1
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reduction(s)
VVB	Verification and Validation Bodies

Appendix 2. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	Registered GS PDD	version 2.1	GS Website
2	PP	Monitoring plan registered	version 2.1	GS Website
3	PP	Monitoring report	version 1.0	PP
4	PP	Monitoring report	version 1.4	PP
5	PP	Usage Survey spreadsheet		PP
6	PP	11OCT21_NBP_CPIII_MPII_ER_spreadsheet v.1.3	version 1.3	PP
7	GS	Gold Standard for the global Goals, Principles and Requirements	version 1.2	GS Website
8	GS	Gold Standard for the Global Goals, Community Services Activities Requirements	version 1.2	GS Website
9	UNFCCC	CDM Validation and Verification Standard for programmes of activities	Version 03.0	UNFCCC Website
10	AENOR	GS Verification and Certification report previous monitoring period	Version 2	GS Website
11	GS	Rule update: covid 19: interim measures	Version 4	GS Website
12	GS	Template Guide - Monitoring report	Version 1.1	GS Website
13	GS	Technologies and Practices to Displace Decentralized Thermal Energy Consumption	version 3.1	GS Website

14	IPCC	2006 IPCC Guidelines on National GHG Inventories	2006	IPCC
15	AENOR	Remote interview questionnaires	04/2019	PP
16	IPCC	Assessment Report 4	2007	IPCC
17	PP	NBP CPIII MPI 2019 Grievance list_updated and all closed		PP
18	PP	fNRB assessment Cambodia report	Version 1.1	PP
19	PP	29Sep21 NRB assessment NBP spreadsheet	Version 1.1	PP
20	PP	Training Report on Usage Survey Training	08/02/2021	PP
21	PP	Usage Survey Questionnaire		PP
22	BDtrust	Training on Carbon Data Collection MPII CPIII	18/02/2021	PP
23	UNFCCC	Guideline: Sampling and surveys for CDM project activities and programmes of activities	Version 04.0	UNFCCC
24	UNFCCC	Standard Sampling and surveys for CDM project activities and programmes of activities	Version 09.0	UNFCCC

Appendix 3. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verifications

FAR ID		**Section no.**		**Date:**
Description of FAR				
NA				
Project participant response				**Date:**
Documentation provided by project participant				
VVB assessment				**Date:**

Table 2. CL from this verification

CL ID	**01**	**Section no.**	**D5**	**Date:** 29/09/2021
Description of CL				
Please provide evidence of the following: 1. Two-page questionnaire 2. Training session usage survey 3. Calculation of values of "Average per household (kg/year)" for LPG, charcoal in wood eq and firewood				
Project Developer response				**Date:** 01/10/2021
1 and 2 – see folder usage survey in the reply package 3. This calculation was already included in the ER spreadsheet tab BFT_LPG				
Documentation provided by the Project Developer				
See folder usage survey in the reply package				
VVB assessment				**Date:** 04/10/2021
Evidence has been provided and deemed correct. Therefore CL 1 is closed.				

Table 3. CAR from this verification

CAR ID:	**01**	**Section no.**	**D1**	**Date:** 29/09/2021
Description of CAR				

The following sections of the MR have not been completed in accordance with GS template: 1. Section A.4 does not provide the length of the crediting period. 2. Section B.1 does not state if there have been any changes from the project design. 3. Section C does not describe the monitoring system. 4. Section D.3 has not been completed correctly. Project is a CSA. 5. Section G.1 has not been completed.

Project Developer response	**Date:** 29/09/2021
1. This is now included 2. This is now included 3. This section is now updated as per guidance provided by the VVB 4. This is now updated and a table is added 5. This is now completed	

Documentation provided by the Project Developer
MR v1.4

VVB Assessment	**Date:** 04/10/2021
1. Section A.4 has been updated and deemed correct. 2. Section B.1 has been updated and deemed correct. 3. Section C has been updated and deemed correct. 4. Section D.3 provides several incorrect values and is missing parameter $B_{b3,LPG}$ 5. Section G.1 clarify what happened with the 4 pending issues from last monitoring period.	

Project Developer response	**Date:** 13/10/2021
1-3 are closed 4. Section D.3 has been reviewed and corrected, including some changes to the ER spreadsheet and section D.2. Updated files with version number 1.2 are shared. 5. All 4 pending cases have been closed. See file NBP CPIII MPI 2019 Grievance list_ – the highlighted rows are the plants that were pending during the verification of MPI, now all cases are closed. In anticipating of the remark that this should be reflected in the MR, the MR is also updated in section G1.	

VVB Assessment	**Date:** 14/10/2021
Information has been provided and deemed correct. Therefore CAR 1 is closed.	

CAR ID:	02	Section no.	D8.2	Date: 29/09/2021
Description of CAR				
On the 28Jul21_NBP_CPIII_MPII_ER_spreadsheet v.1.0: 1. Tab SDG2&7 calculation, the formula of cell F10 does not take into account all of the rows on tab CMS. Cells F19 and F20 on tab SDG2&7 calculation present the same error. 2. In the MR, parameter $N_{b,y}$, the value does not match with the information stated on the spreadsheet. 3. Section E.4 of the MR, on SDG 13 the values reported do not match those in the spreadsheet.				
Project Developer response				**Date:** 01/10/2021
1. This is now updated, and all cells are covered of cell F10, F19 and F20, some minor changes in the output variable and the MR has been updated as well. 2. This is now corrected 3. This is also corrected. A mistake was discovered in the ER spreadsheet and the ER value are revised accordingly in the MR and the excel				
Documentation provided by the Project Developer				
MR v1.4 ER spreadsheet V1.3				
VVB Assessment				**Date:** 04/10/2021
Spreadsheet and MR have been updated and deemed correct. Therefore CAR 2 is closed.				

CAR ID:	03	Section no.	D8.2	Date: 29/09/2021
Description of CAR				
The following errors have been found on the 28Jul21_CPIII_MPII_USAGE_sampling and analysis spreadsheet: 1. In the MR, table 6 age group 1 to 2, the values built in that period does not match with the information stated on the spreadsheet. 2. In the MR, parameter $U_{p,y}$, the value does not match with the information stated on the spreadsheet.				
Project Developer response				**Date:** 01/10/2021
1. This value is now corrected 2. The value is corrected and the parameter is moved to the list of SDG13 parameters				
Documentation provided by the Project Developer				
MR v1.4				
VVB Assessment				**Date:** 04/10/2021
The MR has been updated and deemed correct. Therefore CAR 3 is closed.				

CAR ID:	04	Section no.	D8.2	Date: 29/09/2021
Description of CAR				
The following errors have been found on the NRB assessment: 1. On the 06APR21 NRB assessment NBP v1, the value of the protected forest does not match the value on the National Protected Area Strategic Management plan 2017-2031. 2. The values on table on section 4.3 of the report do not match the values on tab Calculations Local values of the spreadsheet.				
Project Developer response				**Date:** 01/10/2021
1. The value is checked and updated, the fNRB value is changed from 94.99 to 95.01% 2. The table is updated and now consistent with tab calculations				
Documentation provided by the Project Developer				
fNRB assessment spreadsheet 1.1 fNRB assessment NBP report v1.1 MR v1.4				
VVB Assessment				**Date:** 04/10/2021
The NRB assessment has been updated and deemed correct. Therefore CAR 04 is closed.				

Table 4. FAR from this verification

FAR ID		Section No.		Date: DD/MM/YYYY
Description of FAR				
NA				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
VVB assessment				**Date:** DD/MM/YYYY