

**Verification report form for GS4GG
Programme of Activity
(Gold Standard for the Global Goals)**

BASIC INFORMATION

Title of the GS4GG Programme of Activity (PoA)	PoA GS ID: 11450 MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India	
Reference number of the Programmes of Activity (PoA)	GS 11450	
Version number of the verification and certification report	1.0	
Completion date of the verification and certification report	30/06/2023	
GS ID (s) of VPAs under PoA	VPA Ref. no.	Title
	GS 11897	GS11897 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines– Microenergy Credits PoA - CPA 38- GS11897
	GS 11898	GS11898 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines– Microenergy Credits PoA - CPA 39- GS11898
Version number of the monitoring report to which this report applies	2.0	
Completion date of the monitoring report to which this report applies	27/06/2023	
Monitoring period no. and duration	<p>1st Monitoring Period</p> <p>VPA 38 – 01/01/2021 to 31/12/2022 (including both days)</p> <p>VPA 39 – 01/01/2021 to 31/12/2022 (including both days)</p> <p>The monitoring period falls under crediting period CP1 for both the VPAs:</p> <p>VPA 38 - 21/12/2019 to 20/12/2024</p> <p>VPA 39 - 21/12/2019 to 20/12/2024</p> <p>The VPA has not issued credits under CDM until 31/12/2020.</p>	
Project Representative	Micro Energy Credits Corporation Private Limited	

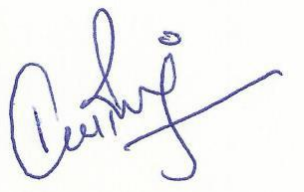
Host Party	India
Applied methodologies and standardized baselines	AMS-I.A "Electricity generation by the user" version 14. Emission reduction from safe drinking water supply-version 1.0
Activity requirements applied	<input checked="" type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Product Requirements applied	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A
Estimated amount of annual average GHG emission reductions	Year-1 WPS: VPA38 – 1,180 tCO ₂ e VPA39 – 0 tCO ₂ e SLS: VPA38 – 20,029 tCO ₂ e VPA39 – 7,603 tCO ₂ e Year-2 WPS: VPA38 – 7,278 tCO ₂ e VPA39 – 0 tCO ₂ e SLS: VPA38 – 37,030 tCO ₂ e VPA39 – 8,710 tCO ₂ e

Year 1:2021

Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period		Units/Products
		Estimated	Achieved	
SDG 13: Climate Action	Number of VER's (WPS)	VPA38 – 1,180 VPA39 – 0	VPA38 – 674 VPA39 – 0	tCO ₂ e VERs
	Number of VER's (SLS)	VPA38- 20,029 VPA39- 7,603	VPA38 – 7,583 VPA39 – 3,635	tCO ₂ e VERs
	Number of VER's (WPS+SLS)	VPA38-21,209 VPA39-7,603	VPA38- 8,257 VPA39- 3,635	tCO₂e VERs
SDG 1: No Poverty	Number of WPS distributed under the project as an indicator of providing basic service access to households	VPA38- 93.43% VPA39- 94.25%	VPA38 – 94.44% VPA39 – 0	Number of WPS
SDG 6: Clean water and Sanitation	Number of households served with safely managed water services	VPA38- 24,292 VPA39- 24,504	VPA38 - 288 VPA39 – 0	
SDG 7: Affordable and Clean Energy	Number of households with operational SLS	VPA38- 225,530 VPA39- 202,532	VPA38 – 54,570 VPA39 - 21,257	Number of SLS
	Number of households having operational WPS	VPA38- 10,753 VPA39- 10,400	VPA38 - 319 VPA39 - 0	Number of WPS
SDG 8: Decent Work and Economic Growth	Total number of jobs created	VPA38- 20 VPA39- 20	VPA38 - 125 VPA39 - 48	Number of Jobs

Year 2: 2022

Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period		Units/Products
		Estimated	Achieved	
SDG 13: Climate Action	Number of VER's (WPS)	VPA38 – 7,278 VPA39 – 0	VPA38 – 2,052 VPA39 – 0	tCO ₂ e VERs
	Number of VER's (SLS)	VPA38- 37,030 VPA39- 8,710	VPA38 – 31,131 VPA39 – 7,624	tCO ₂ e VERs
	Number of VER's (WPS+SLS)	VPA38-44,308 VPA39-8,710	VPA38- 33,183 VPA39- 7,624	tCO₂e VERs

SDG 1: No Poverty	Number of WPS distributed under the project as an indicator of providing basic service access to households	VPA38- 93.43% VPA39- 94.25%	VPA38 – 91.61% VPA39 – 0	Number of WPS
SDG 6: Clean water and Sanitation	Number of households served with safely managed water services	VPA38- 24,292 VPA39- 24,504	VPA38 – 1,236 VPA39 – 0	
SDG 7: Affordable and Clean Energy	Number of households with operational SLS Number of households having operational WPS	VPA38- 225,530 VPA39- 202,532 VPA38- 10,753 VPA39- 10,400	VPA38 – 103,078 VPA39 – 21,373 VPA38 – 1,418 VPA39 – 0	Number of SLS Number of WPS
SDG 8: Decent Work and Economic Growth	Total number of jobs created	VPA38- 20 VPA39- 20	VPA38 – 125 VPA39 – 48	Number of Jobs
Name and UNFCCC reference number of the VVB	Earthood Services Private Limited E-0066			
Name, position and signature of the approver of the verification report	 Dr. Kaviraj Singh Managing Director			

SECTION A. Executive summary

The GS programme of activity “MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India” (PoA GS 11450) aims to replacement of fossil fuel consumption and the resultant GHG emission with a clear and sustainable technology which will lead to reduced GHG emissions. CME archives this through dissemination of Improved Cookstove (ICS), Solar lighting systems (SLS) and Water Purification System (WPS) in households/facilities of rural areas in various states of India. The PoA is using carbon finance to support local partners engaged in different activities like production, distribution, and maintenance of various product technologies like ICS, SLS and WPS.. The water purification systems also reduce the dependency of boiling water using non-renewable woody biomass, thereby reducing the GHG emissions from the burning of non-renewable woody biomass and/or charcoal for treating the water, and solar lighting systems results in fulfilment of lighting needs through a renewable source (solar energy), thus replacing the baseline scenario with the project activity will lead to reduction in GHG emissions and fulfilling the requirements of the applied methodologies AMS-I. A “Electricity generation by the user” version 14/08/, and Emission reduction from safe drinking water supply-version 1.0/09/ respectively.

VPA 38 and 39 includes solar lighting systems and water purification system. These VPA doesn’t include improved cookstove.

The VPA’s are being submitted to GS4GG for Verification are as follows:

Parameter	Validated information
GS ID of the VPAs to be included	GS 11897 (VPA 38) and GS 11898 (VPA 39)
Title of the VPAs	<ul style="list-style-type: none"> GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines – MicroEnergy Credits PoA - CPA 38 - GS11897 GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines – MicroEnergy Credits PoA - CPA 39 - GS11898
Methodology applied	<ul style="list-style-type: none"> AMS-I.A “Electricity generation by the user” version 14. Emission Reduction from safe drinking water supply v1.0
Crediting period	5 years, Renewable twice, total 15 years of crediting period. CP1: 21/12/2019 to 20/12/2024 for both the VPAs.

The VPAs aim at dissemination of water purification system and solar lighting system in various states of India /02/ and is being implemented by MicroEnergy Credits Corporation Private Limited’s (PO) and coordinated by MicroEnergy Credits Corporation Private Limited (MEC). The VPA’s aims at GHG emission reductions through displacement of fossil fuel use with water purification system and solar lighting systems (WPS and SLS) to meet the safe drinking water and electric demands of facility/household. The households in rural areas of India traditionally use fossil fuels which includes charcoal, kerosene, LPG, diesel, wood, and coal intensive grid for fulfilling their energy demands. The baseline scenario under the VPA’s is the replacement of fossil fuel burning to meet the demand of safe drinking water with the water purification system thereby reducing the amount of fuelwood used for boiling purposes in the baseline. Also, the distribution of solar lighting systems replaces the kerosene-based lamps in households, which would have resulted in GHG emissions due to burning of kerosene.

The PoA has been registered under GS4GG (GSID 11450). The CME of the PoA is Micro Energy Credits Corporation Private Limited and with the help of local partners & the VPAs Implementer. The WPS are implemented by Midland Microfin Ltd. (Midland), Asirvad Microfinance Ltd. (Asirvad); and solar lighting system are implemented by Shri Kshetra Dharmasthala Rural

Development Project (SKDRDP), Arohan Financial Services Ltd. (Arohan), Midland Microfin Ltd. (Midland), Arman Financial Services Limited (Arman) and Satin Creditcare Network Ltd. (Satin).

The Monitoring period covered under this verification is 01/01/2021 to 31/12/2022 (inclusive of both the dates) for both the VPAs 38 and 39. Both the VPAs i.e GS 11897 (VPA 38) and GS 11898 (VPA 39)/02/ envisage an archived annual GHG emission reduction and other SDG impacts over the crediting period as given in the table below.

Year: 2021

Sustainable Development Goals Targeted		SDG Impact	Amount Achieved	Units/ Products
13	Climate (mandatory)	Action Number of VER's (WPS)	VPA38- 7,583 VPA39- 3,635	tCO ₂ e VERs
13	Climate (mandatory)	Action Number of VER's (SLS)	VPA38- 674 VPA39- 0	tCO ₂ e VERs
13	Climate (mandatory)	Action Number of VER's (WPS+SLS)	VPA38- 8,257 VPA39- 3,635	tCO₂e VERs
1	No poverty	Proportion of population living in households with access to basic services (only for water)	VPA38- 94.44% VPA39- 0	Percentage
6	Clean Water and Sanitation	Number of households served with safely managed water services	VPA38- 288 VPA39- 0	Number
7	Affordable and Clean Energy	Number of households with operational SLS	VPA38- 319 VPA39- 0	Number
7	Affordable and Clean Energy	Number of households having operational WPS	VPA38- 54,570 VPA39- 21,257	Number
8	Decent Work and Economic Growth	Total number of jobs created	VPA38- 125 VPA39- 48	Number

Year: 2022

Sustainable Development Goals Targeted		SDG Impact	Amount Achieved	Units/ Products
13	Climate (mandatory)	Action Number of VER's (WPS)	VPA38- 31,131 VPA39- 7,624	tCO ₂ e VERs
13	Climate (mandatory)	Action Number of VER's (SLS)	VPA38- 2,052 VPA39- 0	tCO ₂ e VERs

13	Climate	Action	Number of VER's (WPS+SLS)	VPA38- 33,183 VPA39- 7,624	
1	No poverty		Proportion of population living in households with access to basic services (only for water)	VPA38- 91.61% VPA39- 0	Percentage
6	Clean Water and Sanitation		Number of households served with safely managed water services	VPA38- 1,236 VPA39- 0	Number
7	Affordable and Clean Energy		Number of households with operational SLS	VPA38- 1,418 VPA39- 0	Number
7	Affordable and Clean Energy		Number of households having operational WPS	VPA38- 103,078 VPA39- 21,373	Number
8	Decent Work and Economic Growth		Total number of jobs created	VPA38- 125 VPA39- 48	Number

Scope of Verification

The verification is an independent and objective review for determination of the monitored reductions in GHG emissions by the VVB. The verification includes the implementation and operation of the PoA as set out in the registered PoA-DD/01/ & VPA-DDs/02/ for VPA 38 and 39 in the monitoring period.

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period, and it is based on the review of the following:

- (i) The approved methodology AMS-I.A "Electricity generation by the user, version 14.0/08/
- (ii) Emission reduction from safe drinking water supply-version 1.0/09/
- (iii) The registered PoA-DD/01/ & registered VPA-DDs/02/ and monitoring plan/02/
- (iv) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (v) GS4GG requirements
- (vi) The CDM Validation and Verification Standard (VVS) version 3.0/22/ and The CDM Project Standard (PS) version 3.0/21/
- (vii) Relevant decisions, guidance, and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions.
- (viii) GS review of validation of PoA and VPAs

The verification has considered both the quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC and GS4GG, as appropriate to the PoA. The verification is not meant to provide any consulting or recommendations to the CME/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification Process

The verification process is conducted as per internal GS4GG Requirements, which includes the following steps;

- a) Contract with CME and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
- b) Desk review (refer Section D.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and remote audit (including sampling approach (refer Section D.4 of this report) to be applied)
- c) Onsite audit (refer Section D.2 of this report) by verification team consistent of Team Leader and all Technical Experts, as a minimum
- d) Follow up activities e.g., interviews (refer Section D.3 of this report)
- e) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section D.5 of this report)
- f) Independent technical review (refer Section B.2 of this report) of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
- g) Reporting and closure of TR comments/findings (refer Section D.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section G and H of this report).
- h) Issuance of final verification report to contracted CME (or authorized representatives) and submission of request for issuance, as appropriate.

Verification Conclusion

The review of the monitoring report, supporting documentation and subsequent follow up actions have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India" (GS ID: 11450) meets all the GS requirements and has correctly applied the GS approved methodologies AMS-I. A "Electricity generation by the user" version 14/08/ and Emission reduction from safe drinking water supply-version 1.0/09/ respectively.

The GHG emission reductions were calculated correctly based on the approved methodologies AMS-I.A "Electricity generation by the user" version 14/08/ and Emission reduction from safe drinking water supply-version 1.0/09/ and and the monitoring plan contained in the registered PoA-DD/01/ and VPA-DDs /02/.

Earthood Services Private Limited can certify that the emission reductions achieved in the monitoring period 01/01/2021 to 31/12/2022 for the (VPA 38 and 39) by GS PoA "MicroEnergy Credits – Microfinance for Clean Energy Product Lines - India" (GSID: 11450) are 41,440 tCO₂e for VPA 38 and 11,259 tCO₂e for VPA 39. Therefore, this is being submitted for request for issuance, as per GS4GG and UNFCCC procedures.

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*	Interview(s)	Verification findings
1.	Team Leader	IR	Vashisht	Sushant	Central Office	Y	N	Y	Y
2.	Methodological Expert & GS approved auditor	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y

3.	Technical Expert (TA 1.2, 3.1) & GS approved auditor	IR	Guleria	Shifali	Central Office	Y	Y	Y	Y
4.	Local Expert	EI	Guleria	Shifali	Central Office	Y	Y	Y	Y
5.	Trainee (Verifier)	IR	Yadav	Ashish	Central Office	Y	N	N	Y
6.	Verifier	IR	Patwal	Charu	Central office	N	Y	Y	N
8.	Trainee (Verifier)	IR	Sengupta	Akanksha	Central office	N	Y	Y	N
9.	Verifier	IR	Phukan	Sukanya	Central office	N	Y	Y	N

*On – site interviews have been conducted for the current verification and the same has been discussed in detail in section D.2 of the report.

GS4GG states “Unless otherwise stated (for example in an applied Methodology or Product Requirements), the same VVB may undertake Validation and Verification of a given Project” in the Para 5.1.28 of the core document Principles & requirements, version 1.2, dated 23/10/2019. With reference to the statement made by GS4GG, same VVB has conducted the Validation and Verification for the project activity.

As per paragraph 2.2 of the RULE UPDATE: Validation and Verification by Same VVB (RU 2020 PR – PR V1.2), “The requirement to have different audit teams does not apply to combined Design Certification with first verification and performance review for a given project (paragraph 5.1.53, Principles and Requirements V1.2, p 28). The same audit team may perform both validation and verification for combined Design Certification and first performance certification for a given project”.

The team composition for the verification with their roles is included in table mentioned above.

B.2. Technical reviewer and approver of the verification 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 and TA expert (TA 1.2, 3.1) to TR	IR	Mahala	Deepika	Central Office
2.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Erroneous transfer of information from documented	Low	POs contracted by CME enters the details	On a sampling basis, the records are

	records (sales receipt, carbon transfer form etc.) to credit tracker platform		in credit tracker platform at the time of installation. POs also conduct an internal check to verify the accuracy of data entry.	checked with the information from the credit tracker platform and substantiated by questions asked during the remote surveys of end-users. The familiarity of PO representatives with the tracker platform is also checked.
2.	Erroneous consideration of technical specifications of CEPs (especially for solar CEPs)	Low	The technical specifications are provided by the manufacturer.	Technical specifications of each CEP model are checked against the document issued by the manufacturer.
3.	Observational error by monitoring survey staff of PP/CPA implementer while recording the responses of users in relation to survey parameters	Low	Other than monitoring surveys, the CEP usage status-check surveys are also conducted regularly for distributed CEP. Therefore, risk of error is low. However, if there are discrepancies, they are to be dealt with as per the acceptance sampling approach.	If the aggregated materiality threshold stays within the prescribed materiality threshold, no additional effort is required. However, if the aggregated materiality threshold is above the prescribed threshold, additional samples are to be inspected. If additional sampling is not able to reduce the materiality threshold to a reasonable level of assurance, the monitoring result by the CME for that parameter is to be discarded.
4.	Calculation and referencing errors in ER sheet	Low	The ER calculations are cross-checked by using two different methods of calculation and comparing the results, therefore occurrence of error is less likely. However, referencing errors within the ER sheet may occur.	All calculations and referencing will be checked by verification team with respect to applicable requirements under various documents viz., methodology, PoA DD, CPA DD etc.

C.2. Consideration of materiality in conducting the verification

In accordance with CDM VVS for PoAs, Version 03.0/22/ the prescribed thresholds for materiality for CDM PoAs are as under;

The applicable materiality threshold is 2.0% as PoA comprises Large-scale VPAs

Particulars / Monitoring Report	MR Version (Initial)	MR Version (Revised/Final)
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Emission Reductions Achieved (tCO₂e) in this monitoring period	VPA 38 – 41,440 VPA 39 – 11,259	VPA 38 – 41,440 VPA 39 – 11,259
Applicable Threshold (%) as per CDM VVS for PoAs Version 03.0	2.0%	2.0%

During the assessment all findings were closed and from the sample selected for verification, no systemic or systematic material errors were identified which would have an impact on total emission reductions from the entire population.

SECTION D. Means of verification

D.1. Desk/document review

The verification of the information of the PoA was performed through the document review including review of monitoring report /40/ version 2.0 dated 27/06/2023. Additionally, cross checks were performed for information provided in the monitoring report using other source of information, the verification team's sectoral or local expertise and, if necessary, independent background investigations.

The desk review involves:

- A review of the data and information presented to verify their completeness.
- A review of the monitoring plan, the monitoring methodologies including applicable tool(s) and, where applicable, the applied standardized baseline, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed during the verification is provided under appendix 3 of this report.

D.2. On-site inspection

Duration of on-site inspection: 29/05/2023 – 01/06/2023				
No	Activity performed on-site	Site location	Date	Team member
1.	Physical site visit: Households visited (Implementation of PoA)	West Bengal, Bihar, Karnataka, Punjab	29/05/2023 – 01/06/2023	Shifali Guleria, Sukanya Phukan, Akanksha Sengupta, Charu Patwal
2.	Review of information flows for generating, aggregating and reporting the monitoring parameters	West Bengal, Bihar, Karnataka, Punjab	29/05/2023 – 01/06/2023	
3.	Cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;	West Bengal, Bihar, Karnataka, Punjab	29/05/2023 – 01/06/2023	
4.	A check of the monitoring equipment including calibration performance and observations of monitoring	West Bengal, Bihar, Karnataka, Punjab	29/05/2023 – 01/06/2023	

	practices against the applicable requirements			
5.	Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	West Bengal, Bihar, Karnataka, Punjab	29/05/2023 – 01/06/2023	

D.3. Interviews

D.3.1. Interviews with CME and VPA Implementers

No	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Patgiri	Pritu	MEC India	29/05/2023 to 01/06/2023	VPA DD description, Additionality, Baseline identification, Project boundary, Ex-ante and Ex-post parameters	Shifali Guleria, Sukanya Phukan, Akanksha Sengupta, Charu Patwal
2.	Thapa	Parikshit	ABM		VPA DD description, Additionality, Baseline identification, Project boundary, Ex-ante and Ex-post parameters	
3.	Chauhan	Darshna	MEC India		VPA DD description, Additionality, Baseline identification, Project boundary, Ex-ante and Ex-post parameters	
4.	C.K	Kumarswamy	MEC		VPA DD description, Additionality, Baseline identification, Project boundary, Ex-ante and Ex-post parameters	
5.	Kumar	Jaswant	Midland A.C.M		VPA DD description, Additionality, Baseline identification,	

					Project boundary, Ex-ante and Ex-post parameters	
6.		Sunitha	Field Worker		VPA DD description, Additionality, Baseline identification, Project boundary, Ex-ante and Ex-post parameters	
WPS End-users for VPA 38*						
1	Subba	Chandra	End User	29/05/2023	VVB Project survey	Sukanya Phukan
2	Subba	Sarita	End User	29/05/2023	VVB Project survey	Sukanya Phukan
3	Ghising	Sushma	End User	29/05/2023	VVB Project survey	Sukanya Phukan
4	Subba	Babita	End User	29/05/2023	VVB Project survey	Sukanya Phukan
5	Rai	Rekha	End User	29/05/2023	VVB Project survey	Sukanya Phukan
6	Lama	Manju	End User	29/05/2023	VVB Project survey	Sukanya Phukan
7	Kaur	Narinder	End User	01/06/2023	VVB Project survey	Sukanya Phukan
8	Kaur	Kinderbir	End User	01/06/2023	VVB Project survey	Sukanya Phukan
9	Kaur	Manpreet	End User	01/06/2023	VVB Project survey	Sukanya Phukan
10	Kaur	Davinder	End User	01/06/2023	VVB Project survey	Sukanya Phukan
11	Kaur	Baljiti	End User	01/06/2023	VVB Project survey	Sukanya Phukan
SLS End-users for VPA 38*						
1	Devi	Mina	End User	31/05/2023	VVB Project survey	Charu Patwal
2	-	Nagrathna	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
3	-	Thayamma	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
4	-	Akbar	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
5	-	Basavarajamani	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
6	-	Sidamma	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
7	-	Chikamma	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
8	TM	Pavithra	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
9	M	Shobha	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
10	-	Pushpa	End User	01/06/2023	VVB Project survey	Akanksha Sengupta

11	-	Shantha mma	End User	01/06/2023	VVB Project survey	Akanksha Sengupta
WPS End-users for VPA 39: No WPS were distributed during this monitoring period						
SLS End-users for VPA 39*						
1	Devi	Khushabu	End User	01/06/2023	VVB Project survey	Charu Patwal
2	Devi	Sulaina	End User	01/06/2023	VVB Project survey	Charu Patwal
3	Devi	Jhunni	End User	01/06/2023	VVB Project survey	Charu Patwal
4	Devi	Sona	End User	01/06/2023	VVB Project survey	Charu Patwal
5	Devi	Puja	End User	01/06/2023	VVB Project survey	Charu Patwal
6	Khatun	Gulshan	End User	01/06/2023	VVB Project survey	Charu Patwal
7	Devi	Bataniya	End User	01/06/2023	VVB Project survey	Charu Patwal
8	Ara	Husan	End User	01/06/2023	VVB Project survey	Charu Patwal
9	Devi	Kasturi	End User	01/06/2023	VVB Project survey	Charu Patwal
10	Devi	Rinki	End User	01/06/2023	VVB Project survey	Charu Patwal
11	Devi	Kalpana	End User	01/06/2023	VVB Project survey	Charu Patwal

*Sales of the CEPs are primarily made to females as females are primarily involved in kitchen handling and boiling water. The end users are mostly females an while carrying out the onsite audit random sampling method is used. Hence, the interviewed end users are all female.

Type of questions asked by VVB to VPA Implementers:

Following questions are asked by the end-users for the verification of samples:

No.	Questions asked by Team Leader to baseline users	Nature of Responses Received
Question asked for Water Purification System end user.		
1.	What is the Household Name?	Positively responded
2.	What is the Location/Address (Village name, Pin code)?	Positively responded
3.	What is the Branch, District, State?	Positively responded
4.	What is your Product Model?	Positively responded
5.	What is the Installation Date?	Positively responded
6.	What is the Unique ID of CEP?	Positively responded
7.	What is the Total Quantity of each Product Type?	Positively responded
8.	Is the product in use/operational?	Positively responded
9.	Is device using electricity/energy to operate?	Positively responded
10.	What was the baseline device in use?	Positively responded
11.	What is your source of water? (does PDN exist)?	Positively responded
12.	Is the source rendering SDW?	Positively responded
13.	How much time does it take to fetch the water and return home? (in Minutes)	Positively responded
14.	Who does usually fetch the water (Male/female/child)?	Positively responded
15.	How did you make your drinking water safe in baseline? (record baseline device)	Positively responded

16.	Do you know when to change/replace the filter element in the device?	Positively responded
17.	Quantity of water filled into the filter/ day. (Liters/ number of refills in a day)	Positively responded
18.	Number of Person in the HH?	Positively responded
19.	Any Water - borne disease reported by the filter water consumption?	Positively responded
20.	Does the household also include distributed ICS?	Positively responded
21.	Is your sampled HH also surveyed by PP?	Positively responded
Questions asked for Solar lighting system end users.		
1.	What is the Household Name?	Positively responded
2.	What is the Location/Address (Village name, Pin code)?	Positively responded
3.	What is the Branch, District, State?	Positively responded
4.	What is your Product Model?	Positively responded
5.	What is the Installation Date?	Positively responded
6.	What is the Unique ID of CEP?	Positively responded
7.	What is the Total Quantity of each Product Type?	Positively responded
8.	Is the product in use/operational?	Positively responded
9.	Is device using electricity/energy to operate?	Positively responded
10.	What was the baseline device in use?	Positively responded
11.	Lumen output	Positively responded
12.	Wattage	Positively responded
13.	How many lamps did you receive?	Positively responded
14.	How many lamps are operational?	Positively responded
15.	Does the household also include distributed ICS?	Positively responded
16.	Is your sampled HH also surveyed by PP?	Positively responded

All the end-users reported that the product is working satisfactorily, and they feel that there has been an improvement in the indoor air quality in case of SLS and WPS. All the end users also reported that they are aware of the grievance mechanism. No adverse or negative responses were received with regards the usage or convenience of use of WPS & SLS.

D.4. Sampling approach

VVB's sampling plan:

In order to meet the requirements of Standard for Sampling and surveys for CDM project activities and programmes of activities /23/, the verification team applied acceptance sampling in the verification (in accordance with para 28). The verification team selected random samples of CME's sampled records, checked the acceptability (or otherwise) of the data for each such record with CME's sample records, and then based on the number of records where there is an agreement, determined if the CME's sample records meet the requirements.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' /24/:

- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that can be considered acceptable. This is referred to as the AQL (Acceptable Quality Level): 0.5% was considered in this verification.
- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that would be considered unacceptable. This is the UQL (Unacceptable Quality Level): 20% was considered in this verification.
- The producer risk: 10% was considered.
- The consumer risk: 10% was considered.

Considering the above input values, a sample size of 11 was required as per Table (Sample size and acceptance number based on AQL, UQL, and producer and consumer risks) in the

referred Standard /26/. Accordingly, the acceptance number (c) thus determined for the sample size is 0. A sample size of 11 for each technology of each VPA meets the criteria. The samples to be surveyed by assessment team were randomly selected from the list of monitored samples using the random sample generator on Microsoft excel. The audit plan and list of samples thus obtained to be surveyed by assessment team was communicated to CME via email.

The current verification is for GS 11897 (VPA 38) and GS 11898 (VPA 39). In this monitoring period, following was observed:

GS Ref. VPA	Measure/Technology	Unique CEPs at the end of current MP	Incremental CEPs distribution ?	Fresh/New Monitoring by CME in the MP?
GS11897	Water Purification System	1,444	No	Yes
	Solar Lighting Sytem	103,078	No	Yes
GS11898	Water Purification System	0	No	Yes
	Solar Lighting Sytem	21,394	No	Yes

Accordingly, the verification team together has verified 33 samples collectively (11 samples for each technology distributed under each VPA) during the on - site survey and observed that the sampling survey results of the CME for all the CEPs checked were consistent with VVB's survey results. The sampling method used is in line with Standard: Sampling and surveys for CDM project activities and programme of activities /23/ and Guideline: Sampling and surveys for CDM project activities and programme of activities /24/. In all, the verification team conducted onsite surveys for 33 households.

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

Area of verification findings	No. of CL	No. of CAR	No. of FAR
General	-	-	-
Compliance of the monitoring report with the GS4GG monitoring report form	-	-	-
Remaining forward action requests from validation and/or previous verifications	-	-	-
VPAs considered for verification and covered under this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-	-	-
VPA Implementation	-	-	-
Compliance of the VPA implementation with the included VPA design document	CL#01	-	-
Post-design certification changes	-	-	-
Compliance of the monitoring activities with the registered monitoring plan	CL#02	-	-
Data and parameters fixed ex ante or at renewal of crediting period	-	CAR#01	-
Data and parameters monitored	-	CAR#02	-
Comparison of monitored parameters with last monitoring period	-	CAR#03	-

Implementation of the sampling plan	-	-	-
Assessment of data and calculations of net emission reductions or removals	-	-	-
Calculations of baseline value of each SDG Impact	-	-	-
Calculations of project value of each SDG Impact	-	-	-
Calculations of leakage GHG emissions	-	-	-
Calculations of net benefits for each SDG Impact	-	-	-
Comparison of actual GHG ER value achieved during this monitoring period with estimated value	-	-	-
Safeguarding principles	-	-	-
Stakeholder Inputs and Legal Disputes	-	-	-
Continuous input and grievance mechanism	-	-	-
Internal quality control	-	-	-
Others (editorial/ consistency)	-	-	-
Total	02	03	00

SECTION E.Verification findings

E.1. Compliance of the monitoring report with the GS4GG monitoring report form

Means of verification	The monitoring report form used is GS4GG Monitoring report template version 1.1 /04/, which is a valid version available at the time of verification. All the sections of the aforesaid form were filled as per the Monitoring report template guide version 1.1 /04/ and all the relevant details were provided in the form.
Findings	No findings were raised.
Conclusion	The monitoring report version 2.0/41/ has been found to be completed using the valid version of the monitoring report form. The information provided in the monitoring report has been assessed in accordance with the GS4GG principles & requirements version 1.2/28/ and monitoring report template guide /04/.

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

This is the first verification of VPAs (VPA 38 and 39) under GS. The validation and verification of the VPA is submitted simultaneously for GS design and performance review. Any FAR's raised will be reflected in the next verification.

E.3. VPAs considered for verification and covered under this report

Title and GS reference number of the VPA included in the PoA as of the end of this monitoring period	Is the VPA considered for this verification? (yes/no)	Version of the VPA-DD/ PoA-DD
GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines –MicroEnergy Credits PoA - CPA 38 - GS11897	Yes	Version 3.0/ Version 4
GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines -MicroEnergy Credits PoA - CPA 39 – GS11898	Yes	Version 3.0/ Version 4

E.4. Programme of Activities

E.4.1. Compliance of the programme implementation with the registered PoA-DD

Means of verification	<p>The PoA involves the promotion, distribution and sale of Solar lighting systems (SLS), improved cookstove (ICS) and water purifiers (WPS) in India. However, VPA 38 and 39 have a combination of SLS and WPS. CME has implemented the VPA's through coordination with the partner organizations (POs) and further with local/channel sellers/distributors. The overall responsibility of implementation and operation is with CME (MEC), which was evident from the interviews conducted with CME. This is consistent with PoA DD /01/. The current verification considers 02 VPAs put together by CME: VPA 38 - GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines – MicroEnergy Credits PoA - CPA 38 - GS11897 VPA 39 - GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines – MicroEnergy Credits PoA - CPA 39 - GS11898</p> <p>The implementation of the VPA's, as referenced above, is within the geographical boundary of the PoA-DD/01/, which constitutes the physical boundary as well.</p> <p>The type of CEP (Clean Energy Product) models deployed under the VPAs is verified by the following:</p> <p>VPA 38 – GS11897:</p>		
	Type of CEP	Model	PO/ Implementer
	Water Purification System	There are various models of Water Purification system (listed below) distributed in VPA 38, which were all reviewed and found acceptable under the applied methodology. PureIt Classic (HUL-PureIt), Aquasure Nakshatra (EFL-Nakshatra),	Midland Microfin Ltd. (Midland) and Asirvad Microfinance Ltd. (Asirvad).
	Solar Lighting System	There are various models of Solar lighting systems distributed in VPA 38, which were all reviewed and found acceptable under the applied methodology	Shri Kshetra Dharmasthala Rural Development Project (SKDRDP), Arohan Financial Services Ltd. (Arohan), Midland Microfin Ltd. (Midland), Arman Financial Services Limited (Arman), and Satin Creditcare Network Ltd. (Satin)
	VPA 39 – GS11898:		
Type of CEP	Model	PO/ Implementer	
Water Purification System	Not Distributed in VPA 39.	Not applicable	
Solar Lighting	There are various models of Solar lighting systems	Midland Microfin Ltd. (Midland), and Satin	

System	distributed in VPA 39, which were all reviewed and found acceptable under the applied methodology	Creditcare Network Ltd. (Satin)
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Solar lighting systems implemented under the PoA are renewable energy-based LED/CFL lighting systems. Through the introduction of LED/CFL-based lighting systems the project activity is replacing portable fossil fuel-based lamps.

The Improved Cook stove model implemented under the PoA include Grameen Greenway Smart Stove (GSSV3) and Grameen Greenway Jumbo Stove (GJS), among other models. These ICS are high efficiency cook stoves designed as an eco-friendly and modern replacement for traditional mud & stone stoves and delivers convenient cooking without any requirement of fuel processing or change in cooking habits thus solving the health, environment and fuel collection effort required for operating traditional stoves. **However, it is to be noted that no improved cookstoves are disseminated under verified VPAs.**

Water purification system disseminated under the PoA include various models. The water purifiers remove harmful viruses, bacteria, parasites, pesticides and physical impurities, giving water as safe as boiled water. The water purification systems disseminated in this PoA do not require electricity or continuous tap water and hence, there is no plumbing required.

Technical specification of each type of CEP models are verified with the details provided by respective CEP suppliers and found to be consistently reported in the monitoring report.

As per the PoA DD/1/ maximum 2 types of CEP shall be deployed under any VPA in any combination except ICS and Water Purifier being together. The numbers of CEPs deployed under the VPA has been confirmed by the monitoring database i.e., Credit Tracker Platform /44/.

The verification team has confirmed that the number of CEPs deployed under the VPAs, and the annual emission reduction/year (for type III) and installed capacity (for type I) were found as follows:

Year: 2021

VPA title and GS ID	Technology	Savings/Capacity/ Emission Reduction
GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines MicroEnergy Credits PoA - CPA 38 - GS11897	WPS Solar Lighting system	674tCO _{2e} 0.81 MW
GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines – MicroEnergy Credits PoA - CPA 39 - GS11898	WPS Solar Lighting system	0 tCO _{2e} 0.05 MW

Year: 2022

VPA title and GS ID	Technology	Savings/Capacity/ Emission Reduction
GS11450 - MicroEnergy Credits – Microfinance for Clean Energy Product Lines MicroEnergy	WPS Solar Lighting	2,052 tCO _{2e} 0.81 MW

Credits PoA - CPA 38 - GS11897	system	
GS11450 - MicroEnergy Credits - Microfinance for Clean Energy Product Lines - MicroEnergy Credits PoA - CPA 39 - GS11898	WPS Solar Lighting system	0 tCO ₂ e 0.05 MW

The verification team was able to confirm that the quantity, specification, and target group of the CEPs is consistent with the PoA DD /1/ and VPA DDs/2/. Further, based on the review of Credit Tracker Platform /44/, physical observations from on-site visit conducted during current monitoring period:

- The VPA(s) are implemented within the boundary of the PoA as described in the PoA-DD/1/.
- The CME is same as that mentioned in the PoA-DD/1/.
- The implementation and operation of the project activity has been conducted in accordance with the description contained in the PoA-DD/1/ and VPA-DDs/2/.
- All physical features of the VPA proposed in the included VPA-DDs are in place.
- The project participants/VPA implementer has operated the VPAs as per the included VPA-DDs.

The verification team has conducted surveys via on-site visits with 33 households. It was observed that each CEP was assigned a unique household identification number. The unique identification number on each CEP, personal information of CEP owners and commissioning date of CEP was cross checked with the MIS system of POs and further checked with Credit Tracker Platform available with the CME. The operation of the CEPs was confirmed through remote surveys of owners/representatives (of CEPs). The households were asked various questions to confirm identity of the end user, operational status of the CEPs, presence, and usage of baseline technologies, among others.

The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the VPA-DDs, as given in the table below for comparable estimated ERs in the VPA-DDs for the corresponding period:

Year 1: 2021

As in VPA-DD	Estimated ERs (tCO ₂)	Actual ERs (tCO ₂)
GS11450 - MicroEnergy Credits - Microfinance for Clean Energy Product Lines - MicroEnergy Credits PoA - CPA 38 - GS11897	35,785 WPS 80,621 SLS	674 tCO ₂ e 7,583 tCO ₂ e
GS11450 - MicroEnergy Credits - Microfinance for Clean Energy Product Lines - MicroEnergy Credits PoA - CPA 39 - GS11898	34,529 WPS 72,400 SLS	0 tCO ₂ e 3,635 tCO ₂ e

Year 2: 2022

	As in VPA-DD	Estimated ERs (tCO₂)	Actual ERs (tCO₂)
	GS11450 - MicroEnergy Credits - Microfinance for Clean Energy Product Lines - MicroEnergy Credits PoA - CPA 38 - GS11897	35,785 WPS 80,621 SLS	2,052 tCO ₂ e 31,131 tCO ₂ e
	GS11450 - MicroEnergy Credits - Microfinance for Clean Energy Product Lines - MicroEnergy Credits PoA - CPA 39 - GS11898	34,529 WPS 72,400 SLS	0 tCO ₂ e 7,624 tCO ₂ e
	<p>The actual distribution of solar lighting systems and water purification system for VPAs' are less than the maximum quantity estimated in the VPA-DDs for corresponding year of CEP distributions. The VPA-DDs also mention that the Type 1 SSC threshold of 15 MWe and Type III SSC threshold is more than 60k tCO₂e However, for the current monitoring period neither type I nor Type III threshold is crossed. The information (including data and variables) provided in the MR is found to be in line with the description provided in the PoA-DD/1/.</p> <p>The verification team considers the programme description as contained in the PoA-DD/1/ is complete and accurate. The PoA-DD/1/ complies with the applied methodologies, tools, and forms. The monitoring report was compared and verified against the description provided in the PoA-DD/1/ and found to be correct.</p> <p>Grievance Mechanism The grievance mechanism involves recording the complaints from the beneficiaries by the field staffs to the household on a regular basis in a logbook/39/ which is maintained at the registered office. During the current monitoring period, no grievances were received which was verified upon checking the logbook/42/.</p>		
Findings	No findings were raised.		
Conclusion	The verification team can confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the VPAs were in place and that the CME operated the project activity in accordance with the registered VPA-DDs/2/ and VPA-Inclusion Report/3/ during the current monitoring period and based on the information verified through the on-site audit and interviews.		

E.4.2. Implementation and operation of the management system

Means of verification	<p>Based on the interview of CME representatives, representatives of different POs (VPA implementer's) and monitoring team, it is confirmed that the CME has organized an appropriate management and operational system for monitoring and reporting.</p> <p>The CME co-ordinates with respective POs to establish a marketing and lending program for CEPs. POs staff, local distributors, technicians, and other service providers involved in marketing of CEPs to concerned households. The monitoring plan and procedures to identify each CEP sold have been followed by POs.</p>
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MEC (Micro Energy Credits Corporation Private Limited) is CME for the PoA and responsible for inclusion of VPAs in the PoA. The Carbon Operation Manager of MEC is responsible for completion of inclusion process.

The Carbon Operation Manager directly reports to CEO of CME and gets the carbon expert assistance during the VPA inclusion process, if required.

The information about the type of CEP installed under each VPA is stored in Credit Tracker Platform/44/ that is maintained by MEC (CME).

The Credit Tracker Platform/44/ records the unique identification number, location, installation date, and usage status of each clean energy product (CEP) in each VPA, helps to identify, locate, and verify any or all of the CEP installations in particular VPA. CME has provided the tracker output file/46/ that is used to ensure that unique identification of CEPs can be tracked. This file has been verified to also ensure that no household receives more than 1 solar lighting system.

The Carbon Operation Manager at the CME is responsible for QA/QC of the data, analysis, and reporting into the monitoring report. For survey data, a monitoring team has been organized by the CME consisting of trained monitoring staff, who conducted the surveys/ field tests. The staff was interviewed, and training records/32/ were checked to ensure that they were trained for conducting the surveys/ field tests. The monitoring manager at the CME is responsible for QA/QC of the data, analysis, and reporting into the monitoring report.

In line with the registered monitoring plan, CME conducts an annual survey to ascertain the status of equipment and classify them as installed active, installed damaged and installed inactive. This process is to initiate a repair/post-sales service. All the products which were found to be damaged or inactive are discounted from emission reduction calculation as verified from emission reduction spreadsheet/5/6/7/. There are no CEPs with installed inactive status in the database for the VPA included in batch requesting issuance.

VPA Implementer/PO field staff annually visit households included in the database to cross-check the information on the database with the factual evidence in the field. Any inconsistencies found (e.g., change in the address of a user) are updated on the database, and in the case, CEPs are found to be no longer in use, they will be clearly marked as such and excluded from emission reduction calculations.

Original copies of sales receipts/13/, completed survey forms/39/ and carbon title transfer forms/12/ are retained by the respective POs/VPA implementers. The organizational structure and roles and responsibilities for monitoring were in line with the information provided in the VPA-DDs/02/, which was confirmed through interviewing PD representatives and the situation on the ground as observed during the onsite visit conducted during current monitoring period, and the structure was considered appropriate.

The CEP users sign a title transfer/12/ with the PO while purchasing the product. The title transfer affirms the legal rights of the carbon credits generated by the CEP to the POs. The verification team cross-checked that that carbon title forms/14/ were duly signed by the end-users.

	<p>Further, a signed contractual agreement between the PO and the CME/41/ guides the transfer of the emission reduction rights to the CME. It has been checked and verified from sample carbon title transfer forms/14/ and agreement between POs and CME/40/ that for the VPA's covered in current verification, the carbon credits generated from the VPA belong to the POs and are later transferred to the CME (MEC). The verification team confirms that the process pertaining to the transfer of emission reduction rights to CME is valid and appropriate for all VPAs under this batch which are requesting issuance.</p>
Findings	<p>No Finding were raised.</p>
Conclusion	<p>The verification team assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system. The roles and responsibilities data collection transfer and aggregation procedures, data storage and archiving for the monitoring system have been provided in the MR /41/. The verification team confirms that the monitoring management system of the VPA and by extension PoA is in place with the responsibilities properly identified and established as per the PoA-DD/01/.</p>

E.4.3. Post-design certification changes

E.4.3.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.4.3.2. Corrections

Not Applicable

E.4.3.3. Inclusion of a monitoring plan

Not Applicable

E.4.3.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable

E.4.3.5. Changes to the programme design

Not Applicable

E.4.3.6. Addition of CPA inclusion template

Not Applicable

E.4.3.7. Change of coordination/managing entity

Not Applicable

E.4.3.8. Change specific to afforestation and reforestation activities

Not Applicable

E.5. Voluntary project activity

E.5.1. Compliance of the VPA implementation with the included VPA design document

Means of verification	<p>The reporting for this issuance has been done technology-wise, thus section E.5 shall be dealing with distribution of WPS and its compliance with PoA-DD/01/ and applicable standard.</p> <p>VPAs described in this section target the promotion, distribution and sale of WPS (Water Purification System) i.e., PureIt Classic (HUL-PureIt), Aquasure Nakshatra (EFL-Nakshatra). Their specifications have been checked against the manufacturer specifications/38/</p> <p>Micro Energy Credits Corporation Private Limited is the Coordinating and Managing Entity (CME) for the implementation of VPA's. The CME coordinates and manages each Partner Organization (PO)/ VPA Implementer and assists them in implementing each element of the monitoring plan, which was confirmed to be the case by interviewing the</p>
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CME and PO staff.

Water Purification System:

VPA Ref. #	GS 11897 (VPA 38)	GS 11898 (VPA 39)
Location / State	Bihar (BH), Haryana (HR), Karnataka (KA), Punjab (PJ), Uttar Pradesh (UP) and West Bengal (WB) are the states for water purifiers and several regions within this State.	Not applicable.
CEP Type	WPS	WPS
CEP Model	PureIt Classic (HUL-PureIt), Aquasure Nakshatra (EFL-Nakshatra).	Not applicable. No Distribution of this technology under this VPA.
VPA Implementer / PO	Midland Microfin Ltd. (Midland), Asirvad Microfinance Ltd. (Asirvad).	Not applicable.
Total Quantity Sold / Disseminated	1,444	0
Maximum Estimated Qty CEPs in CPA (for comparable year of distribution)	26,000	26,000
Estimated ERs (comparable period) (tCO ₂ e)	1,180	0
Actual ERs from the CEP Type (tCO ₂ e)	674	0

VPA 38 – GS11897:

WPS were distributed in Bihar (BH), Punjab (PJ), Haryana (HR), Karnataka (KA), Uttar Pradesh (UP), West Bengal (WB) and several regions within the States, which is consistent with the description given in the included VPA DDs/02/. By the end of current monitoring period requesting issuance, total 1,444 WPS were disseminated under this

	<p>VPA, which is within the estimated quantity of 26,000 WPS of the VPA DDs/02/ for comparable year of distribution. The distribution model is that WPS are distributed by PO, managed by CME. The WPS are sold to end users and the sales data is collected by means of sales receipts/23/ at the time of sale to the end-user.</p> <p>VPA 39 – GS11898: No WPS were distributed during the current monitoring period. The description is consistent with the description given in the included VPA DDs/2/. By the end of current monitoring period requesting issuance, total 0 WPS were disseminated under this VPA.</p> <p>PO has a mechanism of allocating a unique ID to each CEP and the end user so that there is no inter and/or intra-VPA double counting which has been cross verified by the MEC credit tracker output file & ER sheet. It was found that PO involved in implementation of VPA’s are involved in this issuance has allocated unique identification numbers to the CEPs sold by them. This information was checked against sample end-user documentation/39/, CME database, and was found to be appropriate. The WPS are sold to end users and the sales data is collected by means of sales receipts/13/ at the time of sale to the end user.</p> <p>Total WPS distributed under both the VPAs i.e., VPA 38 & VPA 39 are as follows: VPA 38:1,444 VPA 39: No water purification systems installed till date. The year wise implementation of WPS under VPA 38 and 39 are mentioned in the tables below:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>VPA 38</th> <th>VPA 39</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>321</td> <td>0</td> </tr> <tr> <td>2022</td> <td>1,123</td> <td>0</td> </tr> <tr> <td>Total</td> <td>1,444</td> <td>0</td> </tr> </tbody> </table> <p>This verification report covers the monitoring period from 01/01/2021 to 31/12/2022 (inclusive of both the dates).</p>	Year	VPA 38	VPA 39	2021	321	0	2022	1,123	0	Total	1,444	0
Year	VPA 38	VPA 39											
2021	321	0											
2022	1,123	0											
Total	1,444	0											
Findings	CL#01 was raised and resolved.												
Conclusion	<ul style="list-style-type: none"> • The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DDs/02/. • It is also confirmed, through the review of the supporting documentation, that physical features of the component VPA have been implemented in accordance with the VPA-DDs /02/. • The VPA’s was also found to be completely operational in line with the VPA-DDs /02/. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA. 												

E.5.2. Post-design Certification Changes

E.5.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.5.2.2. Corrections

Not Applicable

E.5.2.3. Changes to the start – date of the crediting period.

Not Applicable

E.5.2.4. Change to project design of approved project

Not Applicable

E.5.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

<p>Means of verification</p>	<p>The monitoring plan contained in the VPA-DDs/02/ was reviewed in relation to the monitoring requirements of the applied methodology, Emission reduction from safe drinking water supply-version 1.0 /09/, as well as the PoA DD /01/, bearing in mind the technology involved. In light of the review conducted, it was found that the monitoring plan in the VPA-DDs/02/ contains all the required parameters to be monitored in the context of the VPA design and description and allows determination of emission reductions according to the PoA DD/01/ and applied methodology/09/. That is included in the VPA-DDs/02/.</p>
<p>Findings</p>	<p>CL#02 is raised and resolved.</p>
<p>Conclusion</p>	<p>The monitoring plan is in line with the approved methodology Emission reduction from safe drinking water supply-version 1.0/09/, that is included in the registered PoA DD/1/ and VPA-DDs/02/. The monitoring plan is in accordance with the applied methodology /09/ that is included in the VPA-DDs/02/.</p>

E.5.4. Compliance of monitoring activities with the registered monitoring plan

E.5.4.1. Data and parameters fixed ex ante or at renewal of crediting period.

SDG13: SDWS 2; Project Technology Description

Means of verification	of	<p>Parameter ID: SDWS 2; Project Technology Description The description of this parameter considered is mentioned as per VPA-DDs. The details were cross checked with the manufacturer's specification. There was no distribution of WPS in VPA 39 which has been confirmed through ER sheet/05/06/07/ and the Monitoring report/40/. The WPS models distributed in VPA 38, and their technical specifications are mentioned in the table below:</p>																		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #00A6C9; color: white;"> <th style="width: 25%;">Product Model</th> <th style="width: 25%;">Dimensions</th> <th style="width: 25%;">Average unit weight, kg</th> <th style="width: 25%;">Cartridge Capacity to filter/ Lifetime, Liters</th> </tr> </thead> <tbody> <tr> <td>Eureka Forbes Nakshtara</td> <td>51 cm" x 26 cm" x 26 cm"</td> <td>2.38 kg</td> <td>4000 L</td> </tr> <tr> <td>Eureka Forbes Aquasure Sampoorna</td> <td>27 cm" x 50 cm" x 38 cm"</td> <td>4 kg</td> <td>4000 L</td> </tr> <tr> <td>HUL Pureit Classic</td> <td>61 cm" x 29 cm" x 21 cm</td> <td>4.1 Kg</td> <td>1500 L</td> </tr> </tbody> </table>				Product Model	Dimensions	Average unit weight, kg	Cartridge Capacity to filter/ Lifetime, Liters	Eureka Forbes Nakshtara	51 cm" x 26 cm" x 26 cm"	2.38 kg	4000 L	Eureka Forbes Aquasure Sampoorna	27 cm" x 50 cm" x 38 cm"	4 kg	4000 L	HUL Pureit Classic	61 cm" x 29 cm" x 21 cm	4.1 Kg	1500 L
	Product Model	Dimensions	Average unit weight, kg	Cartridge Capacity to filter/ Lifetime, Liters																
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HUL Pureit Classic	61 cm" x 29 cm" x 21 cm	4.1 Kg	1500 L																	
<p>All the distributed models under VPA 38 meet international criteria defined for microbiologically safe drinking water as defined by the Environmental Protection Agency (EPA), US and National Standards/48/</p>																				
<p>Findings No findings were raised.</p>																				
<p>Conclusion The parameter is consistent with the registered VPA-DDs wherein it is recommended to establish baseline fuel usage for VPAs at the time of verification/02/. Hence the applied parameter is correct and justified.</p>																				

SDG13: SDWS 4; Regulatory Framework for safe water supply

Means of verification	of	<p>Parameter ID: SDWS 4; Regulatory Framework for safe water supply. The data has been confirmed from the respective VPA-DDs/02/ and crosschecked with the National Water Policy (2012) and the Jal Jeevan Mission (2019-2024)/48/ provided by the CME. The VPAs meet host country's potable water specifications set by BIS standards; the project is found in conformance and not conflicting with national regulatory frameworks and policies.</p>	
	<p>Findings No findings were raised.</p>		
	<p>Conclusion The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /05/06/07/ are consistent with the registered VPA-DDs/02/. The applied value is correct and justified.</p>		

SDG13: SDWS 5; Water sources in the project boundary

Means of	of	<p>The data provided is verified from the respective VPA-DDs and cross checked with the applied methodology/09/.</p>
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verification	
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//06//07/ are consistent with the registered VPA-DD/2/. The applied value is correct and justified.

SDG13: SWDS 6; Stove technologies used in the project boundary.

Means of verification	<p>The value of the parameter was confirmed and checked against the baseline survey and studies carried by various institutions at the time of validation. The values of the parameter are mentioned in the table below:</p> <table border="1" data-bbox="507 658 1398 1160"> <thead> <tr> <th>VPA</th> <th>State</th> <th>Three-stone fired</th> <th>Gas Stove</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Bihar</td> <td>95%</td> <td>5%</td> </tr> <tr> <td>VPA38</td> <td>Punjab</td> <td>90%</td> <td>10%</td> </tr> <tr> <td>VPA38</td> <td>Karnataka</td> <td>94%</td> <td>6%</td> </tr> <tr> <td>VPA38</td> <td>Madhya Pradesh</td> <td>90%</td> <td>10%</td> </tr> <tr> <td>VPA38</td> <td>Haryana</td> <td>93%</td> <td>7%</td> </tr> <tr> <td>VPA38</td> <td>Uttar Pradesh</td> <td>89%</td> <td>11%</td> </tr> <tr> <td>VPA38</td> <td>West Bengal</td> <td>92%</td> <td>8%</td> </tr> <tr> <td>VPA39</td> <td>Madhya Pradesh</td> <td>94%</td> <td>6%</td> </tr> <tr> <td>VPA39</td> <td>Punjab</td> <td>96%</td> <td>6%</td> </tr> </tbody> </table>	VPA	State	Three-stone fired	Gas Stove	VPA38	Bihar	95%	5%	VPA38	Punjab	90%	10%	VPA38	Karnataka	94%	6%	VPA38	Madhya Pradesh	90%	10%	VPA38	Haryana	93%	7%	VPA38	Uttar Pradesh	89%	11%	VPA38	West Bengal	92%	8%	VPA39	Madhya Pradesh	94%	6%	VPA39	Punjab	96%	6%
VPA	State	Three-stone fired	Gas Stove																																						
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VPA39	Madhya Pradesh	94%	6%																																						
VPA39	Punjab	96%	6%																																						
Findings	CAR#01 is raised and resolved.																																								
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//06/07/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.																																								

SDG13: SDWS 7; Expected technical life [of project activity; volume of years

Means of verification	<p>The value applied for the parameter is verified from the respective VPA-DDs/02/ and cross checked with Manufacturer's specification of the project technology/38/. The operation lifetime of the device filter/cartridge in terms of litres is 4000L (EFL Nakshatra and EFL sampurna) and 1500L (HUL Pureit) respectively. Same values were reflected in the Monitoring Report dated 27/06/2023, version 2.0. The values have been cross checked with the manufacturers' specification/38/ and lifespan of the devices is mentioned in terms of capacity of the Germ Kill Kit and Cartridge.</p>
Findings	CAR#01 was raised and resolved.
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//06/07 are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.

SDG13: SDWS 8; Percentage of fuel f used in target population; xf

Means of verification	The value applied for the parameter is verified from the VPA-DDs/02/ and cross checked against the baseline survey and studies carried by various institutions at the time of validation. The value of this parameter considered is mentioned below as per VPA-DDs			
	VPA	State	Three-stone fired	Gas Stove
	VPA38	Bihar	95%	5%
	VPA38	Punjab	90%	10%
	VPA38	Karnataka	94%	6%
	VPA38	Madhya Pradesh	90%	10%
	VPA38	Haryana	93%	7%
	VPA38	Uttar Pradesh	89%	11%
	VPA38	West Bengal	92%	8%
	VPA39	Madhya Pradesh	94%	6%
VPA39	Punjab	96%	6%	
	The raw data from baseline study and baseline survey results was crossed-checked and was found to be consistently reported in the monitoring report.			
Findings	CAR#01 was raised and resolved.			
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//06//07/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.			

SDG13: SDWS 9; EF_{b,f,CO_2} , CO2 emission factor arising from use of fuels in baseline Scenario; tCO_2/TJ

Means of verification	The value applied for the parameter was found to be the default IPCC value sourced from 2006 IPCC Guidelines for National Greenhouse Gas Inventories 2.1, Volume 2: Energy at the time of validation. The values are confirmed from the VPA-DD./02/			
	This value is used for the determination of baseline emissions. The value of this parameter considered as mentioned in the VPA-DDs is 112 tCO_2/TJ for Firewood and 63.1 tCO_2/TJ for LPG. The value was also cross checked with applied methodology Emission Reductions from Safe Drinking Water Supply" v1./09/			
Findings	No findings were raised.			
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /5/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.			

SDG13: SDWS 10; $EF_{b,f,non-CO_2}$, Non-CO2 emission factor from use of fuels, in case the baseline fuel is biomass or charcoal; tCO_{2e}/TJ

Means of verification	The value applied for the parameter was found to be consistent with the respective VPA-DDs/02 and cross checked with the the default IPCC value sourced from 2006 IPCC Guidelines for National Greenhouse Gas Inventories 2.1, Volume 2: Energy/30/			
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	The value of this parameter considered as mentioned in the VPA-DDs is 9.46 tCO ₂ e/TJ for wood. The value was also cross checked with applied methodology Emission Reductions from Safe Drinking Water Supply" v1./09/
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//06//07/are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.

SDG13: SDWS 11; η_{wb} , weighted average efficiency of the baseline water boiling devices. Calculate the weighted average of the water boiling efficiency in the project boundary using the proportion of different stove types used and the stove efficiencies; %

Means of verification	The values were verified through VPA DDs and are correctly reported in the monitoring report. The value of this parameter considered as mentioned in the VPA-DDs is 10% for three stone fired stove and 57% for gas stove. The value was also cross checked with applied methodology Emission Reductions from Safe Drinking Water Supply" v1./09/
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5/06//07/are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.

SDG13: SDWS 12; C_b , Proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling; %

Means of verification	<p>The value mentioned in the parameter is found to be consistent with the values mentioned in respective VPA-DDs/02/. The value of the parameter is based on baseline survey carried out by CME and verified at the time of validation.</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered as mentioned in the VPA-DDs are as follows:</p> <table border="1" data-bbox="497 1505 1406 1906"> <thead> <tr> <th>VPA</th> <th>State</th> <th>C_b</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Bihar</td> <td>5.06%</td> </tr> <tr> <td>VPA38</td> <td>Haryana</td> <td>9.47%</td> </tr> <tr> <td>VPA38</td> <td>Karnataka</td> <td>5.23%</td> </tr> <tr> <td>VPA38</td> <td>Madhya Pradesh</td> <td>5.32%</td> </tr> <tr> <td>VPA38</td> <td>Punjab</td> <td>6.99%</td> </tr> <tr> <td>VPA38</td> <td>Uttar Pradesh</td> <td>7.70%</td> </tr> <tr> <td>VPA38</td> <td>West Bengal</td> <td>4.47%</td> </tr> <tr> <td>VPA39</td> <td>Punjab</td> <td>5.68%</td> </tr> <tr> <td>VPA39</td> <td>Madhya Pradesh</td> <td>5.83%</td> </tr> </tbody> </table>	VPA	State	C_b	VPA38	Bihar	5.06%	VPA38	Haryana	9.47%	VPA38	Karnataka	5.23%	VPA38	Madhya Pradesh	5.32%	VPA38	Punjab	6.99%	VPA38	Uttar Pradesh	7.70%	VPA38	West Bengal	4.47%	VPA39	Punjab	5.68%	VPA39	Madhya Pradesh	5.83%
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Findings	CAR#01 was raised and resolved.																														
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//6//7/ are consistent with the registered VPA-																														

DDs/2/. The applied value is correct and justified.

SDG13: SDWS 13; q_i , Capacity of the household or institutional water treatment technology; Litres per hour

Means of verification	The values were verified from the respective VPA-DDs/02/ and cross-checked with the manufacturer specification of the technology/38/. This value is used for the determination of baseline emissions. The value of this parameter considered as mentioned in the VPA-DDs are as follows: HUL pureit – 9 L/H EFL Nakshatra and EFL Sampoorna – 10L/h
Findings	No findings were raised.
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5//6//7/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.

SDG13: SDWS 13; $f_{NRB,b,y}$, Fractional non-renewability status of woody biomass fuel during year y, in case the baseline fuel is biomass

Means of verification	The values mentioned in the parameter are consistent with the values mentioned in the VPA-DDs/02/ and cross-checked with CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass, Version 03.0/45/ and is found to be correctly reported in the monitoring report. The values considered in this parameter are:																														
	<table border="1"> <thead> <tr> <th>VPA</th> <th>State</th> <th>f_{NRB}</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Punjab</td> <td>0.939</td> </tr> <tr> <td>VPA38</td> <td>Bihar</td> <td>0.97</td> </tr> <tr> <td>VPA38</td> <td>Haryana</td> <td>0.935</td> </tr> <tr> <td>VPA38</td> <td>Karnataka</td> <td>0.675</td> </tr> <tr> <td>VPA38</td> <td>Madhya Pradesh</td> <td>0.842</td> </tr> <tr> <td>VPA38</td> <td>Uttar Pradesh</td> <td>0.954</td> </tr> <tr> <td>VPA38</td> <td>West Bengal</td> <td>0.95</td> </tr> <tr> <td>VPA39</td> <td>Punjab</td> <td>0.939</td> </tr> <tr> <td>VPA39</td> <td>Madhya Pradesh</td> <td>0.842</td> </tr> </tbody> </table>	VPA	State	f_{NRB}	VPA38	Punjab	0.939	VPA38	Bihar	0.97	VPA38	Haryana	0.935	VPA38	Karnataka	0.675	VPA38	Madhya Pradesh	0.842	VPA38	Uttar Pradesh	0.954	VPA38	West Bengal	0.95	VPA39	Punjab	0.939	VPA39	Madhya Pradesh	0.842
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Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /5/6//7/ are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.																														

E.5.4.2. Data and parameters monitored (Carbon & SDG)

In VPA 39 (GS11898) there were no WPS distributed during the current verification period.

For VPA 38 (GS11897)

SDG13: SDWS 18; Fraction; $M_{q,y}$

Relevant SDG Indicator	SDG13: Climate Action
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Means of verification	Criteria/Requirements	Assessment/Observation																																			
	Measuring /Reading /Recording frequency	The parameter is measured and recorded annually																																			
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/																																			
	Monitoring equipment	Not Applicable																																			
	Calibration frequency /interval:	NA																																			
	How were the values in the monitoring report verified?	<p>The value of this parameter is derived based on water quality tests conducted by various NABL accredited laboratories/49/.</p> <p>For the monitoring period, the value of the parameter is 1.</p> <p>The values obtained for this parameter are:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>VPA</th> <th>Partner</th> <th>Model - State</th> <th>M_q (2021)</th> <th>M_q (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra -Bihar</td> <td>1</td> <td>1</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Karnataka</td> <td>1</td> <td>1</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra -Uttar Pradesh</td> <td>1</td> <td>1</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra -West Bengal</td> <td>1</td> <td>1</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit - Punjab</td> <td>-</td> <td>1</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit - Haryana</td> <td>-</td> <td>1</td> </tr> </tbody> </table> <p>For water purifiers monitored under the VPA 38, this parameter has been calculated by accounting test results from minimum of 30 samples for water</p>	VPA	Partner	Model - State	M _q (2021)	M _q (2022)	VPA38	Asirvad	EFL Nakshatra -Bihar	1	1	VPA38	Asirvad	EFL Nakshatra - Karnataka	1	1	VPA38	Asirvad	EFL Nakshatra -Uttar Pradesh	1	1	VPA38	Asirvad	EFL Nakshatra -West Bengal	1	1	VPA38	Midland	HUL Pureit - Punjab	-	1	VPA38	Midland	HUL Pureit - Haryana	-	1
VPA	Partner	Model - State	M _q (2021)	M _q (2022)																																	
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VPA38	Midland	HUL Pureit - Punjab	-	1																																	
VPA38	Midland	HUL Pureit - Haryana	-	1																																	

		<p>exiting from water filters.</p> <p>All samples passed the water testing and were found safe for drinking as per Indian Standard drinking water specification (IS 10500:2012).</p> <p>This has been checked from in ER sheet/5//6//7/ and the approach is found to be conservative, thus acceptable</p>
	If applicable, has the reported data been cross-checked with other available data?	The data has been cross-checked with the onsite visit carried out by the VVB/47/ where the end-users were asked whether they found the water from the CEP safe or not and was there any difference observed. The end users responded positively and reported that water quality was believed to be safe and visibly cleaner from the previous source.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the VPA implementer and established through on-site interviews.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	No findings were raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology/9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/1/.	

SDG13: Water hygiene education campaigns

Relevant Indicator	SDG	SDG13: Climate Action	
Means of verification	of	Criteria/Requirements	Assessment/Observation
		Measuring /Reading /Recording frequency	Annually
		Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology?	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/

	(Yes / No)	
	Monitoring equipment	Not applicable as this parameter is ascertained through campaigns
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	<p>The value of this parameter is based on annual hygiene campaign records/51/ where 119 households in Year-1 and 237 households in Year-2 from across 6 states of India were presented with a questionnaire-based survey. The resulting values were: Percentage of households with basic hygiene practices = In Year-1, 90%, 93.5%, 92.9% and 96.7% of households from Bihar, Karnataka, Uttar Pradesh and West Bengal respectively. In Year-2, 96.9%, 97.0%, 91.7%, 91.0%, 92.9%, 96.9% of households from Bihar, Karnataka, Haryana, Punjab, Uttar Pradesh and West Bengal respectively.</p> <p>Percentage of households with safely managed drinking water = 94.44% and 91.61% of households in Year-1 and Year-2 as reported in the Monitoring Report/40/ provided by the CME. The survey results and records/39/ were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet of final Monitoring Report.</p> <p>The responses from randomly selected samples from VPAs for WPS under this batch issuance for VVB survey were cross-checked with CME monitoring survey forms which were provided by the CME, and all end users responses were consistent with monitoring results.</p>
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the VPA implementer and established through on-site interviews.
	In case project participants have temporarily not monitored	Not Applicable

	the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology/9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/2/.	

SDG13: SDWS 22; Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y; Percentage; $X_{Cleanboil,y}$

Relevant SDG Indicator	SDG13: Climate Action					
Means of verification	Criteria/Requirements	Assessment/Observation				
	Measuring /Reading /Recording frequency	Annually				
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/				
	Monitoring equipment	Not Applicable				
	Calibration frequency /interval:	Not Applicable				
	How were the values in the monitoring report verified?	VPA	Partner	Model - State	$X_{cleanboil,y}$ (2021)	$X_{cleanboil,y}$ (2022)
		VPA38	Asirvad	EFL Nakshatra -Bihar	0%	0%
	VPA38	Asirvad	EFL Nakshatra - Karnataka	0%	0%	
	VPA38	Asirvad	EFL Nakshatra -Uttar Pradesh	0%	0%	
	VPA38	Asirvad	EFL Nakshatra -West Bengal	0%	0%	

		VPA38	Midland	HUL Pureit Punjab	-	0%
		VPA38	Midland	HUL Pureit Haryana	-	0%
		The value applied for this parameter is 0% and was verified against the onsite interview/47/, during which households were questioned if they continued practice of boiling water after installation of water purification system. All surveyed households confirmed that the water dispensed from project device is perceived safe for drinking and is not boiled or treated since installation of the project device.				
	If applicable, has the reported data been cross-checked with other available data?	The values Are cross-checked with sample survey records/39/ provided by the CME where the end-users confirmed that they did not boil water from the WPS as they considered it to be safe.				
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.				
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable					
Findings	No findings were raised.					
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/2/.					

SDG13: SDWS 24; Volume of drinking water per person per day for premises type p; Litres/person/day; QPW_p

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	This parameter is measured annually.

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/																												
	Monitoring equipment	Volumetric Jar Least Count = 100 ml																												
	Calibration frequency /interval:	Not Applicable																												
	How were the values in the monitoring report verified?	<p>The verification team randomly selected 11 samples per VPA for VVB's remote survey/47/ and via these surveys found out an approximate amount of water consumed per person per day, which was comparable with the CME's sample survey result /39/.The value of the parameter as per VPAs are:</p> <table border="1" data-bbox="804 878 1420 1406"> <thead> <tr> <th>VPA</th> <th>Partner</th> <th>Model - State</th> <th>QPW_p</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Bihar</td> <td>4.60</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Karnataka</td> <td>4.65</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Uttar Pradesh</td> <td>4.63</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - West Bengal</td> <td>4.57</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit - Punjab</td> <td>4.61</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit - Haryana</td> <td>4.50</td> </tr> </tbody> </table>	VPA	Partner	Model - State	QPW _p	VPA38	Asirvad	EFL Nakshatra - Bihar	4.60	VPA38	Asirvad	EFL Nakshatra - Karnataka	4.65	VPA38	Asirvad	EFL Nakshatra - Uttar Pradesh	4.63	VPA38	Asirvad	EFL Nakshatra - West Bengal	4.57	VPA38	Midland	HUL Pureit - Punjab	4.61	VPA38	Midland	HUL Pureit - Haryana	4.50
VPA	Partner	Model - State	QPW _p																											
VPA38	Asirvad	EFL Nakshatra - Bihar	4.60																											
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VPA38	Midland	HUL Pureit - Punjab	4.61																											
VPA38	Midland	HUL Pureit - Haryana	4.50																											
	If applicable, has the reported data been cross-checked with other available data?	The survey results and assumptions were checked by the verification team and were found acceptable. The results are reproducible in the corresponding ER sheet of final Monitoring Report/40/ .																												
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. The QA/QC procedure are in place, internal checks have been done by the CPA implementer and established using information received during remote surveys and interviews. QA/QC procedures were also assessed during the MP and were found to be in place.																												
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB	Not Applicable																												

	or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: SDWS 25; Number of individuals per premises type p in the project boundary in year y; $HN_{p,y}$

Relevant SDG Indicator	SDG13: Climate Action					
Means of verification	Criteria/Requirements	Assessment/Observation				
	Measuring /Reading /Recording frequency	Annually				
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/				
	Monitoring equipment	Not Applicable				
	Calibration frequency /interval:	Not Applicable				
	How were the values in the monitoring report verified?	The verified value in this monitoring period was assessed to be:				
		VPA	Partner	Model - State	Project Survey (2021)	Project Survey (2022)
	VPA38	Asirva d	EFL Nakshatra - Bihar	5.56	5.22	5.5
	VPA38	Asirva d	EFL Nakshatra - Karnataka	5.06	4.78	4.5

	VPA38	Asirva d	EFL Nakshat ra -Uttar Pradesh	6.1	6.1	6.0
	VPA38	Asirva d	EFL Nakshat ra -West Bengal	4.5	5.12	4.5
	VPA38	Midlan d	HUL Pureit - Punjab	-	5.01	5
	VPA38	Midlan d	HUL Pureit - Haryana	-	4.75	5.2
	If applicable, has the reported data been cross-checked with other available data?		These values were cross-checked with the Census records/14/ shared by the CME inline with the applied methodology/09/. CME has applied conservative values for the parameter and the lowest value amongst the project survey and census was considered for the emission reduction calculation.			
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?		The QA/QC processes were deemed to be appropriate and trustworthy.			
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?		Not Applicable			
Findings	CAR#02 is raised and resolved.					
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.					

SDG13: SDWS 28; Accumulated number of premises type p with at least one individual project technology in year y; Number; $N_{p,y}$

Relevant SDG Indicator	SDG 13: Climate Change
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Means of verification	Criteria/Requirements	Assessment/Observation																																								
		Measuring /Reading /Recording frequency	Annually																																							
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/																																								
	Monitoring equipment	Not Applicable																																								
	Calibration frequency /interval:	Not Applicable																																								
	How were the values in the monitoring report verified?	<p>The verified value for this parameter is given as:</p> <table border="1" data-bbox="756 719 1493 1514"> <thead> <tr> <th>VPA</th> <th>Partner</th> <th>Model - State</th> <th>$N_{p,y}$ (2021)</th> <th>$N_{p,y}$ (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Bihar</td> <td>76</td> <td>76</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Karnataka</td> <td>54</td> <td>54</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - Uttar Pradesh</td> <td>28</td> <td>28</td> </tr> <tr> <td>VPA38</td> <td>Asirvad</td> <td>EFL Nakshatra - West Bengal</td> <td>163</td> <td>163</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit -Punjab</td> <td>-</td> <td>1,111</td> </tr> <tr> <td>VPA38</td> <td>Midland</td> <td>HUL Pureit -Haryana</td> <td>-</td> <td>12</td> </tr> <tr> <td colspan="3">Total</td> <td>321</td> <td>1,444</td> </tr> </tbody> </table> <p>The records of number of WPS distributed in monitoring database, ex-post ER sheets/05/06/07 were used for verification.</p>	VPA	Partner	Model - State	$N_{p,y}$ (2021)	$N_{p,y}$ (2022)	VPA38	Asirvad	EFL Nakshatra - Bihar	76	76	VPA38	Asirvad	EFL Nakshatra - Karnataka	54	54	VPA38	Asirvad	EFL Nakshatra - Uttar Pradesh	28	28	VPA38	Asirvad	EFL Nakshatra - West Bengal	163	163	VPA38	Midland	HUL Pureit -Punjab	-	1,111	VPA38	Midland	HUL Pureit -Haryana	-	12	Total			321	1,444
VPA	Partner	Model - State	$N_{p,y}$ (2021)	$N_{p,y}$ (2022)																																						
VPA38	Asirvad	EFL Nakshatra - Bihar	76	76																																						
VPA38	Asirvad	EFL Nakshatra - Karnataka	54	54																																						
VPA38	Asirvad	EFL Nakshatra - Uttar Pradesh	28	28																																						
VPA38	Asirvad	EFL Nakshatra - West Bengal	163	163																																						
VPA38	Midland	HUL Pureit -Punjab	-	1,111																																						
VPA38	Midland	HUL Pureit -Haryana	-	12																																						
Total			321	1,444																																						
	If applicable, has the reported data been cross-checked with other available data?	The values were cross-checked with the sales database/13/ and Credit Tracker Records/43/ provided by the PP.																																								
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.																																								

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/2/ (as per measurement methods and procedures to be applied) and applied methodology /9/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG 13:SDWS 29, Usage rate of the project technology by premises type p during year y,%_{p,y}, U_{p,y}

Relevant SDG Indicator	SDG 13: Climate Change													
Means of verification	Criteria/Requirements	VVB Assessment												
	Measuring /Reading /Recording frequency	Annually												
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency in line to the PoA-DD/1/ and VPA-DDs/2/.												
	How were the values in the monitoring report verified?	<p>The data was verified during onsite visit/47/ conducted by the VVB where the end-users were asked about the operability/functionality and usage of the CEP distributed. The end-users responded positively that the product was functional and was used daily. The end users were also questioned about the number of times they filled water in the WPS, to which the end users replied that during summers the number was greater than that of winters.</p> <p>The value of the parameter as per VPAs are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">VP A</th> <th style="text-align: center;">Part ner</th> <th style="text-align: center;">Model State</th> <th style="text-align: center;">U_{p,y} (2021)</th> <th style="text-align: center;">U_{p,y} (2022)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">VPA 38</td> <td style="text-align: center;">Asirvad</td> <td style="text-align: center;">EFL Nakshatra -Bihar</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">97%</td> </tr> </tbody> </table>				VP A	Part ner	Model State	U _{p,y} (2021)	U _{p,y} (2022)	VPA 38	Asirvad	EFL Nakshatra -Bihar	100%
VP A	Part ner	Model State	U _{p,y} (2021)	U _{p,y} (2022)										
VPA 38	Asirvad	EFL Nakshatra -Bihar	100%	97%										

	VPA 38	Asriv ad	EFL Nakshatra -Karnataka	97%	97%
	VPA 38	Asriv ad	EFL Nakshatra -Uttar Pradesh	100%	96%
	VPA 38	Asriv ad	EFL Nakshatra -West Bengal	100%	94%
	VPA 38	Midla nd	HUL Pureit -Punjab	-	99%
	VPA 38	Midla nd	HUL Pureit -Haryana	-	100%
	If applicable, has the reported data been cross-checked with other available data?		The value was cross-checked with the survey carried out by CME/39/ and was found to be consistent.		
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?		The QA/QC processes were deemed to be appropriate and trustworthy.			
Findings	CAR#02 is raised and resolved.				
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/, and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.				

SDG 13: SDWS 30, Usage time of the project technology by premises type p in year y, Hours per day, $t_{p,y}$

Relevant SDG Indicator	SDG 13: Climate Change	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	The value of the parameter is a default value taken from the applied methodology – Emission Reduction from Safe Drinking Water Supply version 1/09/, option 3. The value is taken to be 5 hours per day.

	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	No findings were raised.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/ and VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

SDG 13: SDWS 31; Average days the project technology is present for end-users in the premises p in year y, Days, $DP_{p,y}$

Relevant SDG Indicator	SDG13: Climate Change				
Means of verification	Criteria/Requirements	VVB Assessment			
	Measuring /Reading /Recording frequency	Continuously			
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.			
	How were the values in the monitoring report verified?	This was verified during the onsite visit/47/ conducted by the VVB where end users were questioned as to how long the product has been there at their household from the time of installation. The answer obtained by the end users was on an average 1 year. The values applied in the parameter are mentioned in the table below:			
		VP A	Part ner	Model - State	DP_{p,y} (2021)
	VPA 38	Asirvad	EFL Nakshatra -Bihar	296	360
	VPA 38	Asirvad	EFL Nakshatra -Karnataka	303	358
	VPA 38	Asirvad	EFL Nakshatra -Uttar Pradesh	200	352

	VPA 38	Asriv ad	EFL Nakshatra -West Bengal	277	361
	VPA 38	Midla nd	HUL Pureit -Punjab	-	144
	VPA 38	Midla nd	HUL Pureit -Haryana	-	156
	If applicable, has the reported data been cross-checked with other available data?		The value was cross checked with the survey records of the CME/39/ and was to be consistent.		
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?		The QA/QC processes were deemed to be appropriate and trustworthy.			
Findings	No findings were raised				
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/, and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.				

SDG 13: Average number of individual project technologies in each project premises type p in year y, Number, $DN_{p,y}$

Relevant SDG Indicator	SDG 13: Climate Change	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	Based on the onsite visit/47/ conducted by the VVB where the end users were asked about the total number of the product received and sales database/13/ provided by the CME, this value was verified and accepted. The verified value was 1 i.e., each household received only 1 WPS during this verification period.
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.
Findings	No findings were raised	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD/1/ and VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

E.5.5. Implementation of sampling plan

Means of verification	<p>The sampling plan was implemented by the CME in accordance with the Gold Standard methodology Emission Reduction from safe drinking water supply v1.0/09/, and the CDM EB 110, Annex 1, Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities/23/.</p> <p>Since the VPAs cover various states of India and various model of WPS are distributed in the population, the sampling has been conducted for each state separately. Population with each state is reasonably considered homogenous. Therefore, the approach of simple random sampling for every sampling frame is acceptable.</p> <p><u>Parameters to be covered through monitoring surveys of sampled households:</u></p> <p>The project developer has conducted combined usage, project and hygiene survey during which 119 households in Year-1 and 237 households in Year-2 have been surveyed in total across all states in which WPS distributions occurred. From all these households, water quality tests were also conducted. Thus, following parameters are covered through monitoring surveys:</p> <ol style="list-style-type: none"> 1. Mq,y 2. Xcleanboil,y 3. Up,y 4. QpWp 5. HNp,y <p>Monitoring survey (by CME) duration:</p> <p>The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period.</p> <p>For Monitoring Period: 01/01/2021 to 31/12/2022:</p> <p>VPA 38: GS 11897</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Parameter</th> <th style="width: 20%;">Monitoring Frequency</th> <th style="width: 25%;">CEPs added during this MP (01/01/2021 to 31/12/2022)</th> <th style="width: 20%;">New Monitoring for this MP</th> </tr> </thead> <tbody> <tr> <td>Usage/Project Survey</td> <td>Annual</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Water testing</td> <td>Annual</td> <td>Yes</td> <td>Yes</td> </tr> </tbody> </table>			Parameter	Monitoring Frequency	CEPs added during this MP (01/01/2021 to 31/12/2022)	New Monitoring for this MP	Usage/Project Survey	Annual	Yes	Yes	Water testing	Annual	Yes	Yes
Parameter	Monitoring Frequency	CEPs added during this MP (01/01/2021 to 31/12/2022)	New Monitoring for this MP												
Usage/Project Survey	Annual	Yes	Yes												
Water testing	Annual	Yes	Yes												

VPA 39: GS 11898			
Parameter	Monitoring Frequency	CEPs added during this MP (01/01/2021 to 31/12/2022)	New Monitoring for this MP
Usage/Project Survey	Annual	NA	NA
Water testing	Annual	NA	NA

Sample size calculation for different tests

All monitored parameters were evaluated using simple random sampling with the requisite precision/confidence. The combined Usage/ Project and hygiene survey /42/ was done to determine usage and changes in circumstances experienced following the WPS project’s deployment. The sample size was determined using the applied methodology guideline/09/. The representation of different age groups of distribution was also considered with 90/10 precision rule, vintage picked in accordance with methodological sampling requirements. To ensure accurate representation of the entire population, the usage surveys were conducted on randomly chosen water purifiers dispersed across the project distribution boundary.

It is noted that the average lifetime of WPS model distributed in the VPAs, according to its technical specifications, is based on the Germ Kill Kit capacity or the Cartridge capacity. However, the lifetime may vary from individual product to product depending on usage handling and other physical factors. Parameter Usage Rate ensures that non-operationality rate of project devices found in representative sample is accounted for in ER calculations.

All parameters of interest are included in the ER spreadsheet for the VPA’s. These were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets corresponding to final Monitoring Report, which were also found correct.

Findings	CAR#02 is raised and resolved.
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD/1/ and the VPA DDs/2/.

E.5.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment required to monitor the parameters, as verified through the registered monitoring plan as outline in the VPA-DDs/2/ and PoA-DD/1/.
Findings	No findings were raised.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME. Therefore, there was no requirement of calibration. This was in accordance with the accepted monitoring plan and the applied monitoring methodology.

E.5.7. Assessment of data and calculation of emission reductions or net removals

E.5.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification	<p><u>1- SDG-13: Climate Action</u></p> <p>The equations used were found consistent with the PoA DD/1/, VPA DDs/2/ and the applied methodology Emission reduction from safe drinking water supply v1.0/9/</p> <p>For calculation of emission reduction, the following formula has been used $ER_y = BE_y - PE_y - LE_y$ Where: ER_y = Emission reductions in year y (tCO₂e/yr) BE_y = Baseline emissions in year y (tCO₂e/yr) PE_y = Project emissions in year y (tCO₂e/yr) LE_y = Leakage emissions in year y (tCO₂e/yr)</p> <p>The baseline emission was calculated as: $BE_y = EF_b \times (1 - C_b - X_{cleanboil,y}) \times Q_y \times M_{q,y}$</p> <p>Where:</p> <p>$BE_y$ = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO₂e)</p> <p>C_b = Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%)</p> <p>$X_{cleanboil,y}$ = Proportion of project end-users that boil safe water in the project year y (%)</p> <p>Q_y = Quantity of safe drinking water provided by the project in year y (L)</p> <p>$M_{q,y}$ = Modifier for the water quality in year y</p> <p>And $EF_b = SE_{w,b,y} * \sum(x_f * (EF_{b,f,CO2} * f_{NRB,f,y} + EF_{b,f,nonCO2})) f \div 10^9$</p> <p>Where,</p> <p>$EF_b$ = Emission factor for the use of fuel to obtain safe water in the baseline (Tco2e/L)</p> <p>$SE_{w,b,y}$ = Specific energy required to boil water (Kj/L), to be calculated as per the paragraph below</p> <p>x_f = Proportion of fuel f used in the baseline (fraction determined based on an energy basis)</p> <p>$EF_{b,f,CO2}$ = CO2 emission factor from use of fuel f (Tco2/TJ)</p> <p>$EF_{b,f,nonCO2}$ = Non-CO2 emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (Tco2e/TJ). This parameter is omitted when f is a fossil fuel.</p> <p>$f_{NRB,f,y}$ = Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.</p>
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F = Index for baseline fuel types

Also,

$$SE_{w,b,y} = 360.83 / \eta_{wb}$$

Where,

360.83 = Default amount of energy required to obtain 1 L of water after 5 minutes of boiling from a first principles approach Kj/l

η_{wb} = Efficiency of the stoves for baseline water boiling (%). Weighted average of baseline stove types.

Again,

$$Q_y = \sum N_{p,y} \times U_{p,y} \times QPW_{hh,p,y} \times DP_{p,y}$$

Where:

- $N_{p,y}$ = Number of premises type p with at least one project technology in year y
- $U_{p,y}$ = Usage rate of the project technology by premises type p during year y (%)
- $QPW_{hh,p,y}$ = Volume of drinking water per premises p per day in year y (L)
- $DP_{p,y}$ = Days the project technology is present for end-users in the premises p in year y

Again,

$$QPW_{hh,p,y} = \min((q_i \times t_{p,y} \times DN_{p,y}), (QPW_p \times HN_{p,y}))$$

Where:

- q_i = Capacity of the HWT or IWT individual project technology (L/h)
- $t_{p,y}$ = Usage time of the project technology by premises type p in year y (h/day)
- $DN_{p,y}$ = Average number of individual project technologies in each project premises type p in year y
- $HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y
- QPW_p = Volume of drinking water per person per day for premises type p (L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.

calculation for baseline emission for year-1 has been demonstrated below:

$$ER_y = BE_y - PE_y - LE_y$$

$$BE_y = EF_b \times (1 - C_b - X_{cleanboil}) \times Q_y \times M_{q,y}$$

Year	VPA 38	VPA 39
2021	674	0
2022	2,052	0
Total	2,726	0

The calculation provided as a sample for one of the Model in MR/40/ has been reviewed and is found consistent with actual calculations applied in

	<p>ER calculation sheet/5//6//7/ for that specific combination.</p> <p>2- <u>SDG-1: No Poverty</u></p> <p>$BSA_{Baseline}$ = Percentage of households having access to basic services in baseline is considered as:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>VPA38</th> <th>VPA39</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>5.02%</td> <td>0</td> </tr> <tr> <td>2022</td> <td>6.57%</td> <td>0</td> </tr> </tbody> </table> <p>3- <u>SDG-6: Clean Water and Sanitation</u></p> <p>The number of households served with safely managed water services is considered 0 in the baseline i.e. $HHTS_{Baseline} = 0$</p> <p>4- <u>SDG-7: Affordable and Clean Energy</u></p> <p>$ACS_{Baseline} = 0$ i.e. Number of operating WPS units under Baseline is considered 0</p> <p>5- <u>SDG-8: Decent Work and Economic Growth</u></p> <p>Number of person (male and female) hired under Baseline = 0 i.e. $QE_{IG_{Baseline}} = 0$</p> <p>The calculations presented in the Monitoring Report /40/ and the corresponding ER sheet /05/06/07/ were found appropriate and complying with provisions prescribed in the registered monitoring plan/2/ of the respective VPA-DDs/2/, PoA-DD/1/ and applied methodology/9/.</p>	Year	VPA38	VPA39	2021	5.02%	0	2022	6.57%	0
Year	VPA38	VPA39								
2021	5.02%	0								
2022	6.57%	0								
Findings	No findings were raised.									
Conclusion	<p>The verification team verified that</p> <ol style="list-style-type: none"> A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/05//06/07/ of final Monitoring Report/40/. The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report. The calculations of baseline emissions as presented in the corresponding ER calculations sheet/5/ of final Monitoring Report/40/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DDs/2/, registered PoA-DD/1/ and the applied methodology/09/. All assumptions used in the emission calculations were found appropriate and therefore justified Appropriate emission factors, IPCC default factors/33/ and other reference values have been correctly applied. This has also been elaborated under Section E.5.4.1 of this report. No standardized baseline was prescribed in the registered PoA-DD/1/. 									

E.5.7.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	<p>1. SDG 13: Climate Action</p> <p>Project estimate/emissions are considered 0 as the project aims at implementing gravity-based water filter resulting in elimination of usage</p>
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of kerosene and traditional stove for boiling water

2. SDG 1: No Poverty

Percentage of households having access to basic services in baseline BSA_{Project} for each VPA is mentioned below:

Year	VPA38	VPA39
2021	99.46%	0
2022	98.18%	0

3. SDG 6: Clean Water and Sanitation

Number of households served with satisfactory level of safe water HHTS_{Project} for each VPA is mentioned below:

Year	VPA38	VPA39
2021	288	0
2022	1,236	0

4. SDG 7: Affordable and Clean Energy

Number of operating WPS units under Project ACS_{Project} in each VPA is given below:

Year	VPA38	VPA39
2021	319	0
2022	1,418	0

5. SDG 8: Decent Work and Economic Growth

Number of person (male and female) hired under Project (QE IG_{Project}) for each VPA is given below:

Year	VPA38	VPA39
Female	22	16
Male	103	32

The PoA-DD/1/, VPA-DDs/2/ and applied monitoring methodology/09/ does not prescribe any project emissions to be considered. The onsite visit conducted, and project design also did not reveal any potential source to be considered in this regard.

Findings	No findings were raised.
Conclusion	The verification team verified that a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet/5//06/07/ of final Monitoring Report /40/. b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

E.5.7.3. Calculation of leakage

Means of verification	The leakage considered for WPS under VPA 38 is 5%. As, there is no distribution of WPS in VPA 39.
Findings	No findings were raised.
Conclusion	A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5.4.2 of this report. The complete monitoring data is also presented in

the corresponding ER calculations sheet/5//06//07/ of final Monitoring Report /40/.
 The Information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5.4.2 of this report.

E.5.7.4. Calculation of net benefits or direct calculation for each SDG Impact

For WPS

Year 1: 2021

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	VPA38- 674 VPA39-0	0 tCO ₂ eVERs (for all VPAs)	VPA38-674 VPA39-0
	1	No Poverty	VPA38-5.02% VPA39-0	VPA38-99.46% VPA39-0	VPA38-94.44% VPA39-0
	6	Clean water and sanitation	0 for both the VPAs	VPA38-288 VPA39-0	VPA38-288 VPA39-0
	7	Affordable and clean energy (WPS)	0 for both the VPAs	VPA38-319 VPA39-0	VPA38-319 VPA39-0
	8	Decent work and economic growth	0 for both the VPAs	VPA38-125 VPA39-48	VPA38-125 VPA39-48
The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.					
Findings	No findings were raised.				
Conclusion	The verification team confirms that a) The complete data was available and is duly reported. b) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report); c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; d) Appropriate emission factors, IPCC default factors and other reference values were correctly applied.				

Year 2: 2022

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	VPA38- 2,052 VPA39-0	0 tCO ₂ eVERs (for both the VPAs)	VPA38-2,052 VPA39-0
	1	No Poverty	VPA38-6.47% VPA39-0	VPA38-98.18% VPA39-0	VPA38-91.61% VPA39-0
	6	Clean water and sanitation	0 for both the VPAs	VPA38-1,236 VPA39-0	VPA38-1,236 VPA39-0
	7	Affordable and clean energy (WPS)	0 for both the VPAs	VPA38-1,418 VPA39-0	VPA38-1,418 VPA39-0
	8	Decent work and economic growth	0 for both the VPAs	VPA38-125 VPA39-48	VPA38-125 VPA39-48
<p>The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.</p>					
Findings	No findings were raised.				
Conclusion	<p>The verification team confirms that</p> <ul style="list-style-type: none"> e) The complete data was available and is duly reported. f) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 of this report); g) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed; h) Appropriate emission factors, IPCC default factors and other reference values were correctly applied. 				

E.6. Voluntary project activity

E.6.1. Compliance of the VPA implementation with the included VPA design document

Means of verification	<p>The reporting for this issuance has been done technology-wise, thus section E.6 shall be dealing with distribution of solar CEPs and its compliance with registered PoA-DD/1/, VPA-DDs/2/ and applicable standard.</p> <p>VPAs GS11897 (VPA 38) and GS11898 (VPA 39) described in this section</p>
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targets the promotion, distribution and sale of different models of solar lighting systems implemented in this PoA.

Micro Energy Credits Corporation Private Limited is the Coordinating and Managing Entity (CME) for the implementation of VPAs. The CME coordinates and manages each Partner Organization (PO)/VPA Implementer and assists them in implementing each element of the monitoring plan.

Solar Lighting systems:

Solar Lighting System (SLS):

VPA Ref. #	GS 11897 (VPA 38)	GS 11898 (VPA 39)
Location / State	For solar lighting systems, several states, Assam (AS), Bihar (BH), Chhattisgarh (CG), Gujarat (GJ), Jharkhand (JK), Karnataka (KA), Madhya Pradesh (MP), Maharashtra (MH), Odisha (OD), Rajasthan (RJ), Uttar Pradesh (UP), West Bengal (WB), and many regions within those states are included.	Bihar (BH), Chhattisgarh (CG), Gujarat (GJ), Haryana (HR), Jammu and Kashmir (J&K), Jharkhand (JK), Karnataka (KA), Madhya Pradesh (MP), Odisha (OD), Punjab (PJ), Rajasthan (RJ), Uttar Pradesh (UP), and many regions within those states are included.
CEP Type	SLS	SLS
CEP Model	Multiple Models	Multiple Models
VPA Implementer / PO	Shri Kshetra Dharmasthala Rural Development Project (SKDRDP), Arohan Financial Services Ltd. (Arohan), Midland Microfin Ltd. (Midland), Arman Financial Services Limited (Arman) and Satin Creditcare Network Ltd. (Satin).	Midland Microfin Ltd. (Midland) and Satin Creditcare Network Ltd. (Satin).

Total Quantity Sold / Disseminated	103,078	21,394
Maximum Estimated Qty CEPs in CPA (for comparable year of distribution)	850,000	850,000
Estimated ERs (comparable period) (tCO _{2e})	37,030	8,710
Actual ERs from the CEP Type (tCO _{2e})	38,714	11,259

The solar lighting systems are sold to end users and the sales data is collected by means of sales receipts /13/ at the time of sale to the end user. The technical specifications of SLS model were verified through the specifications provided by technology suppliers /19/ and found to be consistent with the monitoring report. The PO has a mechanism of allocating a unique ID to each CEP and the end user so that there is no inter and/or intra-VPAs double counting.

Total SLS distributed under the VPAs i.e., VPA 38 & VPA 39 are as follows:

VPA 38: 103,078

VPA 39: 21,394

The year wise implementation of SLS under VPA 38 and 39 are mentioned in the tables below:

Year	VPA38	VPA39
2021	54,570	21,266
2022	48,508	128
Total	103,078	21,394

During onsite surveys, the end users were asked if we can see the product installed to confirm the model in use. It has been checked by the verification team that the verified VPAs are way below the threshold /02/ for their respective methodologies:

VPA	Capacity (MW)/ ERs (tCO _{2e})	Threshold (MW)/ (tCO _{2e})
GS11490 (VPA 38)	0.81 MW	15 MW
GS11489 (VPA 39)	0.05 MW	15 MW

All technical specifications/22/ were reviewed and SLS models were found to be meeting the applied methodology requirements and PoA eligibility criteria of PoA and therefore, found acceptable by the verification team, as provisioned in section A.3 of VPA-DDs/2/.

Findings	No Findings were raised.
Conclusion	<ul style="list-style-type: none"> The verification team is of the opinion that physical features of the VPAs have been implemented in accordance with the VPA-DDs/2/. It is also confirmed, through the review of the supporting documentation, that physical features of the component VPAs have been implemented in accordance with the VPA-DDs/2/.

	<ul style="list-style-type: none"> • The VPAs was also found to be completely operational in line with the VPA-DDs/2/. • The information provided in the relevant sections of the monitoring report are appropriately describe the implementation and operational status of the PoA.
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E.6.2. Post-Design Certification changes

E.6.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

E.6.2.2. Corrections

Not Applicable

E.6.2.3. Changes to the start-date of the crediting period

Not Applicable

E.6.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable as this is the first monitoring period of the VPA under GS.

E.6.2.5. Changes to project design of approved project

There are no changes made during this monitoring period.

E.6.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	The monitoring plan contained in the VPA-DDs/2/ was reviewed in relation to the monitoring requirements of the applied methodologies AMS.I.A version 14.0/10/ as well as the PoA DD/1/, bearing in mind the technology involved. In light of the review conducted, it was found that the monitoring plan in the VPA-DDs/2/ contains all the required parameters to be monitored in the context of the VPAs design and description and allows determination of emission reductions according to the PoA DD/1/ and applied methodology/08/
Findings	No findings raised.
Conclusion	The monitoring plan is in line with the approved methodology, Gold Standard Simplified Methodology AMS I.A Version 14.0/08/, that is included in the registered PoA DD/1/ and VPA-DDs/2/. The monitoring plan is in accordance with the applied methodology /08/ that is included in the VPA-DDs/2/.

E.6.4. Compliance of monitoring activities with the registered monitoring plan.

E.6.4.1. Data and parameters fixed ex ante or at renewal of crediting period

SDG13: LE_{ker} , The specific luminous efficiency of kerosene when burnt in a kerosene lantern, in Lumens/ W

Means verification	<p>of LE_{ker}-- The value of this parameter is considered is mentioned below as per VPA DDs/2/. This was checked with the revised accepted PoA-DD and included VPA-DDs/2/.</p> <p>This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #00A0C0; color: white;">VPA Number</th> <th style="background-color: #00A0C0; color: white;">Value</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>0.13 Lumens/ W</td> </tr> <tr> <td>VPA 39</td> <td>0.13 Lumens/ W</td> </tr> </tbody> </table>	VPA Number	Value	VPA 38	0.13 Lumens/ W	VPA 39	0.13 Lumens/ W
VPA Number	Value						
VPA 38	0.13 Lumens/ W						
VPA 39	0.13 Lumens/ W						
Findings	No findings were raised.						
Conclusion	The value mentioned in the Monitoring Report /41/ and Emission Reduction Spreadsheet /05/06/07/are consistent with the approach given in VPA-DDs/2/. Hence the applied value is correct and justified.						

SDG13: EF_{ker} , The specific CO₂ emissions of kerosene, tCO₂e/ GJ

Means verification	<p>of EF_{ker}-- The value is fixed and is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5-- Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories/32/.</p> <p>This value is used towards determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #00A0C0; color: white;">VPA Number</th> <th style="background-color: #00A0C0; color: white;">Value</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>0.0719 tCO₂/GJ</td> </tr> <tr> <td>VPA 39</td> <td>0.0719 tCO₂/GJ</td> </tr> </tbody> </table>	VPA Number	Value	VPA 38	0.0719 tCO ₂ /GJ	VPA 39	0.0719 tCO ₂ /GJ
VPA Number	Value						
VPA 38	0.0719 tCO ₂ /GJ						
VPA 39	0.0719 tCO ₂ /GJ						
Findings	No findings were raised.						
Conclusion	The value mentioned in the Monitoring Report /40/ and Emission Reduction Spreadsheet /05/06/07 are consistent with the registered VPA-DDs/2/. The applied value is correct and justified.						

SDG13: z, Standard normal for a confidence interval of 90%

Means verification	<p>of The value of this parameter is considered is mentioned below as per VPA DDs/2/. This was checked with the revised accepted PoA-DD/01/ and included VPA-DDs/2/. This value is used towards determination of baseline emissions.</p> <p>This value is used for the determination of baseline emissions. The value of this parameter considered is mentioned below as per VPA-DDs.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #00A0C0; color: white;">VPA Number</th> <th style="background-color: #00A0C0; color: white;">Value</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>1.29</td> </tr> <tr> <td>VPA 39</td> <td>1.29</td> </tr> </tbody> </table>	VPA Number	Value	VPA 38	1.29	VPA 39	1.29
VPA Number	Value						
VPA 38	1.29						
VPA 39	1.29						
Findings	No findings were raised.						
Conclusion	The value mentioned in the Monitoring Report/40/ and Emission Reduction Spreadsheet/05/06/07/are consistent with the registered VPA-						

DDs/2/. The applied value is correct and justified.

E.6.4.2. Data and parameters monitored (Carbon & SDG)

SDG13: lumens output for each solar lamp n deployed as part of project activity (Ln), Lumens

Relevant SDG Indicator	SDG13: Climate Action							
Means of verification	Criteria/Requirements	Assessment/Observation						
	Measuring /Reading /Recording frequency	Annual						
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/						
	Monitoring equipment	Not applicable						
	Calibration frequency /interval:	Not applicable						
	How were the values in the monitoring report verified?	<p>The values reported in the final MR /41/ were verified through the technical specifications provided by the suppliers of the respective model.</p> <p>The verified value of this parameter for solar lighting systems sold/distributed under the relevant VPAs at the end of the current monitoring period is lower of Lumen output of installed system.</p> <p>The values for both VPA consisting of different models are mentioned in the table below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #00A6C9; color: white;">VPA Number</th> <th style="background-color: #00A6C9; color: white;">Value</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>140.538 and 65 Lumen</td> </tr> <tr> <td>VPA 39</td> <td>140.538 Lumen</td> </tr> </tbody> </table> <p>It is found to be inline PoA-DD/1/ and VPA-DDs/2/ constraint. Additionally, each household in the database only receives one solar lighting system and if any of the households are found to have another SLS installed during quarterly monitoring, no emission reductions are claimed from those households.</p> <p>These measures ensure that no single household gets emission reductions higher than those that were validated at the time of PoA and VPAs registration (equivalent level of kerosene consumption in the baseline).</p> <p>The verification team has verified the</p>	VPA Number	Value	VPA 38	140.538 and 65 Lumen	VPA 39	140.538 Lumen
	VPA Number	Value						
VPA 38	140.538 and 65 Lumen							
VPA 39	140.538 Lumen							

		<p>lumen output of models disturbed in the current monitoring period and found to be consistent with the technical specifications provided by respective product suppliers. In case the SLS models have more than one setting for light intensity, the conservative value is considered in line with VPA-DDs/2/.</p> <p>The verification team also checked the type of solar lighting systems in all of the surveyed households during the onsite surveys. The information thus obtained was cross-checked against technical specifications of the device and it was confirmed if it matched.</p> <p>Specific to distribution of solar CEPs, each household is given a "user account identification number". This number can be used to establish that one household receives only one product since the number is unique and cannot be repeated. The verification team checked the uniqueness of "user account identification number" for solar CEPs across the VPA covered using conditional formatting and confirms that only a single solar device has been provided to each household. The assessment team has also verified the tracker output file provided by CME that includes consolidated list of all CEP sales made under the Programme and confirms that only 1 solar CEP has been implemented in a single household.</p>
	<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>Type/ model of solar lighting systems given in ER sheets were further checked with the credit tracker output file/44/ during document review of the supporting documents shared by CME. No discrepancy in data was observed regarding models of solar lighting systems distributed.</p>
	<p>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</p>	<p>Solar lighting systems installation information is maintained in the MEC tracker system that records address of the household. The tracker system is monitored continuously.</p> <p>It can be confirmed that management ensuring the correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place.</p>
	<p>In case project participants have temporarily not monitored the parameter, has either i) a deviation been</p>	<p>Not Applicable</p>

	approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Total number of solar lamps of type i that have been deployed in period a, Ni,a, Lamps

Relevant SDG Indicator	SDG13: Climate Action										
Means of verification	Criteria/Requirements	Assessment/Observation									
	Measuring /Reading /Recording frequency	Annual									
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/									
	Monitoring equipment	Not applicable. The number in Credit Tracker Platform.									
	Calibration frequency /interval:	Not Applicable									
	How were the values in the monitoring report verified?	<p>The values reported in the final MR /40/ (and corresponding ER sheets /05/06/07/) were verified through the Credit Tracker Platform /44/, /41/ that records the name of the customer, loan account number, branch name address/ description of location, contact telephone number(s) (where available), unique client ID and date of first loan disbursement date. The entire database for the VPA included in the current monitoring period is presented in the ER sheet as VPA Database</p> <p>The verified value for solar systems sold/distributed under the VPAs at the end of the current monitoring period are:</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #00A6C9;">VPA</th> <th style="background-color: #00A6C9;">Values (2021)</th> <th style="background-color: #00A6C9;">Values (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>54,570</td> <td>103,078</td> </tr> <tr> <td>VPA 39</td> <td>21,266</td> <td>21,394</td> </tr> </tbody> </table>	VPA	Values (2021)	Values (2022)	VPA 38	54,570	103,078	VPA 39	21,266	21,394
	VPA	Values (2021)	Values (2022)								
VPA 38	54,570	103,078									
VPA 39	21,266	21,394									

	If applicable, has the reported data been cross-checked with other available data?	Yes. The information provided in the VPA database/13/ and ER sheets/05/06/07/ was verified randomly with the sales receipt/ warranty cards/23/ and through interviews of the household representatives.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The CME supervises the activities of the PO, providing training, guidelines and templates to facilitate accurate record keeping in their MIS system/Credit Tracker Platform. The sale process and record keeping was' reviewed by conducting CME and PO interviews; the record keeping processes explained were found reliable.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	CAR#02 is raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Average number of days lamps of type i that have been deployed in period a were operating in period v, di,a,v, days

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the PoA-DD/1/ and VPA-DDs/2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report	The credit tracker platform records the exact date of sale for solar lighting

	<p>verified?</p>	<p>system that can be tracked by the implementing partners and CME. The value of this parameter calculated as the total days from date of installation of the SLS to the end date of monitoring period or the entire monitoring period, whichever is lesser. Individual number of days SLS have operated during the monitoring period is calculated and the average value is used for calculating the emission reductions. In the event of a non-functional CEP being identified during the monitoring, the number of crediting days for that device are considered '0'. It is noteworthy to see that apart from considering the methodological requirements for determination of this parameter value, an additional check on conservativeness of emission reduction estimation is also ensured by considering 0 crediting days for products identified as non-functional at any point during the quarterly or annual monitoring. This quarterly and annual monitoring is followed by CME.</p> <p>The value of the parameter for all the models distributed in each state of VPA reported in the MR is verified through the Credit Tracker Platform output file and found to be consistent. The dates of installations were also verified through sales receipts or installation cards /13/ of 22 randomly selected households for remote survey from the VPA with SLS distribution. The information obtained was consistent with dates provided in ER sheets/05/06/07/. It was thus confirmed that for households where distribution was done during the monitoring period (if any), emission reductions were only claimed for days passed since installation.</p> <p>The SLS model specific state-wise average values of parameter are equal to or lower than 365 days for the current monitoring period, which was found appropriate based on the evidence provided as mentioned above.</p>
	<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>The date of installation of the 11 randomly selected households per VPA for VVB onsite survey was further cross-checked with credit tracker screenshots/43/ of recorded details of these households. The values provided were found to be consistent. The applied</p>

		value does not exceed 365 which is the total number of operational days in the monitoring period. The verified average values were equal to this as per the model distributed and date of installation.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The CME supervises the activities of the PO, providing training, guidelines and templates to facilitate accurate record keeping in their MIS system/Credit Tracker Platform. The sale process and record keeping was reviewed by conducting CME and PO interviews; the record keeping processes explained were found reliable.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable
Findings	No findings were raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology/08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Average operating hours of kerosene lamps in the baseline, H, Hours/ day

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD/2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	As per the applied methodology AMS I.A version 14/08/paragraph I "For the specific case of lighting devices a daily usage of 3.5 hours shall be assumed, unless it is demonstrated that the actual

		usage hours adjusted for seasonal variation of lighting is different based on representative sample survey (90% confidence interval +/-10% error) done for minimum of 90 days". For the current monitoring period default value of 3.5 hours/day is considered for this parameter for these VPAs.
	If applicable, has the reported data been cross-checked with other available data?	The value reported in the ER calculation sheet /05/06/07/ was checked with MR/40 and applied methodology AMS I.A version 14/08/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the QA/QC procedures are in place. The data provided in applied methodology/08/ has been appropriately reported and used in ER calculation sheet/05/06/07/ and MR/40/.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1//2/ (as per measurement methods and procedures to be applied) and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG13: Lamp failure rate: Share of lamps of lamp type i in checked sample group gi,v not operational in period v (LFR_{i,v}), %

Relevant SDG Indicator	SDG13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DD/2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	This parameter is determined by CME/PO/Monitoring partner through the quarterly survey to confirm the usage status of all SLS. The results collected are recorded in the Credit Tracker Platform /41/44/. If a solar lighting system is found to be not in use or non-operational during the survey, then the same is considered as

		<p>“failed” during the entire monitoring period under concern. All SLSs distributed till the day of surveying are monitored.</p> <p>Lamp failure rate is calculated as:</p> $\text{LFR} = (\text{Number of failed lamps} / \text{Total number of lamps monitored})$ <p>The value of this parameter for different SLS models distributed during the current monitoring period is provided in the monitoring report /40/ and ER calculation sheets/5/6/7/.</p> <p>The verification team randomly selected 11 samples from each VPA for VVB’s onsite survey from the VPA covered in this request for issuance and found that all 22 surveyed SLSs for the VPA were operational (as confirmed by the end users). The results were consistent with the monitoring survey results provided in ER calculation sheet/05/06/07/ for the surveyed households.</p>
	<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>The results were cross-checked with quarterly usage survey forms/39/ for the households surveyed to ensure consistency of data. No discrepancies in data reporting of this parameter were observed.</p> <p>Additionally, the lamp failure rate values are also compared with values obtained from last monitoring period under CDM and it could be confirmed that for each sub-group the parameter value has increased (indicating increased number of failed lamps) since last monitoring period. This is reasonable and can be attributed to older age of the SLSs, thus making them more prone to discontinuation of usage.</p>
	<p>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</p>	<p>Yes, the training was provided to the staff responsible for collection of data/32/. QA/QC procedure is in place.</p>
	<p>In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as</p>	<p>Not Applicable</p>

	stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG 13: This factor corrects the total number of lamps of Iype i by the share of these lamps that were found to be operational according to the sampling in period v., $CF_{i,v,LFR}$, %

Relevant SDG Indicator	SDG 13: Climate Action	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/
	Monitoring equipment	Not Applicable
	Calibration frequency /interval:	Not Applicable
	How were the values in the monitoring report verified?	Value of this parameter is calculated using the value of lamp failure rate ($LFR_{i,v}$) using the below equation: $CF_{i,v,LFR} = 1 - \left(LFR_{i,v} + z * \sqrt{\frac{LFR_{i,v} * (1 - LFR_{i,v})}{n_{i,v,total}}} \right)$ Values mentioned in the monitoring report were checked with the ER calculations sheet and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Calculation approach reported in the ER calculation sheet was found to be satisfactory and in line with the registered monitoring plan.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	This value is calculated based on the results of other monitored parameters with 90/10 confidence/precision. The statistical error is included in this parameter (confidence level 90%) when 90/10 precision is not met.
Findings	No findings were raised	

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/2/ (as per measurement methods and procedures to be applied) and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.
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SDG13: Total number of lamps checked for which a valid result was obtained, $n_{i,v,total}$, Lamps

Relevant SDG Indicator	SDG 13: Climate Action	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	<p>This parameter is determined using the sampling surveys. Simple random sampling is applied to determine the sample size for the surveys. Sample size for each type of SLS model is calculated separately for each partner organization and each state.</p> <p>The verification team conducted a on-site visit wherein 11 randomly selected households from each VPA with SLS distribution were surveyed and asked about the operationality and usage of the project device. All sampled households were found to have an operational SLS which was subjected to regular, daily usage. The data of surveyed households was also consistent with results presented in ER sheets/05/06/07/, which were used in calculation of the parameter value.</p> <p>The monitored value are verified in the final Monitoring Report /40/. The required level of precision i.e., 10% or less, has been achieved at 90% confidence level.</p> <p>Minimum 30 samples or total number of deployed SLS were monitored wherever the sample size arrived as less than 30 for a particular group of SLS model/state/PO combination. In some cases, the actual number of installations were less than 30 therefore the entire population size was considered. The verification team was able to confirm that the sample size calculation is in line with the Guideline: Sampling and surveys for CDM project activities and programme of activities/24/.</p>

		<p>As an additional measure of conservativeness, CME has calculated this value using the assumption that all SLSs with status recorded as “installed, damaged” during quarterly and annual usage monitoring survey (which was done as a QA/QC procedure inline with revised approved PoA-DD/1/ and VPA-DDs/2/) are not working or in use. CME has considered no emission reductions from these devices with “installed, damaged” status even if they are functional and in use after introducing minor repairs or fixes. This has been verified through evidence provided i.e., some sample monitoring survey forms/39//18/ and quarterly usage survey forms/39/. This has been reflected accurately in ER sheets/05/06/07/ as well.</p>
	<p>If applicable, has the reported data been cross-checked with other available data?</p>	<p>The survey results, assumptions and sales records for different state/model/PO groups were checked by the verification team at random and were found acceptable. The results are reproducible in the ER sheets corresponding to final Monitoring Report/40/.</p> <p>The verification team cross-checked the parameter related data in ER sheet against the filled monitoring survey forms of the CME/39/ of the 22 randomly selected samples for VVB’s onsite survey. It was confirmed that all the responses on solar lighting systems’ operationality as reported by the end users during onsite interviews were consistent with the CME’s sample survey results/18/39/.</p>
	<p>Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</p>	<p>The CME/PO select the households for monitoring survey to check the lamp usage status for each lamp Iype <i>i</i> in the monitoring period. The survey results are recorded in Credit Tracker.</p> <p>The training was provided to the staff responsible for collection of data/32/. Thus, the QA/QC procedure is in place for the training of staff, and the documentary evidence were shared by CME against these requirements/32/.</p>
Findings	<p>No findings were raised.</p>	
Conclusion	<p>The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.</p>	

SDG 13: Determination of whether or not the end user used kerosene for lighting prior to the project activity, kerosene usage in the baseline

Relevant SDG Indicator	SDG 13: Climate Change	
Means of verification	Criteria/Requirements	VVB Assessment
	Measuring /Reading /Recording frequency	Annual
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DDs/2/.
	How were the values in the monitoring report verified?	<p>Every household is asked about the baseline fuel used for lighting purpose at the time of loan application. The information gathered from the end users/purchaser of the product is recorded in the MIS system of POs and Credit Tracker Platform. This was confirmed from the credit tracker output file/44/.</p> <p>For the current monitoring period, it was inquired and confirmed during VVB onsite surveys of 11 randomly selected households per VPA that all those households were using kerosene for lighting prior to the purchasing the SLS. Hence, the value of the parameter is considered 100%</p>
	If applicable, has the reported data been cross-checked with other available data?	Data recorded in the system generated credit tracker output file/44/ is checked at random. Also, the sample households are randomly checked by the verification team for 11 randomly selected households per VPA by cross-checking the data in ERs sheet against baseline survey forms of these households/39/ (which were filled at the time of SLS installation). The form contains information about the baseline fuel in use by the household.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the training was provided to the staff responsible for collection of data/32/QA/QC procedure is in place.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Other SDGs

SDG 1: Percentage of households having access to basic service access to , BSA_{Project} Percentage

Relevant SDG Indicator	SDG 1: No poverty							
Means of verification	Criteria/Requirements	Assessment/Observation						
	Measuring /Reading /Recording frequency	This parameter is measured on annual basis						
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/						
	Monitoring equipment	Not Applicable						
	Calibration frequency /interval:	Not Applicable						
	How were the values in the monitoring report verified?	The verified value for this parameter as per VPAs are: <table border="1" style="margin: 10px auto; width: 80%;"> <thead> <tr style="background-color: #00A0C0; color: white;"> <th>VPA#</th> <th>Value (2021)</th> <th>Value (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>94.44%</td> <td>91.61%</td> </tr> </tbody> </table> The records of WPS distributed in monitoring database, ex-post monitoring survey records were cross checked. Since the database is a primary source of data collection and the QA/QC were found to be robust as described below, the values were accepted.	VPA#	Value (2021)	Value (2022)	VPA 38	94.44%	91.61%
	VPA#	Value (2021)	Value (2022)					
	VPA 38	94.44%	91.61%					
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable						
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.							
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not Applicable							

Findings	No findings were raised.
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

SDG 6: Number of households served with safely managed water services, Number of beneficiaries, Number

Relevant SDG Indicator	SDG 6: Clean Water and Sanitation							
Means of verification	Criteria/Requirements	Assessment/Observation						
	Measuring /Reading /Recording frequency	This parameter is measured on annual basis						
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The frequency is in line with the registered PoA-DD/1/ and VPA-DDs/2/						
	Monitoring equipment	Not Applicable						
	Calibration frequency /interval:	Not Applicable						
	How were the values in the monitoring report verified?	<p>The verified value for this parameter as per VPAs are:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="background-color: #00A6C9; color: white;">VPA#</th> <th style="background-color: #00A6C9; color: white;">Value (2021)</th> <th style="background-color: #00A6C9; color: white;">Value (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>288</td> <td>1,236</td> </tr> </tbody> </table> <p>The records of WPS distributed in monitoring database, ex-post monitoring survey records were cross checked. Since the database is a primary source of data collection and the QA/QC were found to be robust as described below, the values were accepted.</p> <p>Using formula, $N_{p,y} * (1 - C_b) * U_{p,y} * M_{q,y}$ </p>	VPA#	Value (2021)	Value (2022)	VPA 38	288	1,236
	VPA#	Value (2021)	Value (2022)					
	VPA 38	288	1,236					
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable						
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.							
In case project participants have temporarily not	Not Applicable							

	monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No Findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/1/ (as per measurement methods and procedures to be applied) and applied methodology /08/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

SDG 7: Access to affordable and clean energy (Number of households operating SLS units under Project), ACS_{Project}, Number

Relevant SDG Indicator	SDG7: Affordable and Clean Energy											
Means of verification	Criteria/Requirements	VVB Assessment										
	Measuring /Reading /Recording frequency	Continuously										
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DD's/2/.										
	How were the values in the monitoring report verified?	<p>The post monitoring records/40/ were checked to identify as part of the assessment as well as during the interviews conducted with the selected beneficiaries during on site visit the intended beneficiaries who are having access to affordable, reliable and modern energy services.</p> <p>The value of the parameter considered to be as mentioned below, which was found to be acceptable.</p> <table border="1" data-bbox="826 1563 1353 1751"> <thead> <tr> <th>VPA#</th> <th>SLS (2021)</th> <th>SLS (2022)</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>54,570</td> <td>103,078</td> </tr> <tr> <td>VPA 39</td> <td>21,257</td> <td>21,373</td> </tr> </tbody> </table>		VPA#	SLS (2021)	SLS (2022)	VPA 38	54,570	103,078	VPA 39	21,257	21,373
	VPA#	SLS (2021)	SLS (2022)									
	VPA 38	54,570	103,078									
VPA 39	21,257	21,373										
If applicable, has the reported data been cross-checked with other available data?	Not Applicable											
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes	The QA/QC processes were deemed to be appropriate and trustworthy.											

	in place?	
Findings	No Findings were raised.	
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/ and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.	

SDG 8: Quantitative Employment and income generation, QE IG_{Project}, Number

Relevant SDG Indicator	SDG7: Affordable and Clean Energy										
Means of verification	Criteria/Requirements	VVB Assessment									
	Measuring /Reading /Recording frequency	Annually									
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the frequency is in line to the PoA-DD/1/ and VPA-DD's/2/.									
	How were the values in the monitoring report verified?	The employment records were checked to identify as part of the assessment The value of the parameter considered to be as mentioned below, which was found to be acceptable. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>VPA#</th> <th>Male</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>VPA 38</td> <td>103</td> <td>22</td> </tr> <tr> <td>VPA 39</td> <td>32</td> <td>16</td> </tr> </tbody> </table>	VPA#	Male	Female	VPA 38	103	22	VPA 39	32	16
	VPA#	Male	Female								
	VPA 38	103	22								
VPA 39	32	16									
If applicable, has the reported data been cross-checked with other available data?	Not Applicable										
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The QA/QC processes were deemed to be appropriate and trustworthy.										
Findings	No findings were raised.										
Conclusion	Sustainability criteria was found to be fulfilled. The monitoring and reporting is as per the GS PoA-DD /1/ and registered VPA-DDs/2/. The representation of the monitored value was found to be accurate which was easily verifiable. No discrepancy in data monitoring, data management, transfer of data or QA/QC procedures was found.										

E.6.5.Implementation of sampling plan

Means of	The monitoring has been carried out in accordance with the monitoring plan contained in the PoA-DD/1/ and respective VPA-DDs/2/.
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verification

Sampling Design/Target Population/Sampling Frame/Reliability:

In this sampling design, the VPAs that are covered under the current monitoring period (GS11897 (VPA38), GS11889 (VPA 39)) are the subject. The sampling frame considered confidence level and precision as 90/10 considering the requirement of Standard for sampling and surveys for CDM PAs and PoAs/23/.

The Credit Tracker Platform that records the contact details of the solar lighting systems end users, serves as the basis from which sampling frame is developed.

Sampling Method (AMS-I.A):

Considering the homogeneity regarding the usage of solar products for the PO's in the relevant VPA's with solar lighting system sales, simple random sampling is applied to determine the parameter "Total number of lamps checked for which a valid result was obtained". In first stage of sampling the total sales population is divided per partner if more than one partner organization (PO) involved in the VPAs. Further if the solar lighting systems sold by the PO in more than one state then the sales population splits at state level.

Sample Size (Required and Actual) for Parameter of Interest:

The sampling is applied to the proportion-based parameter $n_{i,v,total}$ for the monitoring period requesting issuance. The sample sizes were determined, separately as per type of Solar lighting models and /or for the SLS models implemented by each PO per state.

In this regard, sample size calculation spreadsheets/05/06/07/was checked and found correct as per registered monitoring plan. Minimum 30 samples or total number of deployed SLSs were monitored wherever the sample size arrived as less than 30 for particular group of SLS model/state/PO combination. In some cases, the actual number of installations were less than 30, and therefore, the entire population size was considered. The verification team was able to confirm that the sample size calculation is in line with the Guideline: Sampling and surveys for CDM project activities and programme of activities/24/. Thus, the actual surveyed systems were either same or higher than the required number. To confirm whether the sample is representative of the different vintage of solar CEPs (in case of AMS-I.A), CME had submitted a separate excel file which was assessed by the verification team for the proportion of total sales in different vintages versus the proportion of selected sampled households in those vintages. The vintages were calculated based on implementation date. The same is found to be justified and appropriate. Hence the verification team was able to confirm that the samples are representative of the total population.

A sample vintage consideration for application of sampling plan for VPAs following AMS-I.A is as follows:

Vintage split for SKDRDP NCLT2F1HLS in the state of Karnataka: (sample size requirement-30)- VPA38

Vintage based on implementation date	Proportion in distribution	Required number of samples based on proportion in	Number of samples monitored

		distribution	
0-1 (01/01/2022 to 31/12/2022)	91%	27	91%
1-2 (01/01/2021 to 31/12/2021)	9%	3	9%

VPA's part of this issuance request have CEP sales in different vintages, and the number of samples (weightage based on number of CEPs installed and being used in the vintage) are assigned to each vintage accordingly. It was verified with credit tracker platform output files (VPA specific) /47/ and found to be consistent with the data available in vintage-wise consideration sheet/43/ average lifetime of various models of solar lights have been checked from their technical specifications.

All models distributed in VPA 38 and 39 have an average technical life of 5 years or more. However, this is an average estimate of the lifetime which might vary from individual product to product, depending on usage and handling. During verification team's on-site visit, through interviews with project implementer representatives it was confirmed that system is in place for after-sales maintenance services to help the households with issues faced with operationality of the device. The end users were also interviewed to cross check, and it was found that they are aware of the available after-sales services. Additionally, what must also be noted is that CME conducts an annual and quarterly monitoring for all end users to check the usage status of the project device, thus capturing non-operational devices, which are then not accounted in calculation for emission reductions. Therefore, consideration of all solar lighting systems vintages included in the VPA has been accepted by the verification team.

Sample selection:

The samples were randomly selected using a computerized randomizer tool in Microsoft excel, and the verification team has reviewed the calculation. The samples were drawn from the complete sales databases (irrespective of their usage status determined during usage survey) for each relevant VPA-DD/2/. The sample can be confirmed to be representative of the total population in the context of the consideration of vintage of implementation of solar CEPs.

Implementation of survey:

Based on interviews with the CME and surveyors during the onsite surveys, in addition to simply asking this question to the end users, the surveyors were also trained to visually inspect the solar lighting system to corroborate the responses received. Therefore, the implementation of survey was considered reliable.

Monitoring survey (by CME) duration:

The monitoring survey (field survey / tests) was carried out by CME representatives between following duration for the current monitoring period:

VPA No.	Ref.	Technology	Survey dates for current monitoring period (Year-1)	Survey dates for current monitoring period (Year-2)
GS 11897		SLS	20/01/2022 to 10/02/2022	20/01/2023 to 10/02/2023
GS 11898		SLS	20/01/2022 to	20/01/2023 to

		10/02/2022	10/02/2023
	<p>Therefore, it was concluded that the monitoring survey results obtained are applicable for the entire monitoring period.</p> <p>Reliability and precision calculation: The verification team has verified the ER calculation spreadsheets/05//06//07/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under "Standard for sampling and surveys for CDM project activities and programme of activities"/23/ and can confirm that the calculation of achieved reliability was done correctly. Reliability and precision check are carried out for each monitored sample group under the VPA. The parameters reported in ER spreadsheet were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets /5//06//07/ corresponding to final Monitoring Report /40/, which were also found appropriate. Based on the verified results the verification team found that the required precision is met in all the cases and therefore the survey results were directly used in the calculation of ERs.</p>		
Findings	No findings were raised.		
Conclusion	The verification team confirmed that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PoA DD/1/ and the VPA DDs/2/.		

E.6.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	No monitoring equipment required to monitor the parameters, as verified through the registered monitoring plan as outline in the VPA-DDs/2/ and PoA-DD/1/.
Findings	No findings raised.
Conclusion	The verification team has determined that no monitoring equipment has been used by the CME. Therefore, there was no requirement of calibration. This was in accordance with the accepted monitoring plan and the applied monitoring methodology.

E.6.7. Assessment of data and calculation of emission reductions or net removals

E.6.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification	<p>1. SDG-13: Climate Action The verification team verified that</p> <ol style="list-style-type: none"> A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under Section E.6.4 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheets /5/6/7/ of final Monitoring Report /40/. The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.6.4 of this report. The calculations of baseline emissions as presented in the corresponding ER calculations sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of each relevant VPA-
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- DDs/2/, PoA-DD/1/ and the applied methodology/08/.
- d) All assumptions used in the emission calculations were found appropriate and therefore justified.
 - e) Appropriate emission factors, IPCC default factors/30/ and other reference values have been correctly applied. This has also been elaborated under Section E.6.4 of this report.
 - f) No standardized baseline was prescribed in the PoA-DD and therefore it has not been applied.
 - g) There is no pro-rata approach applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol.

The following equations were used to determine the baseline emissions as provided in the monitoring report /40/ and applied in the corresponding ER calculations sheets /8/. The equations used were found consistent with the revised accepted PoA-DD/1/, VPA-DDs/2/ and the applied methodology

AMS-I.A., version 14/08/:

Total eRs achieved in the current monitoring period by all types of SLS distributed in the relevant VPA is calculated using the following equations:

$$BE_v = \sum_{a=1}^n (N_{i,a} * d_{i,a,v}) * l_i * h * \frac{1}{LE_{ker}} * EF_{ker} * 10^{-6} * 3.6 * CF_{i,v,LFR}$$

Where:

- $BE_{i,v}$ = Emissions generated in the absence of the project activity in period v by all lamps of type i
- $N_{i,a}$ = The total number of solar lamps of type i deployed in period a
- $d_{i,a,v}$ = Average number of days lamps of type i that have been deployed in period a were operating in period v
- l_i = Nominal lumen output of solar lamps of the type i deployed as part of the project activity
- h = Average number of hours solar lamps are used per day
- LE_{ker} = The specific light output of kerosene when burnt in a kerosene lantern
- EF_{ker} = The specific CO₂-emissions of kerosene
- $CF_{i,v,LFR}$ = This factor corrects the total number of lamps of type i by the share of these lamps that were found to be operational according to the sampling in period v . The statistical error is included in this parameter (confidence level 90%).

And:

$$CF_{i,v,LFR} = 1 - \left(LFR_{i,v} + z * \sqrt{\frac{LFR_{i,v} * (1 - LFR_{i,v})}{n_{i,v,total}}} \right)$$

Where:

- $CF_{i,v,LFR}$ = This factor corrects the total number of lamps of type i by the share of these lamps that were found to be operational according to the sampling in period v . The statistical error is included in this parameter (confidence level 90%).
- $LFR_{i,v}$ = Share of lamps of type i in checked sample group $g_{i,v}$ not operational in period v .

z = Standard normal for a confidence level of 90%
 $n_{i,v,total}$ = Total number of lamps checked for which a valid result was obtained.

Since there are different models of SLS having different lumen output are distributed/sold under the relevant VPAs, hence the emission reductions achieved by each type of solar lighting system is calculated separately. The above equation is used to calculate the ER achieved by particular solar lighting system and total emission reductions are arrived at as summation of the same.

$$BE_v = \sum_{i=1}^n BE_{i,v}$$

Where,

$BE_{i,v}$ is the emission reductions achieved in the period v by all lamps of type i

Year	VPA38	VPA39
2021	7,583	3,635
2022	31,131	7,624
Total	38,714	11,259

2. SDG-7: Affordable and Clean Energy

$ACS_{Baseline} = 0$ i.e. Number of operating SLS units under Baseline is considered 0

3. SDG-8: Decent Work and Economic Growth

Number of person (male and female) hired under Baseline = 0 i.e. $QE_{IG_{Baseline}} = 0$

The calculation provided as a sample for one of the Partner-Model-State combination in MR/41/ has been reviewed and is found consistent with actual calculations applied in ER calculation sheet/5//6//7/for that specific combination. It is noted that the sample calculation provided in MR is only one example of a specific group, which in no case reflect total baseline emissions from the technology i.e. from SLS distribution.

Findings	No findings were raised.
Conclusion	<p>The verification team verified that</p> <p>g) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.6.4.2 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /5/6/7/of final Monitoring Report /40/.</p> <p>h) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.6.4.2 of this report.</p> <p>i) The calculations of baseline emissions as presented in the corresponding ER calculations sheet /5/6/7/of final Monitoring Report /40/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DDs /2/, registered PoA-DD /1/ and the applied methodology/08/.</p> <p>j) All assumptions used in the emission calculations were found</p>

	<p>appropriate and therefore justified</p> <p>k) Appropriate emission factors, IPCC default factors/30/ and other reference values have been correctly applied. This has also been elaborated under Section E.6.4.1 of this report.</p> <p>l) No standardized baseline was prescribed in the registered PoA-DD/1/.</p>
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E.6.7.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	<p>1. SDG 13: Climate Action Project estimate/emissions are considered 0 as the project aims at implementing solar lamp resulting in elimination of usage of kerosene.</p> <p>2. SDG 7: Affordable and Clean Energy Number of operating SLS units under Project ACS_{Project} in each VPA is given below:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Year</th> <th>VPA38</th> <th>VPA39</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>54,570</td> <td>21,257</td> </tr> <tr> <td>2022</td> <td>103,078</td> <td>21,373</td> </tr> </tbody> </table> <p>3. SDG 8: Decent Work and Economic Growth Number of person (male and female) hired under Project (QE IG_{Project}) for each VPA is given below:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Year</th> <th>VPA38</th> <th>VPA39</th> </tr> </thead> <tbody> <tr> <td>Female</td> <td>22</td> <td>16</td> </tr> <tr> <td>Male</td> <td>103</td> <td>32</td> </tr> </tbody> </table> <p>The PoA-DD/1/, VPA-DDs/2/ and applied monitoring methodology/08/ does not prescribe any project emissions to be considered. The onsite visit conducted, and project design also did not reveal any potential source to be considered in this regard.</p>	Year	VPA38	VPA39	2021	54,570	21,257	2022	103,078	21,373	Year	VPA38	VPA39	Female	22	16	Male	103	32
Year	VPA38	VPA39																	
2021	54,570	21,257																	
2022	103,078	21,373																	
Year	VPA38	VPA39																	
Female	22	16																	
Male	103	32																	
Findings	No findings were raised.																		
Conclusion	No project emissions are required to be calculated.																		

E.6.7.3. Calculation of leakage

Means of verification	The PoA-DD/1/, VPA-DDs/2/ and applied monitoring methodology/08/ does not prescribe any leakage emissions to be considered. The onsite visit conducted, and project design also did not reveal any potential source to be considered in this regard.
Findings	No findings were raised.
Conclusion	No additional leakage emissions (other than what is already considered in baseline calculations) were required in accordance with the methodology AMS-I.A, version 14 /08/

E.6.7.4. Calculation of net benefits or direct calculation for each SDG Impact

For SLS (Year 2021)

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit

	13	Climate Action	VPA38- 7,583 VPA39- 3,635 tCO ₂ e	0 tCO ₂ e for all VPAs	VPA38- 7,583 VPA39- 3,635 tCO ₂ e
	7	Affordable and clean energy	0 for all the VPAs	VPA38- 54,570 VPA39- 21,257	VPA38- 54,570 VPA39- 21,257
	8	Decent Work and Economic Growth	0 for all the VPAs	VPA38- 125 VPA39- 48	VPA38-125 VPA39-48
<p>The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.</p>					
Findings	No findings were raised.				
Conclusion	<p>The verification team confirms that</p> <ul style="list-style-type: none"> i) The complete data was available and is duly reported. j) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section E.5.4 and section E.6.4 of this report). k) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed. l) Appropriate emission factors, IPCC default factors/34/ and other reference values were correctly applied. 				

For SLS (Year 2022)

Means of verification	SDGs Targeted	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	Climate Action	VPA38- 31,131 VPA39- 7,624 tCO ₂ e	0 tCO ₂ e for all VPAs	VPA38- 31,131 VPA39- 7,624 tCO ₂ e
	7	Affordable and clean energy	0 for all the VPAs	VPA38- 103,078 VPA39- 21,373	VPA38-103,078 VPA39- 21,373
	8	Decent Work and Economic Growth	0 for all the VPAs	VPA38- 125 VPA39- 48	VPA38-125 VPA39-48
<p>The calculation methods applied for all the SDG impacts were checked with PoA-DD/1/ and VPA-DDs/2/. The verification team confirms that the stated figures were checked and found acceptable.</p>					
Findings	No findings were raised.				
Conclusion	<p>The verification team confirms that</p> <ul style="list-style-type: none"> m) The complete data was available and is duly reported. n) As indicated above, the description with regard to cross-check of reported data is included under respective parameter (refer Section 				

	<p>E.5.4 and section E.6.4 of this report).</p> <p>o) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed.</p> <p>p) Appropriate emission factors, IPCC default factors/34/ and other reference values were correctly applied.</p>
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E.7. Comparison of actual SDG Impacts with estimates in approved PDD
Year 1: 2021

Means of verification	From Section E.5 of the Monitoring Report, it is apparent that estimated values were off while the project monitored its progress.			
	SDGs Targeted	SDG Impact	Values estimated in ex ante calculation of approved PoA-DD for this monitoring period	Actual values achieved during this monitoring period
	13	Climate Action	SLS (tCO ₂) VPA38 -20,029 VPA39 -7,603	SLS (tCO ₂) VPA38 -7,583 VPA39 -3,635
			WPS (tCO ₂) VPA38 -1,180 VPA39 -0	WPS (tCO ₂) VPA38 -674 VPA39 -0
			VPA38 -21,209 VPA39 -7,603	VPA38 -8,257 VPA39 -3,635
	1	No Poverty	VPA38 -93.43% VPA39 -94.25%	VPA38 -94.44% VPA39 -0
	6	Clean water and Sanitation	VPA38 -24,292 VPA39 -24,504	VPA38 -288 VPA39 -0
	7	Affordable and clean energy	SLS (tCO ₂) VPA38 -225,530 VPA39 -202,532	SLS (tCO ₂) VPA38 -54,570 VPA39 -21,257
			WPS (tCO ₂) VPA38 -10,753 VPA39 -10,400	WPS (tCO ₂) VPA38 -319 VPA39 -0
	8	Decent Work and Economic Growth	VPA38 -20 VPA39 -20	VPA38 -125 VPA39 -48
The actual SDG targets against the anticipated values in PoA-DD/01/ and VPA-DDs/02/ is lower for all the SDGs except SDG 8 as tabulated above. The primary reason being in the PoA-DD and VPA-DDs sales for the respective technology are much lower than expected in the VPA-DDs. Thus, the achieved SDG targets are much lower than anticipated.				

Findings	No findings were raised.
Conclusion	The actual emission reductions achieved in the current monitoring period for the VPAs is lower than the emission reductions as well as for other SDG targets stated in the VPA-DDs/2/. Therefore, it has been accepted by the verification team.

Year 2: 2022

Means of verification	From Section E.5 of the Monitoring Report, it is apparent that estimated values were off while the project monitored its progress.			
	SDGs Targeted	SDG Impact	Values estimated in ex ante calculation of approved PoA-DD for this monitoring period	Actual values achieved during this monitoring period
	13	Climate Action	SLS (tCO ₂) VPA38 -37,030 VPA39 -8,710	SLS (tCO ₂) VPA38 -31,131 VPA39 -7,624
			WPS (tCO ₂) VPA38 -7,278 VPA39 -0	WPS (tCO ₂) VPA38 -2,052 VPA39 -0
			VPA38 -44,308 VPA39 -8,710	VPA38 -33,183 VPA39 -7,624
	1	No Poverty	VPA38 -93.43% VPA39 -94.25%	VPA38 -91.61% VPA39 -0
	6	Clean water and Sanitation	VPA38 -24,292 VPA39 -24,504	VPA38 -1,236 VPA39 -0
	7	Affordable and clean energy	SLS (tCO ₂) VPA38 -225,530 VPA39 -202,532	SLS (tCO ₂) VPA38 -103,078 VPA39 -21,373
			WPS (tCO ₂) VPA38 -10,753 VPA39 -10,400	WPS (tCO ₂) VPA38 -1,418 VPA39 -0
	8	Decent Work and Economic Growth	VPA38 -20 VPA39 -20	VPA38 -125 VPA39 -48
The actual SDG targets against the anticipated values in PoA-DD/01/ and VPA-DDs/02/ is lower for all the SDGs except SDG 8 as tabulated above. The primary reason being in the PoA-DD and VPA-DDs sales for the respective technology are much lower than expected in the VPA-DDs. Thus, the achieved SDG targets are much lower than anticipated.				
Findings	No findings were raised.			
Conclusion	The actual emission reductions achieved in the current monitoring period for the VPAs is lower than the emission reductions as well as for other			

	SDG targets stated in the VPA-DDs/2/. Therefore, it has been accepted by the verification team.
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E.7.1. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Means of verification	The Monitoring Report /40/ and corresponding ER calculations sheet /05/06//07/, show that the actual emission reductions achieved for project SLS/WPS during this monitoring period are less than the estimate provided in VPA-DDs/2/.
Findings	None
Conclusion	No justification was sought from the PD because the achievement of emission reductions were lower than what had been estimated.

E.8. Stakeholder Inputs and Legal Disputes

Principles	Mitigation Measures added to the Monitoring Plan	Assessment/Observation
Principle 6.1. Labour Rights		
The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions	The CME had made sure that all employment complies with regional labour laws and regulations. The VPA does not entail any forced labour. All employees are confirmed to be minimum 18 years of age. The information is found confirmed and recorded in the monitoring report.	As verified by the VVB through the employment records/29/ and contracts no employee was found to be 18 years of age which is in line with national labour laws
Principle 9.4 Release of pollutants.		
Could the Project potentially result in the release of pollutants to the environment?	The project distributed clean energy products which required appropriate handling at their end of life to avoid release of pollutants at end of life. The PP has been accounted for this and ensured the mitigation measures are in place at the time of monitoring, including procurement of waste scrap, which has been documented in the monitoring report.	VVB has verified and evident through the interviews of Asirvad and Midland staff, if any waste scrap disposal happened in the current monitoring, the information confirmed by the photographic evidence of sample receipts/52/ shared by the CME.

E.9. Stakeholder Inputs and legal Disputes:

<p>Means of Verification</p>	<p>Since there were no negative comments reported in the Grievance mechanism for the current period, as confirmed from the logbooks and interviews of the end users, this section is not applicable. No Legal disputes have been indicated by the CME and PO during the interviews. CME has added declaration in the monitoring report indicating that no legal contest has arisen during this monitoring period.</p> <p>The stakeholder mitigations that were agreed to be monitored include aftersales mechanism to ensure customer complaints are registered and addressed continuously. Interviews of end-users were conducted by the VVB representatives, and all end-users confirmed that they were aware of the complaints mechanism and had contact information of the PO representatives in case they have any complaints regarding the CEPs. The measures to address such complaints may include repair or replacement of CEPs, depending on the degree of damage.</p> <p>The Continuous input / Grievance Expression process book is available at the office of Local Partner organization for those who don't have the access to electronic media for expressing there concerns and the end users can also register there complaint / grievance through the email customecare@bandhanbank.com, info@cedarretail.in, help@goldstandard.org, info@muthoot.com, indira.ghosh@arohan.in, skdrdp@skdrdpindia.org, info@midlandmicrofin.com, finance@armanindia.com, pno@asirvad.in.</p> <p>A step wise approach has been adopted by the CME for aftersales mechanism to resolve customer complaints. The steps involved are:</p> <ul style="list-style-type: none"> Step 1: Complain Registration Step 2: Logging complaint Step 3: Collection of products for repair Step 4: Resolution of the complaint Step 5: Feedback (optional) <p>VVB confirms that all the technical failure and maintenance protocol has been appropriately listed by the CME in the MR</p>
<p>Findings</p>	<p>No finding was raised</p>
<p>Conclusion</p>	<p>Not Applicable</p>

SECTION F. Internal quality control

The draft verification report that is prepared by the verification team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable GS4GG requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

During the technical review process, additional findings may be identified, or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to Gold Standard. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized on behalf of Earthood Services Private Limited.

SECTION G. Verification opinion

Earthood Services Private Limited (Earthood), contracted by, has performed the independent verification of the emission reductions for the GS 11897 (VPA 38), GS 11898 (VPA 39) in the host country "India" for the monitoring period 01/01/2021 to 31/12/2022 (both dates inclusive), as reported in the Monitoring Report, Version 2.0 dated 27/06/2023/41/. The 'MicroEnergy Credits' is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. Earthood commenced the verification against the baseline and monitoring methodology "AMS I.A – Electricity generation by the user, Version 14.0"/08/ and Emission Reduction from safe drinking water supply v1.0 , the monitoring plan contained in the VPA-DDs and Monitoring Report Version 2.0 dated 27/06/2023/41/.

VVB's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

The verification team confirms that:

- The PoA was found completely implemented as per the description given in the registered VPA-DDs.
- The actual operation conforms to the description in the registered PoA – DD/01/ and VPA- DDs/02/.

SECTION H. Certification statement

ESPL's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that the reported GHG emission reductions are fairly stated.

In our opinion, the GHG emissions reductions reported for the project activity are fairly stated in the Monitoring Report (final) Version 1.0 dated 27/06/2023/41/. ESPL, based on outcome of verification activities, certifies in writing that, during the monitoring period 01/01/2021 to 31/12/2022 (inclusive of both the dates) for the VPA 38 and 39 and the registered GS PoA – GS11450 "MicroEnergy Credits – Microfinance for Clean Energy Product Lines – India" achieved the verified amount of 41,440 tCO₂e for VPA 38 and 11,259 tCO₂e for VPA 39 in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PoA.

The verified amount of emission reductions is stated below as per implemented VPAs and as per commitment period:

Verified emission reductions to be certified as per monitoring period:

Monitoring period	VPA 38	VPA 39
From 01/01/2021 till 31/12/2021	8,257 tCO ₂ e VERs	3,635 tCO ₂ e VERs
From 01/01/2022 till 31/12/2022	33,183 tCO ₂ e VERs	7,624 tCO ₂ e VERs
Total	41,440 tCO ₂ e VERs	11,259 tCO ₂ e VERs

Appendix 1. Abbreviations

Abbreviations	Full texts
General	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CME	Coordinating and Managing Entity
CL	Clarification Request
CO ₂	Carbon dioxide
CP	Crediting Period
DR	Desk Review
EB	Executive Board
EI	External Individual
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
ODA	Official Development Assistance
PA	Project Activity
PCP	Project Cycle Procedure
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PS	Project Standard
RCP	Renewal of Crediting Period

RFR	Request for Registration
tCO ₂ e	tonnes of Carbon dioxide equivalent
TPH	Tonnes Per Hour
TR	Technical Reviewer
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VPA	Verified Project Activity
VVB	Validation and Verification Body
VVS	Validation and Verification Standard
GS4GG	Gold Standard for Global Goals
MoV	Means of Verification
SDG	Sustainable Development Goals
WPS	Water Purification System technology

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	3+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G., AMS-II.E., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	Date	16/02/2022
Approved by	Ashok Gautam	Date	18/02/2022

Competence Statement			
Name	Sushant Vashisht		
Education	M.Sc. Environmental science and Technology		
Experience	1+ Years		
Field	Environment science and technology		
Approved Roles			
Team Leader	YES (VM)		
Validator	YES (VM)		
Verifier	YES (VM)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (VM 1.2, 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	23/06/2023
Approved by	Deepika Mahala (Technical Manager)	Date	23/06/2023

Competence Statement			
Name	Ashish Yadav		
Education	M.Sc Environmental Sciences B.Sc Biotechnology		
Experience	1 Year		
Field	Wastewater treatment		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria (Quality Manager)	Date	20/09/2022
Approved by	Deepika Mahala (Technical Manager)	Date	20/09/2022

Competence Statement			
Name	Sukanya Phukan		
Education	M.Sc (Environmental Science and Technology) B.Sc (Zoology)		
Experience	1+ year		
Field	Environment Science		
Approved Roles			
Team Leader	YES (VM)		
Validator	YES (VM)		
Verifier	YES (VM)		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (VM TA 1.2, 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	23/06/2023
Approved by	Deepika Mahala (Technical Manager)	Date	23/06/2023

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India, Bangladesh)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shifali Guleria (QM)	Date	28/04/2022
Approved by	Kaviraj Singh (MD)	Date	28/04/2022

Competence Statement			
Name	Akanksha Sengupta		
Education	M.Sc Environmental Studies, University of Delhi B.Sc Zoology, Hans Raj College, DU		
Experience	4 months		
Field	Environment Science and Policy		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	19/05/2023
Approved by	Deepika Mahala (Technical Manager)	Date	19/05/2023

Competence Statement			
Name	Charu Patwal		
Education	M.Sc. Environmental Science		
Experience	2+ years		
Field	Research & Sustainability		
Approved Roles			
Team Leader	YES (VM)		
Validator	YES (VM)		
Verifier	YES (VM)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria (Quality Manager)	Date	05/05/2023
Approved by	Deepika Mahala (Technical Manager)	Date	05/05/2023

Appendix 3. Documents reviewed or referenced.

No.	Author	Title	References to the document	Provider
1.	MEC	PoA-DD	Version 4.0	CME
2.	MEC	VPA-DD VPA 38 VPA 39	Version. 3 Version. 3	CME
3.	ESPL	Validation Report for inclusion of VPA	Version 01, dated 24/02/2023	Others
4.	GS4GG	Monitoring report template Guide	Version 1.1, published on 14/10/2020	GS4GG
5.	MEC	a. ER Calculation Summary Sheet VPA 38 b. ER Calculation Summary Sheet VPA 39	Pertaining to latest MR	CME
6.	MEC	ER Calculation sheet VPA 38	Pertaining to latest MR	CME
7.	MEC	ER Calculation sheet VPA 39	Pertaining to latest MR	CME
8.	UNFCCC	AMS I.A – Electricity generation by the user	Version 14.0	Others
9.	GS4GG	Emission Reduction from safe drinking water supply	Version 1.0	GS4GG
10.	CDM	CDM webpage of the PoA: https://cdm.unfccc.int/ProgrammeOfActivities/po_a_db/B46TH0V2GLIZK1UPWJ3SMNA8QRX7FY/view	Last accessed on 13/10/2022	Others
11.	The Gold Standard Foundation	GS webpage of the PoA: https://registry.goldstandard.org/projects/details/3501	Last accessed on 13/10/2022	Others

12.	MEC	Carbon Title transfer document	-	CME
13.	MEC	Sales Records	Various	CME
14.	MEC	Census Records	-	CME
15.	MEC	Spot check user records and the pictures of the stoves	-	CME
16.	MEC	Training records	-	CME
17.	MEC	Monitoring survey reports for parameters monitoring for WPS and SLS	-	CME
18.	MEC	Questionnaire used during the survey for each type of CEP	December 2020	CME
19.	MEC	Technical specifications of SLS (Various)	-	CME
20.	MEC	Original copies of sales receipts / invoices/ warranty cards	-	CME
21.	UNFCCC	CDM PS for PoA	Version 3.0	Others
22.	UNFCCC	CDM VVS for PoA	Version 3.0	Others
23.	UNFCCC	Standard: sampling and surveys for CDM project activities and programme of activities	Version 9.0	Others
24.	UNFCCC	Guidelines: sampling and surveys for CDM project activities and programme of activities	Version 4.0	Others
25.	GS4GG	Principle and requirements	Version 1.2	Others
26.	GS4GG	PoA Requirements	Version 2.0	Others
27.	GS4GG	CSA Requirements	Version 1.2	Others
28.	GS4GG	GHG emission reduction and sequestration product requirements	Version 2.1	Others
29.	MEC	Employment Records	-	CME
30.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories 2.1 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)	-	Others
31.	GS4GG	Form: GS-MR-FORM	Version 1.1, Dated 14/10/2020	Others
32.	MEC	Training photos, Records	-	CME

33.	The Gold Standard Foundation	REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING,	-	CME
34.	IPCC	GWP: IPCC AR5 https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_wg1-chapter2-1.pdf	-	Others
35.	IPCC	GWP: IPCC AR5, https://www.ipcc.ch/assessment-report/ar5/	-	Others
36.	MEC	Grievance Logbook	-	Others
37.	MEC	MEC and PO's agreement	-	CME
38.	MEC	Manufacturer Specification of WPS (Various)	-	CME
39.	MEC	Quarterly and annual monitoring survey forms	Filled	CME
40.	MEC	Monitoring Report (final)	Version 2.0, dated 27/06/2023	CME
41.	MEC	Credit tracker platform screenshots/ online - output file	-	CME
42.	MEC	Grievance Logbook	-	CME
43.	MEC	Credit Tracker Platform Screenshots	-	CME
44.	MEC	Tracker output file	-	CME
45.	UNFCCC	Tool 30: Calculation of the fraction of non-renewable biomass	Version 3.0	Others
46.	UNFCCC	Community Services Activity Requirements	Version 1.2	Others
47.	ESPL	On-Site audit records	-	Others
48.	MEC	National Water Policy (2012) and the Jal Jeevan Mission(2019-2024)/	-	Others
49.	MEC	Laboratory tests for Water Quality	-	CME
50.	BIS	the Indian Standard drinking water specification (IS 10500:2012) http://cgwb.gov.in/documents/wq-standards.pdf	2012	Others
51.	MEC	Annual Hygiene Campaign Records	-	CME
52.	MEC	Sample Employment contract	-	CME

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

Table 1. CL from this verification

CL ID	01	Section no.	B.1	Date : 27/06/2023
Description of CL				
1. For the distribution of WPS and SLS, CME contracted with several partner organizations to implement both the technologies. Under section A.1 of the PDD, PD mentioned only 4 partner organizations. However, under section B.1 of the Monitoring report PD mentions 6 partner organization which is inconsistent with the PDD. PD shall clarify.				
Project Developer response				Date : 27/06/2023
1. CME has kept the PDD same as CDM PDD hence these partners are not added. However, PDD design has been kept open for Solar and WPS where it is clearly mentioned new states and partners may be included.				
Documentation provided by project participant				
Revised MR has been provided.				
VVB assessment				Date: 29/06/2023
VVB has confirmed that PP has revised the MR and it is consistent with the PDD which states that new states and partners may be included. Hence, CL#01 is satisfactorily closed.				

CL ID	02	Section no.	C	Date : 24/05/2023
Description of CL				
1. Under section C "Description of Monitoring system applied by the project". PD mentioned that "For WPS, total repairs done were 271. For SLS, total repairs done were 5,500. It can be confirmed though credit tracker output file where the data from the partner is stored". PD is requested to provide the evidence for the same.				
Project Developer response				Date : 27/06/2023
1. CME has provided the required evidence.				
Documentation provided by project participant				
Sample tracker screenshots have been provided.				
VVB assessment				Date: 29/06/2023
1. VVB has confirmed that PP has submitted the sample tracker screenshots and found that CME has repaired 271 WPS and 5500 SLS. Hence, CL#02 is satisfactorily closed.				

Table 1. CAR from this verification

CAR ID	01	Section no.	D.1.	Date : 24/05/2023
Description of CAR				

Under section D.1 following observations has been made:	
<ol style="list-style-type: none"> 1. Under section D.1 "Data and Parameters fixed ex- ante" PD mentioned 100% value for the parameter "stove technologies used in the project boundary". Which is inconsistent with the PDD. 2. The value applied for the parameter "Expected technical life of project technology" PD mentioned only two out of 4 water purification systems. 3. The table provided in the value applied section for the parameter "Xf" is inconsistent for both the VPA's. 4. The table provided in the value applied section for the parameter "Cb" is inconsistent for both the VPA's. 5. The value applied for the parameter "$f_{NRB,b,i,y}$" reflects only the data of VPA 38. PD is requested to update the value for VPA 39 as well. 	
PD shall address the inconsistencies.	
Project Developer response	Date : 27/06/2023
<ol style="list-style-type: none"> 1. Section D.1 has been made consistent with the PDD. 2. 3 models water purification systems have been mentioned in PDD and same has been mentioned in MR. 3. All values have been made consistent in the MR. Revised MR has been submitted 4. All values have been made consistent in the MR. Revised MR has been submitted 5. $f_{NRB,b,i,y}$ Value for VPA 39 has been added in MR 	
Documentation provided by project participant	
Revised MR has been provided.	
VVB assessment	Date: 29/06/2023
<ol style="list-style-type: none"> 2. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD. 3. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD. 4. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD. 5. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD. 6. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD. <p>Hence, CAR#01 is closed.</p>	

CAR ID	02	Section no.	D.2	Date : 24/05/2023
Description of CAR				
Under section D.2 following observations has been made:				
<ol style="list-style-type: none"> 1. The value applied for the parameter "$N_{i,a}$" PD mentioned year 1 estimation value. However, PDD reflects year 5 estimation value. 2. The table provided in the value applied section for the parameter "$HN_{p,y}$" is inconsistent with the PDD of VPA 38. 3. The value applied for the parameter "$U_{p,y}$" is 90%(assumed for the ex- ante estimation) which is inconsistent with the PDD. 4. The value applied for the parameter "LE_y" is 0%(ex- ante estimation) which is inconsistent with the PDD. 5. Under section D.2. the parameter "HHTS" is not mentioned in the PDD. 				
PD shall address the inconsistencies.				
Project Developer response				Date : 27/06/2023

Under section D.2:	
1. In PDD the value for "Ni,a" is just an estimation where the CME has used the year 5 value which is cumulative of 5 year. However in MR, the value for this parameter is the actual implementation that has happened in the year 2021 and 2022.	
2. The value applied for the parameter "HN _{p,y} " is the conservative value between census data (used in PDD) and project survey. As mentioned in the additional comment of this parameter, CME has done crosscheck with the project survey data and applied the value which is conservatives table has been updated in MR	
3. The parameter has been updated based on the actual usage survey done by CME. The MR has been updated accordingly. The value of 100% which was assumed in PDD is for ex-ante estimation however for ex-post (MR), actual values have been used.	
4. The value applied for the parameter "LEy" has corrected in MR.	
5. Typographic error has been corrected. The parameter "HHTS" has been revised in the MR and made consistent with PDD.	
Documentation provided by project participant	
Revised MR has been provided.	
VVB assessment	Date: 29/06/2023
1. VVB has reviewed the latest MR accordingly to the explanation given by the PP and found that the value for the parameter Ni,a is actual implementation value that has happened in the year 2021 and 2022.	
2. VVB has reviewed the latest MR and found that the value PP has taken the conservative value for the parameter HN _{p,y} which has been cross-checked with the project survey data.	
3. VVB has reviewed the latest MR according to the explanation given by the PP and found that the value for the parameter U _{p,y} is the actual usage survey done by the CME.	
4. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD.	
5. VVB has confirmed that PP has revised the MR and it is now consistent with the PDD.	
Hence, CAR#02 is satisfactorily closed.	

CAR ID	03	Section no.	D.3.	Date : 24/05/2023
Description of CAR				
1. Under section D.3. "Comparison of monitored parameters with last monitoring period" the value applied for the SDG 13 (VPA 38) is inconsistent with the ER sheet tab "VPA38_Information, cell B6".				
2. SDG 1, 6 and 7 are not mentioned in the ER sheet for the VPA 39.				
PD shall address the inconsistencies.				
Project Developer response				Date : 27/06/2023
1. The section has been updated and made not applicable. The monitoring period for the project is 01/01/2021-31/12/2022, which is the first monitoring period under GS4GG. Furthermore, these VPAs, no credits have been issued for the VPA under CDM. Hence, there are no values to be compared with the previous monitoring period. For WPS, the parameters are monitored for the first time, and there is no other data to compare. Furthermore, SDG 1, 6, 7 were not part of CDM hence there is no data to compare.				
2. Since, only solar lighting systems are implemented and no WPS sales has been added in this monitoring period for VPA 39. Hence, SDG 1, 6 and 7 are not applicable for VPA 39 for this monitoring period.				
Documentation provided by project participant				
Revised MR has been provided.				
VVB assessment				Date: 29/06/2023
1. VVB has assessed the updated section D.3. of the latest MR and found it to be correct since it is the first monitoring period for the project.				
2. VVB has reviewed the updated MR and found consistent with the ER sheet.				
Hence, CAR#03 is closed.				

Table 3. FAR from this verification

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