


**Verification and certification report form for  
GS project activities**

**(Version 03.0)**

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

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Improved Woodstoves in Udaipur - Helping Women and Environment
<b>Scale of the project activity</b>	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
<b>Version number of the verification and certification report</b>	3
<b>Completion date of the verification and certification report</b>	24/12/2019
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring period no: 2 Duration: 01/10/2017 to 31/07/2019 (Inclusive of both days)
<b>Version number of the monitoring report to which this report applies</b>	04
<b>Crediting period of the project activity corresponding to this monitoring period</b>	01/01/2016 to 31/12/2025
<b>Project participants</b>	Udaipur Urja Initiatives Producer Company Limited
<b>Host Party</b>	India
<b>Applied methodologies and standardized baselines</b>	AMS II.G. Energy efficiency measures in thermal applications of non-renewable biomass, Version 3
<b>Mandatory sectoral scopes</b>	Sectoral Scope 3
<b>Conditional sectoral scopes, if applicable</b>	NA
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	75,954 tCO <sub>2</sub> e
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	68,820 tCO <sub>2</sub> e
<b>Name of the VVB</b>	4K Earth Science Private Limited
<b>Name, position and signature of the approver of the verification and certification report</b>	S. Jagajothi  Director

## SECTION A. Executive summary

4K Earth Science Private Limited (4KES) has been commissioned by “Udaipur Urja Initiatives Producer Company Limited” to perform an independent verification of its registered GS VER project “Improved Woodstoves in Udaipur - Helping Women and Environment”, GS Ref # GS1021 for the reported GHG emission reductions for the given monitoring period 01/10/2017 - 31/07/2019 (both dates included). The GS VER projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Verified Emission Reductions (VERs)

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

### Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

- (a) The registered GS PDD and Passport
- (b) The approved methodology mentioned in the GS PDD and passport
- (c) The registered monitoring plan
- (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board
- (e) Applicable Gold Standard tool kit
- (f) CDM Validation and Verification Standard (VVS)
- (g) All information and references relevant to the project activity's resulting in emission reductions
- (h) Information related to monitoring of SD parameters

The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

4KES has based on the recommendations in the latest version of CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

### Description of project:

The project activity is the distribution of improved cook stoves (ICS) for single households in all the Tehsils of Udaipur District in Rajasthan State, India. The improved cook stoves are higher efficient than the baseline traditional cook stoves. Due to the higher efficiency, the improved cook stove reduces the usage of non-renewable biomass in cooking and thereby, it avoids the related CO<sub>2</sub> emission from the use of non-renewable biomass.

### Methodology:

4KES follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the Gold Standard Verification work plan of the project activity is made available at Gold Standard registry in accordance with Gold Standard rules.

A desk review of the project documentation is undertaken, which is followed by an onsite visit and interviews by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and latest version of CDM VVS, to capture the assessment of applicable CDM & GS requirements viz., latest version of CDM Project Standard, applicable GS toolkit, registered GS-PDD, GS Passport applied methodology/ies and/or tools and recent decisions. The verification protocol provides transparent means to record the observations

## GS-VCR-FORM

and compliances by the verification team members and the nonconformities (CARs/CLs), if any. The verification protocol is an internal document, and is available on request. After successful closure of findings (CARs/CLs), the draft verification report is prepared which went through Independent technical review as per 4KES internal procedures and the TR comments were given for any gaps in audit findings. After closure of the TR comments, final verification report is prepared then followed by final approval for the decision made. The approved verification report is given to PP which shall be submitted for request for issuance.

Following are the major milestones for the verification under consideration.

Verification contract	07/09/2019
On site verification	30/09/2019 & 01/10/2019
Draft Verification Report	09/10/2019
Final Verification Report	24/12/2019

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

### B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	IR	Puratchikkanal	Ma Paa	Central	X	X	X	X
2.	Technical Expert (3.1)	IR	Puratchikkanal	Ma Paa	Central	X	X	X	X

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Ramaraj	Narendra Kumar	Central
2	Approver	IR	Jagajothi	S	Central

## SECTION C. Application of materiality

### 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.	Wrong data collection/misinterpretation of household situation	Low	It s not complicated monitoring process. Appropriate trainings are conducted for the monitoring personnel.	By means of site visit check of actual situation to sample number of households.
2	Transfer of data from sampling survey sheet to monitoring database	Low	Possible human error during transfer of data to monitoring database	Thorough cross-check required on the transfer of data from survey sheets to the monitoring database sheet
3	Error in transferring the	Low	Since the process of	Consistency between

	recorded data to ER sheet		transferring data from monitoring database to ER calculations sheets is done mostly through copy & paste, there is a very less chance of discrepancies.	monitoring database and ER sheet to be checked.
4	Error in ER calculations	High	The sample size was large, hence increasing the chances of error in ER calculation	The ER calculations were checked for accuracy.

## C.2. Consideration of materiality in conducting the verification

The prescribed thresholds for materiality, as per §326 of CDM VVS for PA,

Prescribed range of ERs/annum	>500,000	300,000-500,000	<300,000	SSC PAs	MSC PAs
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the project activity under current monitoring period is 5% as project activity is small scale project activity.

	MR Version (Draft)	MR Version (Final)
Emission reductions/annum	69,024 tCO <sub>2</sub> e	68,820 tCO <sub>2</sub> e
Identified Threshold	5.0%	5.0%

The impact of errors observed during verification for each monitoring parameter on the emission reduction calculation is provided below:

Parameter	Verification approach	Error identified	Corrected	Extrapolated error for population size (Qty and %)	Within Threshold
No. of households in which ICS appliances will be used	Checking 2% of database	No error identified	NA	No Impact	Yes
Start date of usage of appliances by the family	Checking 2% of database	No error identified	NA	No Impact	Yes
$\eta_{new}$	Checking all the efficiency test sheets	No error identified	NA	No Impact	Yes
Non-usage of ICS	Checking 2% of the database	No error identified	NA	No Impact	Yes
Operation days of ICS	Checking 2% of the database	No error identified	NA	No Impact	Yes
Number of improved cook stoves that would get replaced during the crediting period	Checking all the database of replaced stoves	No error identified	NA	No Impact	Yes
The traditional cook stove are disposed/not used in the households in which ICS is implemented	Checking 2% of the database	No error identified	NA	No Impact	Yes

No error on the values of the monitoring parameters is found. The change in the emission reduction between draft and final MR is due to the correction in the ER calculation. Please refer the CARs & CLs raised in the Appendix 4

## **SECTION D. Means of verification**

### **D.1. Desk/document review**

The verification is performed primarily as a desk review of the documents submitted at various stages of assessments. The review is performed by assessment team using verification protocols (checklists). The assessment team cross-checked the information provided in the MR and information from sources other than those used, if available, and also conducts independent background investigations. 4KES conducted a desk review, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the 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 is included in the section 'Appendix 3' of this report.

## D.2. On-site inspection

Duration of on-site inspection: 30/09/2019 to 01/10/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening Meeting, Office Inspection, Verification of monitoring records, interviews and database inspection	UUI Office, Udaipur	30/09/2019 & 01/10/2019	M P Kanal
2	Interview with Village volunteers	Project villages	30/09/2019 & 01/10/2019	M P Kanal
3	Visit to sample beneficiary households	Beneficiary households, Udaipur	30/09/2019 & 01/10/2019	M P Kanal

## D.3. Interviews

No.	Interviewee			Date	Subject
	Last name	First name	Affiliation		
1.	Joshi	Anubhav	CEO, UUI	30/09/2019 & 01/10/2019	- General aspects of the project
2	Avddy	Soumyajit	COO, UUI	30/09/2019 & 01/10/2019	- Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the Monitoring - Maintenance - Data analysis - Data Analysis
3	Padmanabha	Sudha	FCN	30/09/2019 & 01/10/2019	-MR computations -ER Calculations -Process and procedures
4	Kutty	Mathsy	Infosys	01/10/2019	-General governance and implementation
5	Lodha	P	Lead Digital, UUI	30/09/2019 & 01/10/2019	Monitoring database management
6	Devi	Sushila	Monitors, UUI	30/09/2019	- Monitoring procedures - Monitoring frequency - Responsibilities - Training
7	Devi	Sutra		30/09/2019	
8	Bai	Kankv		01/10/2019	
9	Prajapat	Bhagawati	Field Executives, UUI	30/09/2019	- Monitoring procedures - Monitoring frequency - Responsibilities - Quality assurance - Training
10	Dhabi	Babulal		30/09/2019	
11	JI	Basanti		30/09/2019	
12	Meena	Govind		01/10/2019	
13	Kharadi	Aravind		01/10/2019	
14	JI	Rekha		01/10/2019	
15	Bendre	Sagar	Team Lead	01/10/2019	- Data transfer
16	Choudhury	Shuvam Das		01/10/2019	- Data quality assurance

17	Padmanabha	Sudha	FCN	30/09/2019 & 01/10/2019	- Issues in the MR - ER calculation
18	Bansilal	Meera	ICS user	30/09/2019	- Verification of monitored data - Awareness about ownership of CERs - Working condition of ICS unit - SD parameters verification
19	Sundarlal	Thavri Devi	ICS user	30/09/2019	
20	Kharadi	Ravila	ICS user	30/09/2019	
21	Suraj	Champa Devi	ICS user	30/09/2019	
22	Mannilal	Ramila Devi	ICS user	30/09/2019	
23	Devi	Sumitra	ICS user	30/09/2019	
24	Ramji	Kamali Devi	ICS user	30/09/2019	
25	Dharma	Sokli	ICS user	30/09/2019	
26	Singh	Narayan	ICS user	01/10/2019	
27	Ji	Amarshingh	ICS user	01/10/2019	
28	Singh	Heer	ICS user	01/10/2019	
29	Singh	Lal	ICS user	01/10/2019	
30	Singh	Lakshman	ICS user	01/10/2019	
31	Singh	Magan	ICS user	01/10/2019	
32	Devi	Jabri	ICS user	01/10/2019	
33	Devi	Laxmi	ICS user	01/10/2019	
34	Homa	Babulal	ICS user	01/10/2019	
35	Lal	Rajendra	ICS user	01/10/2019	
36	Devi	Santhosh	ICS user	01/10/2019	
37	Devi	Basanti	ICS user	01/10/2019	

#### D.4. Sampling approach

The PP conducted a 100% monitoring for the monitored parameters related to carbon emission reductions, in accordance with the revised and approved PDD. The data is collected at the individual household level by UUI-appointed Village Monitors who are responsible for recording the data in the monitoring database on a monthly basis.

However, the thermal efficiency of the ICS is monitored once in two years. Water boiling test is conducted on sample basis on the ICS completed 2 years to determine the efficiency of ICS. PP has used Stratified sampling method based considering each Tehsil as a Stratum is found to be appropriate. As per the PDD, sample size required is calculated as per the 95/5 confidence/precision level.

For the GS Sustainability parameters, stratified random sampling approach was adopted, with biennial surveys. These were monitored by FCN Technical Team of Fair Climate Services Pvt. Ltd, in collaboration with the UUI staff. A total of 108 households were surveyed by the team and the data was recorded.

#### VVB Sampling approach:

For the efficiency of stoves, the PP has conducted water boiling test to determine the efficiency of ICS. 3 Greenway Smart Stove and 3 Greenway Jumbo Stove are tested from each Thesil. Hence, verification team verified 100% test data sheets and checked the calculation.

For the SD parameters monitored through sampling, verification team used acceptance sampling approach. During the on-site verification a sampling approach has been used by the verification team to verify the reported values for the SD parameters which are determined through sample survey. Verification team has determined acceptance sample size for all the sample survey parameters based on the table provided under para 33 of standard “Sampling and surveys for CDM project activities and programmes of activities” version 7.

Parameters	Producers risk	Consumers risk	AQL	UQL	Sample size	Acceptance Number
SD Parameters monitored through sample survey	5%	10%	0.5%	15%	18	1

Accordingly, the verification team verified a total of 20 Samples, including 2 extra samples to cater to non-response and observed that the sampling survey results of the PP for all the HHs checked were found to be consistent with VVB’s field survey results.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	1	-	-
Compliance of the project implementation and operation with the registered PDD	-	-	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	1	1	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	2	4	-
Assessment of reported sustainable development co-benefits	-	2	-
Stakeholder Inputs & Legal Dispute	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	<b>4</b>	<b>7</b>	<b>-</b>

## SECTION E. Verification findings

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

<b>Means of verification</b>	The project is registered under GS Toolkit version 2.1 and there was no monitoring form template proposed by GS. However, the PP has used 'Gold standard for the global goals Monitoring report' version 1. All the sections of the form were filled as per the GS4GG guidelines and gave all the relevant details.
<b>Findings</b>	CL-01 raised & closed successfully.
<b>Conclusion</b>	Monitoring report was found to be completed and using the valid version i.e. version 1 of the GS MR, hence the monitoring report is complying with the monitoring report form.

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

This is a 2<sup>nd</sup> verification of the project activity. No FAR has been raised from the 1<sup>st</sup> verification.

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

<b>Means of verification</b>	<p>The project aims to reduce the dependence of the rural communities on the non-renewable biomass. The project is implemented in all tehsils of Udaipur in Rajasthan, India.</p> <p>The project is implemented in arid drought prone area wherein the biomass in itself is not abundant. The project activity involves replacement of traditional inefficient cook stoves in 18,500 households with fuel efficient cook stoves. Each households are given one single pan greenway jumbo stove and one greenway smart cook stoves in order completely eliminate the cooking in the traditional cook stove.</p> <p>The project activity is implemented by Udaipur Urja Initiatives (UUI) Producer Co. Ltd and all the 18,500 (x2) ICS have been implemented by end of previous monitoring period itself.</p> <p>The verification team determined the conformity of the actual project activity and its operation with the validated project design document. Verification team has, by means of a desk review and an on-site visit, assessed that all physical features of the GS project activity proposed in the revised &amp; approved PDD.</p>
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	<p>The verification team has checked the information in the monitoring report and compared against the approved PDDs.</p> <p>During the onsite inspection, the verification team has checked the project locations, implementation, technology applied, project equipment, and monitoring system against the information in the approved PDD. Interviews with operational personnel and households and random samplings have been carried out.</p>
<b>Findings</b>	No finding
<b>Conclusion</b>	The verification team has reviewed the project database, monitoring database, efficiency test details, and end user agreements. The verification team has observed at the site that all physical locations of the ICS on sample basis and found that the details are correctly matching with the monitoring report and monitoring records maintained by PP. The type of the ICS provided and the locations are consistent with the approved PDD. Thus the verification team has concluded that the project activity was implemented and operated as per approved PDD. The verification team, based on the site visit and document review, was able to conclude that the project activity has been commissioned and implemented as per the approved PDD and that all physical features of the project are in place

**E.4. Post-registration changes**

**E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>1</sup>**

No temporary deviation is sought in this verification.

**E.4.2. Corrections**

No correction is sought in this verification.

**E.4.3. Changes to the start date of the crediting period**

Not applicable for 2nd verification.

**E.4.4. Inclusion of a monitoring plan**

Monitoring plan was already included in the approved PDD. Hence, not applicable.

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

No permanent changes or deviation in the registered monitoring plan is sought

**E.4.6. Changes to the project design**

No change in project design is sought in this verification

**E.4.7. Changes specific to afforestation and reforestation project activities**

Not applicable

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

<b>Means of verification</b>	The verification team checked compliance of project monitoring plan with the applied methodology (AMS II.G, version 3) and including applicable tools.
<b>Findings</b>	No findings
<b>Conclusion</b>	All parameters stated in the monitoring plan and the applied methodology has been fulfilled in the current monitoring report. All baseline emission parameters

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

	<p>has been verified and found satisfactory. The discussion regarding each parameter has been elaborated in the further sections of this report. The monitoring plan as mentioned in the registered PDD is in accordance with the applied methodology.</p> <p>In the opinion of the verification team the monitoring report complies with the requirement of the registered PDD and applied methodologies (AMS II.G, version 3) in the context of the project activity.</p>
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## E.6. Compliance of monitoring activities with the registered monitoring plan

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

<b>Means of verification</b>	The verification team has checked the ex-ante parameters and data stated in Section D.1 of MR and compared with section B.6.2 of the registered PDD whether all parameters fixed ex-ante for the crediting period have been applied correctly.		
	<b>Ex-ante Parameter</b>	<b>Value</b>	<b>Consistent with the PDD/3/ &amp; the source mentioned in it</b>
	$B_{old}$	3.21 t/family/yr	Yes
	$B_{v.savings}$	2.19 t/family/yr	Yes
	$EF_{projected\ fossilfuel}$	81.6 tCO <sub>2</sub> /TJ	Yes
	$\eta_{old}$	0.10	Yes
	$f_{NRB,y}$	0.88	Yes
	<b>Diversion of non-renewable biomass saved under the project activity by non-project households</b>	0.16 t/HH/yr	CL-02 was raised and closed. Now the value are consistent with PDD
<b>Findings</b>	CL-02 raised and closed		
<b>Conclusion</b>	The values of ex ante fixed parameters have been verified from the approved PDD/3/. Same has been crosschecked with the source mentioned in the PDD and found to be consistent. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values have been correctly applied in the calculation of emission reductions.		

### E.6.2. Data and parameters monitored

<b>Means of verification</b>	<p>The verification team has determined whether the approved monitoring plan has been properly implemented and followed by the PP that the monitoring has been carried out in accordance with the approved monitoring plan; and determined whether all parameters including project emission parameters, baseline emission parameters and leakage parameters used for emission reduction calculation stated in the registered monitoring plan are monitored or used appropriately as per the approved PDD.</p> <p>During the verification all monitoring parameters listed in Section D.2 of MR were compared with section B.7.1 of the registered PDD have been verified with regard to the:</p> <ul style="list-style-type: none"> <li>(i) appropriateness of the applied measurement / determination method,</li> <li>(ii) the correctness of the values applied for ER calculation,</li> <li>(iii) the accuracy, and applied QA/QC measures.</li> </ul> <p>The monitored values are assessed as follows:</p> <p><b>No. of households in which ICS appliances will be used:</b> The parameter 'No. of households in which ICS appliances will be used' is monitored continuously. As and when ICS is given to a household, the same is entered into the project database by Udaipur Urja Initiatives. An end user agreement is also signed with the beneficiary which includes name &amp; address of the ICS user, serial number of ICS given. The verification team checked the project database and found that the total number of ICS installed is 18,500. Verification team also verified 370 (2% of total) end user agreements and found that all the details provided for the respective households in the excel sheet/2/ are matching. Verification team checked for any</p>
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duplication records in the monitoring database and no such records found. Verification team also randomly checked the ICS units during on-site inspection. Hence, the value considered in the MR & ER calculation sheet is correct.

**Start date of usage of appliances by the family:** The start date of the usage of appliance is the date of end user agreement signed between beneficiary and UUI after satisfactory functioning of ICS. This is recorded as and when a end user agreement is signed. About 370 (2% of total) end user agreements are verified and found that the dates mentioned in the database is in consistent with the date of end user agreements. No discrepancies found. Hence, the start dates considered for the ICS is acceptable.

**$\eta_{new}$  : The efficiency of ICS is determined through Water Boiling Test carried biennially.** . Water Boiling Test (WBT) was carried out based on statistically determined representative samples using the standard testing protocol developed by PCIA. PP has done water boiling test of 3 ICS from each Tehsil which confirms the minimum requirements of 95/5 confidence level. The results of the water boiling test shows that the accuracy of the result is within 5% limit. Verification team checked all the water boiling test sheets and found that the data are transferred correctly to the ER calculation sheet. Verification team also interviewed the personals who conduct the WBT and confirmed that the test was done as per the standard testing protocol developed by PCIA. Hence the following test result estimated for the monitoring period is found correct.

Age of ICS	Jumbo Greenway Stove	Smart Greenway Stove	Average
2 year	31.167%	32.098%	31.63%
4 year	28.524%	29.191%	28.86%

Though as per registered PDD, the efficiency determined during the end of 2 year shall be used for the stoves having age between 3-4 years, PP has adjusted the efficiency as below as conservative option:

Based on the manufacturer efficiency and the efficiency determined during the monitoring period (based test conducted at project stoves which have the average age of 2.19 years), the PP has estimated annual average degradation in the efficiency (ie, 1.3%/year). Since the average age of the project stoves at the end of monitoring period is 2.75 year, the efficiency determined for the 2.19 yr (average) old stove is adjusted based on the age of 2.75 yr. The adjusted efficiency value is estimated to be 28.16% which is verified to be correct. Hence, PP has applied the efficiency of 28.16% for the stoves having age between 2-4 yrs. The approach is found to be appropriate.

**Non-usage of ICS:** the non-usage days of ICS is monitored though village monitors using the below methods:

- Monitor visit each households monthly and record if any non-usage days
- Based on the complains received for repair & maintenance the non-usage days are recorded for the respective households

Village monitor not only records non usage of ICS but also parallel use of traditional cook stove and the purpose for the usage. These are recorded in the monitoring survey forms. The records maintained by the village monitor are randomly checked with the monitoring database and found no inconsistencies. Hence, the non-usage days considered in the CER calculation sheet is correct.

**Operation days of ICS:** The usage days are calculated from non-usage days of ICS as monitored above. From the total days from the ICS distribution the non-usage days are deducted to obtain the operational days of ICS. As mentioned above, the records maintained by the village volunteers are randomly checked with the monitoring database and found no inconsistencies. The calculation of usage days from the non-usage days are checked and found to be correct. Hence, the usage days the CER calculation sheet is correct.

**Number of improved cook stoves that would get replaced during the**

	<p><b>crediting period:</b> If an ICS is replaced due to damage of existing ICS and the same is recorded in the project database along with the ID number of the new stoves. Also the end user agreement is updated with the new ICS ID numbers. As per the details provided in MR. There are 314 stoves were replaced since operation of the project. Verification team checked the updated end user agreements of all the 314 households and found to be consistent with the database. It shall be noted that the value is not used for emission reduction calculation but used to confirm the operational status of the ICS. Hence, the value considered in the MR is correct.</p> <p><b>The traditional cook stove are disposed/not used in the households in which ICS is implemented:</b> This is monitored continuously. It is noticed that the traditional stoves are not disposed in some of the households. If the traditional cook stoves are used for any time for complete cooking or cooking for specific items the same is monitored by village monitor and recorded in the database. The following values are recorded in the MR for the monitoring period:</p> <table border="1"> <tr> <td>Days of Non Usage of ICS during the Monitoring Period</td> <td>512,427 (4.14%)</td> </tr> <tr> <td>Days of parallel use of traditional stoves/LPG during the Monitoring Period</td> <td>1,927,457 (15.57%)</td> </tr> </table> <p>The records maintained by the village volunteers are randomly checked with the monitoring database and found no inconsistencies. Hence, usage details of traditional cook stoves provided in the CER calculation sheet is correct.</p>	Days of Non Usage of ICS during the Monitoring Period	512,427 (4.14%)	Days of parallel use of traditional stoves/LPG during the Monitoring Period	1,927,457 (15.57%)
Days of Non Usage of ICS during the Monitoring Period	512,427 (4.14%)				
Days of parallel use of traditional stoves/LPG during the Monitoring Period	1,927,457 (15.57%)				
<b>Findings</b>	CAR-01 is raised and closed				
<b>Conclusion</b>	<p>Corresponding to the §361 of VVS V2<sup>12/</sup>, the team confirm that the monitoring has been carried out in accordance with the approved PDD<sup>3/</sup>.</p> <p>The monitoring system is in compliance with the information flow for the parameters as mentioned in monitoring plan in approved PDD<sup>3/</sup>. The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent.</p>				

**E.6.2.1. Implementation of sampling plan**

<b>Means of verification</b>	<p>The PP conducted a 100% monitoring for the monitored parameters related to carbon emission reductions, in accordance with the revised and approved PDD. The data is collected at the individual household level by UUI-appointed Village Monitors who are responsible for recording the data in the monitoring database on a monthly basis.</p> <p>However, the thermal efficiency of the ICS is monitored once in two years. The test is conducted on sample basis on the ICS completed 2 years. PP has used Stratified sampling method based considering each Tehsil as a stratum is found to be appropriate/ As per the PDD, sample size required is calculated as per the 95/5 confidence/precision level. The sample size calculated and the actual sample size considered for test are given below.</p> <table border="1"> <thead> <tr> <th rowspan="2">Tehsil</th> <th rowspan="2">Number of Stoves</th> <th colspan="2">Greenway Smart Stove</th> <th colspan="2">Greenway Jumbo Stove</th> </tr> <tr> <th>Sample size required @ 95/5 precision level</th> <th>Actual Sample Size</th> <th>Sample size required @ 95/5 precision level</th> <th>Actual Sample Size</th> </tr> </thead> <tbody> <tr> <td>Girwa</td> <td>2,715</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> </tr> <tr> <td>Jhadol</td> <td>3,927</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> </tr> <tr> <td>Kherwara</td> <td>8,193</td> <td>2</td> <td>3</td> <td>1</td> <td>3</td> </tr> <tr> <td>Rishabhdeo</td> <td>3,269</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> </tr> <tr> <td>SARADA</td> <td>396</td> <td>1</td> <td>3</td> <td>1</td> <td>3</td> </tr> </tbody> </table>	Tehsil	Number of Stoves	Greenway Smart Stove		Greenway Jumbo Stove		Sample size required @ 95/5 precision level	Actual Sample Size	Sample size required @ 95/5 precision level	Actual Sample Size	Girwa	2,715	1	3	1	3	Jhadol	3,927	1	3	1	3	Kherwara	8,193	2	3	1	3	Rishabhdeo	3,269	1	3	1	3	SARADA	396	1	3	1	3
Tehsil	Number of Stoves			Greenway Smart Stove		Greenway Jumbo Stove																																			
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	<p>The verification team also checked the precision level from the efficiency test results and confirmed that precision level achieved for all parameter is within the limit of 5%. Hence, the sample size considered for all the parameters are found to be OK</p> <p>For the GS Sustainability parameters, stratified random sampling approach was adopted, with biennial surveys. These were monitored by FCN Technical Team of Fair Climate Services Pvt. Ltd, in collaboration with the UUI staff. A total of 108 households were surveyed by the team and the data was recorded. Based on the verification team experience, the sample size considered for estimation of SD parameters is found to be adequate.</p>
<b>Findings</b>	No finding
<b>Conclusion</b>	<p>Verification team concludes the following:</p> <ul style="list-style-type: none"> <li>• The sample size considered for all the parameters (which are monitored through sampling basis) are found to be appropriate</li> <li>• The precision level achieved from the monitored data also confirms that the sample size considered for the monitoring is sufficient.</li> <li>• PP's sample population was selected in all the Tehsils proportionally based on the number ICS distributed in the respective Tehsils.</li> <li>• The sampling plan is implemented correctly in accordance with the approved PDD</li> </ul>

**E.7. Compliance with the calibration frequency requirements for measuring instruments**

<b>Means of verification</b>	Not applicable as no monitoring equipments involved.
<b>Findings</b>	NA
<b>Conclusion</b>	NA

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

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

<b>Means of verification</b>	<p>The verification team has checked whether calculations of baseline GHG emissions calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan.</p> <p>In detail the following has been verified:</p> <p><u>Transparency:</u> It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</p> <p><u>Parameter consistency:</u> It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p> <p><u>Correctness:</u> It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.</p> <p><u>Completeness:</u> It has been checked whether all calculations are complete and without omissions</p> <p>As per applied methodology, the emission reduction is calculated using the formula:</p> $ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected\_fossilfuel}$ <p>Where:</p> <p>ER<sub>y</sub>                      Emission reductions during the year y in tCO<sub>2</sub>e</p> <p>B<sub>y,savings</sub>                Quantity of woody biomass that is saved in tonnes</p> <p>f<sub>NRB,y</sub>                     Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass (0.88)</p>
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	<p> <math>NCV_{biomass}</math> Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)         </p> <p> <math>EF_{projected\_fos\ silfuel}</math> Emission factor for the substitution of non-renewable woody biomass by similar consumers. (81.6 tCO<sub>2</sub>/TJ)         </p> <p>           Calculations of biomass savings (By,savings)         </p> $B_{y,savings} = \sum_{i=1}^n B_{old} \cdot L_y \cdot N_{y,i} \cdot \left(1 - \frac{\eta_{old}}{\eta_{new}}\right)$ <p>           Where:         </p> <p> <math>B_{old}</math> Quantity of woody biomass used in the absence of the project activity in tonnes [3.21 t/family(two 1 pot)/yr fixed throughout the crediting period]         </p> <p> <math>\eta_{old}</math> Efficiency of the baseline system/s being replaced (0.10 fixed for the entire crediting period)         </p> <p> <math>\eta_{new}</math> Efficiency of the system being deployed as part of the project activity (fraction) as determined using the Water Boiling Test protocol.         </p> <p> <math>L_y</math> Leakage Factor determined for the year y. This is fixed for the entire crediting period (0.95).         </p> <p> <math>N_{y,i}</math> Appliance operating per year and vintage         </p> <p>           Number of appliances operating per year (Ny,j)         </p> $N_{y,i} = \sum_{j=1}^{N_{y,i}} n_{y,j} \cdot t_{y,j}$ <p>           Where:         </p> <p> <math>n_{y,j}</math> = Appliance operating per year and vintage  <math>t_{y,j}</math> = Fraction of operating time per household (appliance(s)) per vintage         </p> <p>           PP also monitored the traditional stove usage in parallel with the ICS usage and usage of specific food preparation. During pervious monitoring period PP conducted kitchen performance test in traditional cook stoves, and estimated the fuel consumption for 10 common food preparations in the traditional stove. The <math>B_{old}</math> values are adjusted for the households that used traditional stove in parallel to the ICS by deducting the fuel consumption by traditional stove. This approach is found to be appropriate as it increase the accuracy of actual emission reduction.         </p> <p>           From the monitored values of number of operating day of each ICS (estimated form number of non-operating days) the emission reduction for the monitoring period is calculated proportionally. Since the emission reduction is estimated based on actual number of operating days, the verification team found this to be appropriate.         </p> <p>           PP has submitted the calculation in the excel sheet/2/. The baseline calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the approved PDD/3/ and the selected methodologies/6/.         </p>
<p><b>Findings</b></p>	<p>CL-03, CL-04, CAR-03, CAR-06 &amp; CAR-07 are raised and closed.</p>
<p><b>Conclusion</b></p>	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> <li>• The calculations of emission reduction have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology.</li> <li>• The emission factor applied is an ex-ante value valid for the fixed crediting period.</li> <li>• Any assumptions used in emission or removal calculations have been justified.</li> </ul>

	<ul style="list-style-type: none"> <li>• Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct.</li> <li>• The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible.</li> <li>• Hence, the emission reduction (without adjusting leakage) reported in the monitoring report for the monitoring period (ie, 72,442 tCO<sub>2</sub>e) is verified to be correct</li> </ul>
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### E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

<b>Means of verification</b>	As per PDD & applied, no project emission is involved in this project.
<b>Findings</b>	No finding
<b>Conclusion</b>	No project emission reported.

### E.8.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	<p>During the verification it has been checked whether leakage emissions have to be considered and in cases where leakage emissions have to be calculated, the respective calculation of leakage GHG emissions has been checked.</p> <p>Based on the methodology, B<sub>old</sub> is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case leakage surveys is not required. Since PP has not conducted leakage survey, PP has considered 5% leakage as per the latest version of the methodology (AMS II.G, version 3).</p>
<b>Findings</b>	CAR-02 is raised and closed
<b>Conclusion</b>	The PP has applied 0.95 leakage adjustment factor in B <sub>old</sub> as per the applied methodology, AMS II.G, version 3). Hence, the leakage estimated in the MR (ie, 3,622 tCO <sub>2</sub> e) is found to be correct.

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

<b>Means of verification</b>	<p>Section E.3 of MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodologies as follows:</p> $ER_y = BE_y - PE_y - L_y$ $= 72,442 - 0 - 3,622 = 68,820 \text{ tCO}_2\text{e}$ <p>The ER calculation sheet and monitoring report is verified to check the calculation.</p>
<b>Findings</b>	No finding
<b>Conclusion</b>	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> <li>• The emission reduction is calculated as per the approved PDD and the applied methodology</li> <li>• The emission reduction value reported (ie, 68,820 tCO<sub>2</sub>e) is verified to be correct.</li> <li>• The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction spreadsheet.</li> </ul>

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

<b>Means of verification</b>	<p>The verification team has checked whether the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD/3/. Section E.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD</p> <table border="1"> <tr> <td>Emission reduction estimated as per the approved PDD/3/</td> <td>Actual emission reduction achieved as per Monitoring report/1/</td> </tr> <tr> <td>75,954 t CO<sub>2</sub>e</td> <td>68,820 t CO<sub>2</sub>e</td> </tr> </table> <p>Hence, the actual emission reduction achieved during the monitoring period is 9.4% less than the estimation in the PDD.</p>		Emission reduction estimated as per the approved PDD/3/	Actual emission reduction achieved as per Monitoring report/1/	75,954 t CO <sub>2</sub> e	68,820 t CO <sub>2</sub> e
Emission reduction estimated as per the approved PDD/3/	Actual emission reduction achieved as per Monitoring report/1/					
75,954 t CO <sub>2</sub> e	68,820 t CO <sub>2</sub> e					
<b>Findings</b>	No finding					

<b>Conclusion</b>	The estimated emission reduction as per PDD and the actual emission reduction achieved for the monitoring period are correctly reported in the section E.5 of MR. The actual achieved emission reduction is 9.4% less than the PDD estimation. Hence no justification is required.
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#### E.8.6. Remarks on difference from estimated value in registered PDD

<b>Means of verification</b>	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase if any.
<b>Findings</b>	No finding
<b>Conclusion</b>	The actual achieved emission reduction is 9.4% less than the PDD estimation. Hence no justification is required.

#### E.9. Assessment of reported sustainable development co-benefits

<b>SD Indicator</b>	<b>Air Quality</b>								
<b>Parameters</b>	- No. of Stoves working - Decrease in smoke in kitchen compared to baseline based on community perspective through biennial survey								
<b>Monitored Value</b>	- No. of Stoves working - 18,500 - Decrease in smoke in kitchen compared to baseline based on community perspective through biennial survey <table border="1" data-bbox="466 862 1321 992"> <thead> <tr> <th>Health Problems</th> <th>Percent of respondents</th> </tr> </thead> <tbody> <tr> <td>Reduction in smoke</td> <td>100</td> </tr> <tr> <td>Eye Irritation reduced</td> <td>100</td> </tr> <tr> <td>Respiratory Problems Reduced</td> <td>100</td> </tr> </tbody> </table>	Health Problems	Percent of respondents	Reduction in smoke	100	Eye Irritation reduced	100	Respiratory Problems Reduced	100
Health Problems	Percent of respondents								
Reduction in smoke	100								
Eye Irritation reduced	100								
Respiratory Problems Reduced	100								
<b>Means of verification</b>	<b>No. of Stoves working</b> Number of ICS working are monitored continuously and recorded in the monitoring database. About 18,500 ICS are distributed in under the project which is cross verified from the monitoring database and found to be correct. Though it is observed about 223 families are migrated from the project area, they have taken their ICS with them and hence these 223 stoves are also in use. Hence, the value considered in the parameter is correct.  <b>-Decrease in smoke in kitchen compared to baseline based on community perspective through biennial survey</b> This parameter is monitored biennial survey. Verification team checked all the sample survey sheets and found that the details related to decrease in smoke given in the MR is correct. Also verification team conducted acceptance sample survey from the 20 households where the PP has conducted sample survey. All the 20 households confirmed that usage of ICS lead to reduction in smoke, reduction in eye irritation and reduction in Respiratory problem. Hence, the details provided in the MR are correct.								
<b>Findings</b>	No finding								
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.								

<b>SD Indicator</b>	<b>Quality of employment</b>
<b>Parameters</b>	Number and type of training sessions, workshops and seminars Creating job opportunities in the region of the project.



<b>Monitored Value</b>	<p>Number and type of training sessions, workshops and seminars</p> <ul style="list-style-type: none"> <li>○ Monitor training – 7 Nos</li> <li>○ Block level training – every month</li> <li>○ Mobile training – 3 Nos</li> <li>○ Staff training – 3 Nos</li> </ul> <p>Creating job opportunities in the region of the project.</p> <ul style="list-style-type: none"> <li>○ Job created for men- 16</li> <li>○ Job created for women - 134</li> </ul>
<b>Means of verification</b>	<p><b>Number and type of training sessions, workshops and seminars</b></p> <p>Whenever the training is conducted, the same has been recorded. All the training records are verified and found that number of trainings conducted and number of people trained are correct. During site visit, the verification team also interviewed the staffs and village monitored and they also confirmed about the training they attended. Hence, the number of training conducted and the number people trained under the project activity reported in the monitoring report is correct.</p> <p><b>Creating job opportunities in the region of the project.</b></p> <p>These details are taken from the UUI's employment records. Verification team checked the employment records and found that the number of jobs created for men &amp; women reported in the MR is correct.</p>
<b>Findings</b>	CAR-04 raised and closed.
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.

<b>SD Indicator</b>	<b>Livelihood of the Poor</b>
<b>Parameters</b>	<p>1.Lesser time spent on collection of fuelwood; more time to do other activities</p> <p>2. Money spent to collect fuel</p>
<b>Monitored Value</b>	<p>1.Lesser time spent on collection of fuelwood; more time to do other activities</p> <ul style="list-style-type: none"> <li>○ 43% households reported reduction in fuel wood collection time and cooking time</li> </ul> <p>2. Money spent to collect fuel</p> <ul style="list-style-type: none"> <li>○ 100% households who purchase fuel wood reported reduction in fuel wood purchase</li> </ul>
<b>Means of verification</b>	<p><b>Lesser time spent on collection of fuelwood; more time to do other activities</b></p> <p>This parameter is monitored through Biennial sample survey. As per the sample survey, about 43% households reported that there is reduction in fuel wood collection time and cooking time hence they can utilise the time for other activities. Verification team checked all the sample survey sheets and found that the details given in the monitoring survey results excel sheet and MR is correct. No discrepancy is found. Verification team also conducted acceptance sample survey during site visit among the PP's sample population and found no error in the PP's sample survey data. Also verification team verified the report on the study conducted by Duke University in the project region. As per the study, ICS users spent less time cooking and collecting solid fuels @ 0.5-0.7 hrs/day. As per the study there is a reduction of about 2 kg/day fuel wood for the ICS users compared to non-ICS users. Hence, it is evident that the ICS users spent less time in fuel wood collection.</p> <p><b>Money spent to collect fuel:</b></p> <p>This parameter is monitored through Biennial sample survey. As per the sample survey conducted, about 4% households purchase fuel wood and all the households reported there is a reduction in money spent in purchase of fuel wood. All the sample survey sheets are verified and found that the details provided in the monitoring survey excel sheets and MR is correct. Verification team also conducted acceptance sample survey during site visit among the PP's sample population and found no error in the PP's sample survey data.</p>
<b>Findings</b>	CAR-05 is raised and closed.

<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.
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<b>SD Indicator</b>	<b>Access to affordable and clean energy services</b>
<b>Parameters</b>	Availability of GREENWAY at marginal cost to identified families and its usage for the next 10 years with service and maintenance, which will be charged from the village fund collected from Greenway cost contribution by households. No. of stoves being used; ease of cooking
<b>Monitored Value</b>	18,500 stoves
<b>Means of verification</b>	This parameter is taken from the project monitoring database. The monitoring database is verified and found that the number ICS distributed under this project is 18,500. Also invoices from Green Way (ICS manufacturer) and end user agreements are verified and found that the stoves are purchased at Rs. 2900 and given to beneficiaries at the price of Rs. 500. As per UUI, the carbon money has been used to subsidize the ICS cost. As per interview with UUI, for the continuous use of ICS, UUI also take care of repair and maintenance and replacement of stoves wherever required. The records of repairs & maintenance and replaced ICS are also checked by verification team. During site visit verification team also checked with the beneficiary households and they also confirmed that they got the ICS at the subsidized price of Rs. 500.
<b>Findings</b>	CAR-04 is raised and closed.
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.

<b>SD Indicator</b>	<b>Human and Institutional capacity.</b>
<b>Parameters</b>	Empowerment of local communities, Training to the local communities, Community development through CER revenue
<b>Monitored Value</b>	29 community meeting conducted & 1525 people attended the meeting 3 World Environment Day Campaign Rs. 909,450 carbon money contributed to GVK funds in the village
<b>Means of verification</b>	<p>The community meeting includes Annual General Meeting, Block Annual Gathering Meeting, Zone level Community Meeting and Product Demonstration Meeting. In the meetings, ICS usage, repairs &amp; maintenance of ICS, solar light usage &amp; its services, Agriculture procurement and mapping, demonstration of new community products etc. are discussed. All the community meeting records including photographs, attendance sheet are verified and found that the details regarding the number of community meeting &amp; people attended the meeting are found to be correct.</p> <p>In 5<sup>th</sup> June 2018, three celebratory meetings were held in Kochla (Jhadol Block), Balicha (Kherwara Block) and Mor Dungari (Girwa Block) to create awareness about environment, which included climate change and the GS VER cook stove project. The meetings photographs are minutes are checked by verification team.</p> <p>Verification team interviewed with the management staffs and they confirmed that about Rs. 909,450 from the VER revenue is given to individual Gram Vikas Kosh (GVK) funds in the villages which will be used for various activities such as to provide need based loans to women, development of pasture land, Clean drinking water, Agricultural needs etc by GVC. Verification team also verified the bank receipt of deposit of the money to GVK account and confirmed that the money has been deposited to GVK accounts by UUI.</p>
<b>Findings</b>	CAR-04 is raised and closed.

<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.
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<b>SD Indicator</b>	<b>Quantitative employment and income generation</b>
<b>Parameters</b>	Monetary benefits to the households Jobs created due to the project activity.
<b>Monitored Value</b>	Monetary benefits to the households <ul style="list-style-type: none"> <li>○ ICS cost of Rs.2900 given at the price of Rs. 500 to beneficiaries</li> <li>○ Rs. 909,450 is contributed to GVK funds that are used for community development activities</li> </ul> Jobs created due to the project activity. <ul style="list-style-type: none"> <li>○ 150 no of jobs created</li> </ul>
<b>Means of verification</b>	<b>Monetary benefits to the households</b> Invoices from Green Way (ICS manufacturer) and end user agreements are verified and found that the stoves are purchased at Rs. 2900 and given to beneficiaries at the price of Rs. 500. As per UUI, the carbon forward funding has been used to subsidize the ICS cost. Verification team interviewed with the management staffs and they confirmed that about Rs. 909,450 from the VER revenue is given to individual Gram Vikas Kosh (GVK) funds in the villages which will be used for various activities such as to provide need based loans to women, development of pasture land, Clean drinking water, Agricultural needs etc by GVC. Verification team also verified the bank receipt of deposit of the money to GVK account and confirmed that the money has been deposited to GVK accounts by UUI.  <b>Jobs created due to the project activity.</b> These details are taken from the UUI's employment records. Verification team checked the employment records and found that the number of jobs created for men & women reported in the MR is correct
<b>Findings</b>	CAR-04 is raised and closed.
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.

<b>SD Indicator</b>	<b>Balance of Payments and Investment</b>
<b>Parameters</b>	Investment to local energy needs and access to foreign direct investment
<b>Monitored Value</b>	ICS cost of Rs.2900 given at the price of Rs. 500 to beneficiaries with the help of carbon forward funding. Repairs & maintenance of stoves
<b>Means of verification</b>	With the help of carbon forward funding from Evangelisches Werk für Diakonie und Entwicklung e.V.Germany and Infosy, UUI was able to provide ICS to beneficiaries at the subsidized price. Invoices from Green Way (ICS manufacturer) and end user agreements are verified and found that the stoves are purchased at Rs. 2900 and given to beneficiaries at the price of Rs. 500.  UUI also takes care of repair and maintenance of the ICS for the continuous use of ICS by beneficiaries. The records of repairs & maintenance have been verified.
<b>Findings</b>	CAR-04 is raised and closed.
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.

<b>SD Indicator</b>	<b>Technology transfer and technological self-reliance</b>
<b>Parameters</b>	- Number of woodstoves being used - Number of workshops, trainings, seminars organized for participants outside the

	project boundary. - Number of participants attending the capacity building programmes
<b>Monitored Value</b>	Number of woodstoves being used <ul style="list-style-type: none"> <li>○ 18,500 stoves</li> </ul> Number of workshops, trainings, seminars organized for participants outside the project boundary. <ul style="list-style-type: none"> <li>○ 19 activities</li> </ul> Number of participants attending the capacity building programmes <ul style="list-style-type: none"> <li>○ 66 persons benefited outside the project boundary</li> </ul>
<b>Means of verification</b>	The number of ICS installed is verified from project database and found to be correct.  UUI conducted various training and workshops within the project boundary as explained in the above parameter tables. People from out site project boundary also visited the project area and learnt about the project. From the records it was evident that about 66 persons visited the site and learned about the project.
<b>Findings</b>	CAR-04 is raised and closed.
<b>Conclusion</b>	The parameter is monitored appropriately, in accordance with the registered monitoring plan. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. All the monitored parameter values reported in the MR are found to be correct.

### E.10. Stakeholder Inputs & Legal Dispute

<b>Means of verification</b>	All the inputs from stakeholders are related to repair and maintenance of ICS. PP attended all the cases and resolved the same. There are no other grievances reported by Stakeholders during the current or previous monitoring period. Verification team checked the repairs and replacement records and confirmed that all the cases are resolved by either repairing stove or replacement of the stove.  Verification team checked with UUI whether any legal consent or dispute arise during the monitoring period and PP also confirmed that there are no such legal contests or dispute that has arisen with the project during the monitoring period
<b>Findings</b>	No finding
<b>Conclusion</b>	The verification team confirms the following: <ul style="list-style-type: none"> <li>• The only grievances received from ICS users are related to repairs &amp; maintenance of stoves. All the cases received during the monitoring period are attended and resolved during the monitoring period itself.</li> <li>• No other grievances received during the current or previous monitoring period</li> <li>• The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction spreadsheet.</li> </ul>

### SECTION F. Internal quality control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by 4KES are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable Gold Standard & CDM 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. The independent technical reviewer(s) may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before submit final report to Client/Gold Standard. The final approval decision is taken by the Head of the DOE/Director.

The final decision is authorized by the Director, 4KES, once the report is finalized by the Head of the DOE/DOE Manager.

### SECTION G. Verification opinion

The verification team confirms that the the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters

have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and on site visit, the data submitted by PP was cross verified with the values mentioned in the emission reduction sheet/2/ and monitoring report/1/. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the approved revised PDD/3/.

Evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined in section E.6 above. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 68,820 tCO<sub>2</sub>e emission reductions during period 01/10/2017 to 31/07/2019.

## **SECTION H. Certification statement**

4K Earth Science Pvt. Ltd. has been contracted by 'Udaipur Urja Initiatives Producer Company Limited' to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported and the contribution to sustainable development indicators from the GS Project activity "Improved Woodstoves in Udaipur - Helping Women and Environment" and GS Reference Number GS1021 for the monitoring period 01/10/2017 to 31/07/2019 (including both dates) in the Monitoring Report Version 01 (first version) dated 10/09/2019.

The verification is based on the GS approved PDD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Gold Standard requirements, Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

The management of the 'Udaipur Urja Initiatives Producer Company Limited' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions & monitoring of SD parameters on the basis set out within the project Final Monitoring Report Version 04 dated 23/12/2019. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'Udaipur Urja Initiatives Producer Company Limited'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 04 dated 23/12/2019

In our opinion the GHG emissions reductions reported for the project activity are fairly stated in the Monitoring Report (final) Version 04, dated 23/12/2019. 4KES based on outcome of verification activities, certifies in writing that, during the monitoring period 01/10/2017 to 31/07/2019 (including both days), the registered GS PA "Improved Woodstoves in Udaipur - Helping Women and Environment" in the registered GS PA achieved the verified amount of 68,820 tCO<sub>2</sub>e reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the PA

The Verified and certified emission reduction during the monitoring period 01/10/2017 to 31/07/2019 (including both dates) is stated below:

<b>Vintage</b>	<b>Duration</b>	<b>Gold Standard Voluntary emission reductions (tCO<sub>2</sub>e)</b>
2017	01/10/2017 – 31/12/2017	10,078
2018	01/01/2018 – 31/12/2018	38,806
2019	01/01/2019 – 31/07/2019	19,936
<b>Total</b>	<b>01/10/2017 to 31/07/2019</b>	<b>68,820</b>

## Appendix 1. Abbreviations

Abbreviations	Full texts
4KES	4K Earth Science Pvt. Ltd
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CH4	Methane
CL	Clarification Request
CO2e	Carbon dioxide equivalent
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
FCN	Fair Climate Network
GHGs	Greenhouse Gas(es)
GS	Gold Standard
GVC	Gram Vikas Committees
GVK	Gram Vikas Kosh
GWP	Global Warming Potential
HH	Household
ICS	Improved Cook Stove
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
NCV	Net Calorific Value
NGO	Non Governmental Organisation
PE	Project Emissions
PDD	Project Design Document
PS	Project Standard
PCIA	Partnership for Clean Indoor Air
PCP	Project Cycle Procedure
QA/QC	Quality Assurance/Quality Control
SD	Sustainable Development
SDG	Sustainable Development Goal
SHG	Self Help Group
UNFCCC	United Nations Framework Convention on Climate Change
UUI	Udaipur Urja Initiatives Producer Company Limited
VER	Verified Emission Reduction
VVB	Validation and Verification Body
VVS	Validation & Verification Standard
WBT	Water Boiling Test

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

<u><i>Certificate of Competence</i></u>						
<b>Name</b>	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	<b>Ma Paa Puratchikkanal</b>				
<b>Qualification Procedure</b>	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
<b>Appointed to work as:</b>						
	<b>CDM Validator/Verifier</b>	<b>Team Leader</b>	<b>Team Member</b>	<b>Technical Expert</b>	<b>Technical Reviewer</b>	<b>Financial Expert</b>
<i>Appointed</i>	Yes	Yes	Yes	Yes	Yes	No
<i>Appointed Date</i>	29-07-2019					
<b>Authorized to work as Technical Expert for:</b>						
<i>Authorized Technical Area</i>	<b>Sectoral Scope</b>		<b>TA Code</b>	<b>Technical Area within the scope</b>		
	Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
	Energy demand		3.1	Energy demand		
	Construction		6.1	Construction		
	Waste handling and disposal		13.1	Solid waste and wastewater		
	Agriculture		15.1	Agriculture		
<b>Authorized to work as Local Expert for:</b>						
<i>Country/Countries</i>	India					
<b>Compliance check by:</b> Anand S. R.						

<u><i>Certificate of Competence</i></u>						
<b>Name</b>	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	<b>Narendra Kumar .R</b>				
<b>Qualification Procedure</b>	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
<b>Appointed to work as:</b>						
	<b>CDM Validator/Verifier</b>	<b>Team Leader</b>	<b>Team Member</b>	<b>Technical Expert</b>	<b>Technical Reviewer</b>	<b>Financial Expert</b>
<i>Appointed</i>	Yes	Yes	Yes	Yes	Yes	No
<i>Appointed Date</i>	29-07-2019					
<b>Authorized to work as Technical Expert for:</b>						
<i>Authorized Technical Area</i>	<b>Sectoral Scope</b>		<b>TA Code</b>	<b>Technical Area within the scope</b>		
	Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
	Energy demand		3.1	Energy demand		
	Waste handling and disposal		13.1	Solid waste and wastewater		

<b>Authorized to work as Local Expert for:</b>			
<b>Country/Countries</b>	India		
<b>Compliance check by:</b> Anand S. R.			

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UUI	Monitoring Report	Version 01, dated 10/09/2019	UUI
	UUI	Monitoring Report	Version 02, dated 10/10/2019	UUI
	UUI	Monitoring Report	Version 03, dated 25/11/2019	UUI
	UUI	Monitoring Report	Version 04, dated 23/12/2019	
2	UUI	VER Calculation Sheet	Version 01	UUI
	UUI	VER Calculation Sheet	Version 02	UUI
3	UUI	Latest approved PDD	Version 5, 02/01/2018	UUI
4	UUI	Latest approved Passport	<a href="#">Version 4, dated 23/03/2017</a>	Publicly available
5	Earthood	First Verification Report	<a href="#">Version 1.2, dated 14/05/2018</a>	Publicly available
6	UNFCCC	AMS II.G- Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass	<a href="#">Version 03</a>	Publicly available
7	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	<a href="#">Web Link</a>	Publicly available
8	UNFCCC	Kyoto Protocol (1997)	<a href="#">Web Link</a>	Publicly available
9	GS	Template: Gold standard for the global goals Monitoring report	<a href="#">Version 01</a>	Publicly available
10	UNFCCC	CDM project standard for project activities	<a href="#">Version 02</a>	Publicly available
11	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	<a href="#">Version 07</a>	Publicly available
	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities	<a href="#">Version 04</a>	Publicly available
12	UNFCCC	CDM validation and verification standard for project activities	<a href="#">Version 02</a>	Publicly available
13	UNFCCC	Glossary "CDM terms"	<a href="#">Version 08</a>	Publicly available
14	UUI	ICS basic record set: - ICS distribution records - End user agreement for VER ownership	-	UUI
15	UUI	Excel sheets: Monitoring sheet -2017 Monitoring sheet -2018	-	UUI



		Monitoring sheet- 2019		
16	UUI	Excel sheet: Monitoring Sustainable Development Indicators analysis	-	UUI
17	UUI	Training Records (Attendance sheet, meeting minutes & Photographs): <ul style="list-style-type: none"> <li>- Monitor training</li> <li>- Mobile training</li> <li>- Staff training</li> <li>- Community Meeting</li> <li>- World Environment Day Campaign</li> <li>- Organisation training</li> </ul>	-	UUI
18	UUI	Records of non-working, repair details of ICS & traditional stove usage monitored by village monitors	-	UUI
19	UUI	Excel sheet: Stove repair & replacement database	-	UUI
20	UUI	Water Boiling Test result and efficiency calculation sheets	-	UUI
21	Indian school of mines	Efficiency test certificate for Greenway smart stove	Dated 20/10/2011	UUI
22	IIT, Varanasi	Efficiency test certificate for Greenway Jumbo stove	Dated 17/12/2015	UUI
23	PCIA	PCIA procedures for Water Boiling Test	<a href="#">Version 03, January 2007</a>	Publically available
24	UUI	Kitchen performance test result (for the estimation of fuel wood consumption for 10 different cooking activities)	-	UUI
25	FSI	State of Forest Report, Forest Survey of India, Ministry of Environment and Forests, Government of India, 2003	FSI 2003	Publically available
26	Duke University	Report: Adoption and short-term impacts of improved biomass cookstoves in Udaipur, Rajasthan	<a href="#">July 2017</a>	Publically available
27	GS	Email: Design change approval confirmation from GS	10/01/2018	UUI
28	UUI	GVK contribution records Sample Bank receipt of money deposits Explanation on usage of GVK fund	-	UUI

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

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

<b>FAR ID</b>	Xx	<b>Section no.</b>		<b>Date: DD/MM/YYYY</b>
<b>Description of FAR</b>				
<i>No FARs from previous verification</i>				
<b>Project participant response</b>				<b>Date: DD/MM/YYYY</b>
N/A				
<b>Documentation provided by project participant</b>				
N/A				
<b>VVB assessment</b>				<b>Date: DD/MM/YYYY</b>

Table 2. CL from this Verification

<b>CL ID</b>	01	<b>Section no.</b>	Title page	<b>Date: 09/10/2019</b>
<b>Description of CL</b>				
<p>In the title page, the date of design certification date is mentioned as 02/01/2018 which is the date of latest PDD submitted for design change approval. The initial design certification approval date shall be mentioned here.</p> <p>The latest PDD available at the GS registry project page is version 3.3 (dated 18/01/2013). But the MR, PP refers the PDD version 5 (dated 02/01/2018) which is submitted for the design change approval. PP is requested to submit this PDD and the design change approval confirmation from Gold Standard.</p> <p>The PP name mentioned in the MR is not consistent with the PP name in the registered PDD. The PP name in the MR is Udaipur Urja Initiatives Producer Company Limited; but the PP name mentioned in the PDD is Seva Mandir. Clarify</p>				
<b>Project participant response</b>				<b>Date: 12/10/2019</b>
<p><i>The PDD date and Version applicable to the Monitoring Period is Version 5, dated 02/01/2018. This is the Version of the PDD after design change. As this is the applicable PDD, the latest PDD version and date is mentioned</i></p> <p><i>The latest PDD is submitted along with the revised Monitoring Report, which is Version 5, dated 02/01/2018. The design change approval confirmation from Gold Standard is also submitted for confirmation</i></p> <p><i>The PP is Udaipur Urja Initiatives Producer Company Limited, which was changed when the project transitioned from CDM as a GS CDM project to GS as a GS VER Project. Kindly see the GS Registry Website at <a href="https://registry.goldstandard.org/projects/details/16">https://registry.goldstandard.org/projects/details/16</a> wherein the PP is mentioned as Udaipur Urja Initiatives Producer Company Limited</i></p>				
<b>Documentation provided by project participant</b>				
<i>Revised Monitoring Report; the latest applicable PDD Version 5, dated 02/01/2018.</i>				
<b>VVB assessment</b>				<b>Date: 14/10/2019</b>

<p>The PP has made modification to the design and the same is approved by PDD. Reference to the latest PDD ie, Version 5, dated 02/01/2018 (approved in design change) has been provided. This is found to be appropriate.</p> <p>The latest PDD Version 5, dated 02/01/2018 which is approved GS as a part of design change approval has been verified. Also the approval from GS for the approval on design change is verified and found to be OK.</p> <p>As per the latest PDD (Version 5, dated 02/01/2018) the PP name is Udaipur Urja Initiatives Producer Company Limited. It is also reconfirmed from the GS registry. Hence OK.</p> <p>CL is closed</p>
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<b>CL ID</b>	02	<b>Section no.</b>	D.1	<b>Date:</b> 09/10/2019
<b>Description of CL</b>				
The fixed parameter value mentioned in the MR is not consistent with the current monitoring report. As per PDD, the value of the parameter 'Diversion of non-renewable biomass saved under the project activity by non-project households' is fixed as 0.16 t/HH/year. But the value considered in the MR is 0.11 t/HH/year. Clarify				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
<i>Kindly refer to the latest PDD version 5. The fixed parameter for Diversion of non-renewable biomass saved under the project activity by non-project households' is 0.16 t/HH/year.</i>				
<b>Documentation provided by project participant</b>				
<i>latest applicable PDD Version 5, dated 02/01/2018</i>				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019
The latest PDD (version 5, 02/01/2018) is verified and found that the biomass saved under project activity by non-project households is 0.16 t/HH/yr. Hence, the value mentioned in the MR is correct.				
CL is closed.				

<b>CL ID</b>	03	<b>Section no.</b>	Monitoring sheets	<b>Date:</b> 09/10/2019
<b>Description of CL</b>				
The monitoring status provided for some of the households in the monitoring sheets shows that the family is migrated. <ul style="list-style-type: none"> <li>But no ICS non-usage days considered for few of the migrated households (Eg. 2018 data: A1017, A1536, A2110 etc)</li> <li>Similarly, for the few household migrated, instead of using code 1 (to prepare complete food), Code 6 (To prepare tea only) &amp; Code 9 (to prepare food for livestock) are used. (Eg 2018 data: A1099, A2100, A2858 etc)</li> </ul> This results in wrong estimation of fuel wood consumption due to non-usage of ICS. Clarify				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
<i>The data was not recorded for migrated families as the village volunteers did not visit them. For these families, the ER calculations are considered as zero. Kindly refer to the VER calculations sheet for these migrated families</i>				
<i>All these families mentioned are families who migrated back into the project area in 2018. They are using ICS and were being monitored since 2018. But they were included for emission reduction calculations only from 2019. During 2018, emission reductions were not estimated for these families because of uncertainty of their presence and their migration back. Hence, though the monitoring sheet though shows these families using ICS along with traditional stoves usage, their ER calculations until 2018 was considered as zero and included only in 2019. This is a conservative approach.</i>				
<b>Documentation provided by project participant</b>				
NA				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019
The VER calculation sheet is checked and found that the emission reduction is considered zero for all the migrated households for the specific years. For the families who have migrated back, the emission reduction is considered only from the next here. This is found to be appropriate.				
CL is closed.				

<b>CL ID</b>	04	<b>Section no.</b>	Monitoring sheets	<b>Date:</b> 09/10/2019
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Description of CL							
Some of the families migrated during the specific year are not considered as a migrated households in the subsequent years. In specific check the below migrated households:							
Households considered in 2018 (1) & not considered in 2018 (2)	A1099	A2100	A2858	A3567	A3950	B1405	B1444
	B585	B627	G234	J1	J1042	J1061	J2012
	J2277	J3298	J892	K2650	K3642	K767	
Households considered in 2018 (2) & not considered in 2019	A2110	G1334	J1960	J734	K1052	K340	K405
Clarify.							
<b>Project participant response</b>						<b>Date:</b> 12/10/2019	
<i>As can be seen from the VER calculation sheet these are families that have relocated back into the project area. In the previous years they had migrated out of the project area. Though they were using the stoves, it was not considered for emission reduction calculations as these houses were not visited by the village volunteers and monitored for usage.</i>							
<b>Documentation provided by project participant</b>							
NA							
<b>VVB assessment</b>						<b>Date:</b> 14/10/2019	
As per PP those families have migrated back to their home location. Also during site visit some of those households and village volunteers are interviewed and they also confirmed the same. Hence OK. CL closed.							

**Table 3. CAR from this verification**

CAR ID	01	Section no.	D.2	Date:	09/10/2019
<b>Description of CAR</b>					
For the monitoring parameter 'Operation days of ICS', it refers the standard fuel wood consumption for 10 various food preparation provided in the monitoring excel sheets for estimation of fuel wood consumption during the non-usage of ICS . However, there is no explanation or source provided for the considered standard fuel wood consumption values.					
<b>Project participant response</b>					<b>Date:</b> 12/10/2019
<i>Fuelwood requirement for cooking each of the food items was done during the previous monitoring period. This was done for about 9 families for 3 days continuously. The percent use of fuelwood for various food items was applied to the baseline fuelwood use. The excel sheet with the tests are submitted to the VVB.</i>					
<b>Documentation provided by project participant</b>					
<i>Excel sheet with the data of fuelwood required for cooking each of the food item.</i>					
<b>VVB assessment</b>					<b>Date:</b> 14/10/2019
The fuel wood consumption for preparation of the 10 various food items were done though 3 days test at the sample households. The sample test results were checked and crosschecked with the test data sheet and the test result provided in the excel sheet is found to be correct. Hence, the estimation of fuel consumption for preparation of 10 major food items is found to be correct.					
CAR is closed					

CAR ID	02	Section no.	E.3	Date:	09/10/2019
<b>Description of CAR</b>					
PP considered 5% leakage emission for this project activity since PP is not opted for sample survey at the non-project households. However, the actual leakage is estimated is more than 5%. This is due to the baseline emission estimations are rounded down for all the households; but the leakage calculation is not rounded down for all the households. A uniform approach shall be considered for the both baseline and leakage calculation.					
<b>Project participant response</b>					<b>Date:</b> 12/10/2019
<i>A uniform approach has been adopted and applied. The total baseline emissions and Emission Reductions are rounded off and leakage determined. The leakage value is now 5%.</i>					
<b>Documentation provided by project participant</b>					
<i>Revised VER calculations sheet and revised Monitoring Report</i>					
<b>VVB assessment</b>					<b>Date:</b> 14/10/2019

Uniform approach for baseline and leakage emission calculation is adopted and now the leakage emission estimated is 5% of the baseline emission. Hence OK.
CAR is closed.

<b>CAR ID</b>	03	<b>Section no.</b>	E.4	<b>Date:</b> 09/10/2019
<b>Description of CAR</b>				
1. The list of the replaced stoves during the year 2017 & 2019 are not provided for verification				
2. The value of the number of stoves replaced during the year 2018 is not consistent with the list of replaced stoves provided in the year 2018 monitoring sheet.				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
1. <i>The list of the replaced stoves are provided as excel sheet and also included under remarks column in the VER calculations sheet.</i>				
2. <i>The number of replaced stove during the year 2018 is now corrected</i>				
<b>Documentation provided by project participant</b>				
<i>Excel sheet with the details of repair and replacement of ICS, revised VER calculations sheet with the details of replaced stoves.</i>				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019
1. The list of stoves replaced during the 2017 & 2019 are now provided. Also crosschecked the same in the remarks column in the VER calculation.				
2. The number replaced stove during the year 2018 is corrected now and the revised value is consistent with the monitoring sheet				
CAR is closed				

<b>CAR ID</b>	04	<b>Section no.</b>	E.4	<b>Date:</b> 09/10/2019
<b>Description of CAR</b>				
The following training records are not submitted for verification to support the relevant SD monitoring parameters:				
<ul style="list-style-type: none"> <li>• Training records (for Monitor training, Mobile training, Staff training, Community meeting, world environmental day campaign&amp; organizational training)</li> <li>• The employment records to support the number of jobs created for men &amp; women</li> <li>• Document supporting the contribution to GVC.</li> <li>• Document supporting the purchase and selling cost of ICS</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
<i>The following documents are provided</i>				
<ul style="list-style-type: none"> <li>- <i>Training records</i></li> <li>- <i>The employment records for jobs created</i></li> <li>- <i>The contribution to GVC</i></li> <li>- <i>The purchase invoice and the End User agreement with the cost of ICS to the end-users.</i></li> </ul>				
<b>Documentation provided by project participant</b>				
<ul style="list-style-type: none"> <li>- <i>Training records</i></li> <li>- <i>The employment records for jobs created</i></li> <li>- <i>The contribution to GVC</i></li> <li>- <i>The purchase invoice and the End User agreement with the cost of ICS to the end-users.</i></li> </ul>				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019
All the requested documents are submitted. The documents are verified and found to be consistent with the details provided under the monitoring of SD parameters.				
CAR is closed				

<b>CAR ID</b>	05	<b>Section no.</b>	E.4	<b>Date:</b> 09/10/2019
<b>Description of CAR</b>				

Under the SD parameter 'Livelihood of the Poor'	
<ol style="list-style-type: none"> <li>1. A study conducted by study conducted by Duke University at the project area is referred for the time saved from fuel wood collection due to the project activity. PP is requested to submit the study report for verification</li> <li>2. It also refers 'time diaries' filled by primary cook as one of the monitoring procedure. However, there no explanation is provided about this monitoring. There is no reference found passport also regarding this.</li> <li>3. As per passport this parameter should be monitored using sample survey. However, the sample survey details are not presented in the table.</li> </ol>	
<b>Project participant response</b>	<b>Date:</b> 12/10/2019
<ol style="list-style-type: none"> <li>1. The study of Duke University - Adoption and short-term impacts of improved biomass cookstoves in Udaipur, Rajasthan is enclosed.</li> <li>2. The time diaries was part of the study conducted by the Duke University. The text is revised to clearly state this fact.</li> <li>3. The parameter is monitored using sample survey and conclusions drawn. The text is again clearly edited to bring clarity.</li> </ol>	
<b>Documentation provided by project participant</b>	
Paper Adoption and short-term impacts of improved biomass cookstoves in Udaipur, Rajasthan, July 2017. Revised Monitoring Report	
<b>VVB assessment</b>	<b>Date:</b> 14/10/2019
<ol style="list-style-type: none"> <li>1. The report of the study conducted by Duke University is now provided. The study results provided in the report regarding the time saved form fuel wood collection due to the use of ICS is consistent with the details provided in the MR.</li> <li>2. The text is corrected now. The time diaries are part of the report prepared by Duke University. The same is verified form the report and found to be Ok.</li> <li>3. The sample survey results are provided in the MR.</li> </ol> <p>CAR is closed</p>	

<b>CAR ID</b>	06	<b>Section no.</b>	VER Calculation 2019	<b>Date:</b> 09/10/2019
<b>Description of CAR</b>				
The 'Fuel wood Replacement in tones' calculation provided in the VER calculation sheet is not correct.				
The fuel wood replacement for the specific period should be calculated from fuel wood replacement (ie, $B_{y,savings}$ ) for the complete year (2.19 tonnes/HH/yr). But it is calculated based on the value 3.12 tonnes/HH/yr which is a baseline fuel wood consumption.				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
<p>The Emission Reductions are calculated with <math>B_{y,savings}</math>. The calculations includes the formula for estimation of <math>B_{y,savings}</math> and ER calculations in the same cell. Kindly refer to Column S,T for Year 2017; AA, AB for Year 2018 and AI, AJ for 2019, which has the equation <math>B_{old} * (1 - n_{old}/n_{new})</math>, which determines the fuelwood savings based on the efficiency of the ICS stove. Later it is multiplied by <math>f_{NRB,y} * NCV_{biomass} * EF_{projected\_fossilfuel}</math></p>				
<b>Documentation provided by project participant</b>				
-				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019
The emission reduction calculation includes calculation of fuel wood replacement. Hence, the calculation provided is correct.				
CAR is closed				

<b>CAR ID</b>	07	<b>Section no.</b>	VER Calculation 2019	<b>Date:</b> 09/10/2019
<b>Description of CAR</b>				
The calculation of age of stove by 31 <sup>st</sup> December 2018 and 31 <sup>st</sup> July 2019 is not correct. It considers 1 day extra in both the calculation.				
<b>Project participant response</b>				<b>Date:</b> 12/10/2019
The age of the stoves by 31 <sup>st</sup> December 2018 and July 2019 is corrected. This has accordingly changed the emission reduction calculations, which is corrected in the Revised Monitoring Report.				
<b>Documentation provided by project participant</b>				
The revised VER calculations sheet and the revised Monitoring Report with corrections of emission reductions				
<b>VVB assessment</b>				<b>Date:</b> 14/10/2019

The calculation of age of stove by 31<sup>st</sup> December 2018 and 31<sup>st</sup> July 2019 is now corrected. And the revised emission reductions are now updated in the MR also.

CAR is closed

**Table 4. FAR from this validation**

<b>FAR ID</b>	<b>xx</b>	<b>Section no.</b>	<b>Date: DD/MM/YYYY</b>
<b>Description of FAR</b>			
N/A			
<b>Project participant response</b>			<b>Date: DD/MM/YYYY</b>
<b>Documentation provided by project participant</b>			
<b>VVB assessment</b>			<b>Date: DD/MM/YYYY</b>

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### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li> <li>Make structural and editorial improvements.</li> </ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory  
Document Type: Form  
Business Function: Issuance  
Keywords: project activities, verifying and certifying