



GOLD STANDARD VERIFICATION REPORT

- 4TH PERIODIC VERIFICATION-

HESTIAN INNOVATION LTD.

**INTEGRATED BIOMASS ENERGY CONSERVATION PROJECT,
MALAWI**

GS REF. No: GS613

**Monitoring Period: 2012-10-02 to 2013-10-01
(incl. both days)**

Report No: 13GS08050 – 14/148

Date: 2015-02-18

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Verification Report:	Report No.	Rev. No.	Date of 1 st issue:	Date of this rev.
	13GS08050	0	2015-02-18	2015-02-18
Project:	Title:		Registration date:	GS-No.:
	Integrated Biomass Energy Conservation Project, Malawi		2009-09-09	GS 613
	Non Annex 1 Country:		Annex 1 Country:	
	Malawi			
Project Participant(s):	PP from Non-Annex 1 Country:		PP from Non-Annex 1 Country:	
	Hestian Innovation Ltd.			
Applied methodology/ies:	Title:		Version No.:	Scope:
	“Technologies and practices to displace decentralised thermal energy consumption”		01	3/3.1
Monitoring:	Monitoring period (MP):		No. of days:	MP No.
	2012-10-02 to 2013-10-01 - both days included		365	4
Monitoring report:	Title:		Draft version:	Final version:
	Integrated Biomass Energy Conservation Project, Malawi		01	05
Verification team / Technical Review and Final Approval	Verification Team:		Technical review:	Final approval:
	Gregor Kochaniewicz (TL) David Lubanga (TM)		Kunal Rami Stefan Winter	Kunal Rami
Summary of Verification Opinion:	Hestian Innovation Ltd has commissioned TÜV NORD JI/CDM Certification Program to carry out the 4th periodic verification of the project: “Integrated Biomass Energy Conservation Project, Malawi”, with regard to the relevant Gold Standard requirements. As a result of this verification, the verifier confirms that: ☒ all operations of the project are implemented and installed as planned and described in the validated project design document and Gold Standard additional Annexes to the project design document, ☒ the monitoring plan is in accordance with the applied approved GS methodology, ☒ the monitoring plan as set out in the validated project design document and the validated additional Annexes has been followed, ☒ the project contributes to sustainability development ☒ the monitoring system is in place and functional. The project has generated GHG emission reductions, and ☒ the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:			
Emission reductions: [t CO _{2e}]	Verified amount			As per PDD:
	78,044 tCO _{2e}			77,500 tCO _{2e}
Document information:	Filename:			No. of pages:
	2015-02-18_FValReport_Malawi			116

Abbreviations:

CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
ER	Emission Reduction
FAR	Forward Action Request
FES	Fixed Esperanza Stove
GHG	Greenhouse gas(es)
GS	Gold Standard
ICS	Institutional Cook Stove
MP	Monitoring Plan
MR	Monitoring Report
PCS	Portable Ceramic Cook stove
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
RB	Rocket Barn
SD	Suppressed Demand
UCS	Urban Cook Stove
UNFCCC	United Nations Framework Convention on Climate Change
XLS	Emission Reduction Calculation Spread Sheet
TN CERT	TÜV NORD Certification GmbH
GST	Gold Standard Toolkit (GSv2.1)
GSP	Gold Standard Passport

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1. INTRODUCTION

Hestian Innovation Ltd. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 4th periodic verification of the project

“Integrated Biomass Energy Conservation Project, Malawi”

with regard to the relevant requirements for Gold Standard project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered GS project number GS 613.

GHG data for the monitoring period covering 2012-10-02 to 2013-10-01 was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard ^{/VVS/} of the UNFCCC as well as the Gold Standard Validation and Verification Manual for Voluntary Offset Projects ^{/GS-VVM/}.

This report summarizes the findings and conclusions of this 4th periodic verification of the above mentioned GS registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD and GS Passport,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document ^{/PDD/}, the GS approved post-registration design change GS613 PDD version 06 ^{/PDD06/}, the monitoring report ^{/MR/}, emission reduction calculation spreadsheet ^{/XL-summary/}, the registered GS validation report ^{/VAL/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available as required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:



- Article 12 of the Kyoto Protocol^{/KP/},
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard^{/VVS/},
- Gold Standard Version2.1^{/GS/}
- Monitoring plan as given in the registered GS-VER-PDD^{/PDD06/},
- Approved Gold standard methodology i.e. *Gold Standard Technologies and Practices to Displace Decentralised Thermal Energy Consumption – 11/04/2011*^{/METH/}.
- Gold Standard Passport^{/GSP/}
-

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data
Project title	Integrated Biomass Energy Conservation Project, Malawi
Project size	☐ Large Scale ☒ Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	☐ 1 Energy Industries (renewable- /non-renewable sources)
	☐ 2 Energy distribution
	☒ 3 Energy demand
	☐ 4 Manufacturing industries
	☐ 5 Chemical industry
	☐ 6 Construction
	☐ 7 Transport
	☐ 8 Mining/Mineral production
	☐ 9 Metal production
	☐ 10 Fugitive emissions from fuels (solid, oil and gas)
	☐ 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐ 12 Solvents use
	☐ 13 Waste handling and disposal
	☐ 14 Afforestation and Reforestation
	☐ 15 Agriculture
Applied Methodology	<i>Gold Standard Technologies and Practices to Displace Decentralised Thermal Energy Consumption – 11/04/2011</i>
Technical Area(s)	3/3.1: Energy Demand
GS registration No.	GS613
Crediting period	☒ Renewable Crediting Period (7 y) ☐ Fixed Crediting Period (10 y)

2.2. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-2.

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration	2010-10-01	<i>registered</i>
2	Start of crediting period	2008-11-24	As per GS website
3	Retroactive Monitoring period	2008-11-24 to 2010-10-01	issued
4	2 nd Monitoring period	2010-10-02 to 2011-10-01	issued
5	3 rd Monitoring period	2011-10-02 to 2012-10-01	issued



#	Item	Time	Status
5	4th Monitoring period	2012-10-02 to 2013-10-01	On-going

2.3. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Malawi	Hestian Innovation Ltd.
Other involved party/ies		

2.4. Project Location

The details of the project location are given in table 2-4:

Table 2-4: Project Location

No.	Project Location
Host Country	Republic of Malawi
Region:	Southern, Central and Northern Provinces
Project location address:	Lilongwe, Republic of Malawi

2.5. Technical Project Description

The key parameters for the project are given in table 2-5:

Table 2-5: Technical data of the plant

Parameter	Unit	Value
Stove types:	No.	
Institutional cook stove (ICS)		260
Portable ceramic stove (PCS)		20,142
Institutional cook stove Efficiency	tonnes/10,000 meals/year	0,8544
Portable ceramic stove Efficiency	%	31
ICS Stove material		Bricks, cement
PCS Stove material		Ceramic Bricks and Liner
Fuel		Fuel wood

This Integrated Biomass Energy Conservation GS registered project reduces greenhouse emissions from non-renewable biomass fuel by dissemination of improved Portable ceramic cookstoves (PCS) and fuel efficient Institutional cook

stoves (ICS) to replace existing inefficient traditional three-stone fireplace cooking in households and public institutions all the three regions of Malawi. The project involves the dissemination of the two types of improved cookstoves contrary to five technologies as reported in the previous monitoring periods.

While these stoves significantly reduce greenhouse gas emissions, they simultaneously provide co-benefits to users and families in the form of relief from high fuel costs, reduced exposure to health-damaging airborne pollutants, faster cooking (resulting in time-savings), lower risk of kitchen fire, and increased cleanliness in the kitchen. Finally, they curb deforestation by decreasing demand for fuel wood hence protection of water bodies and biodiversity. Methodology and verification sequence

2.6. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The sequence of the verification is given in the table 3.1 below:

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2013-08-19
On-site visit	2014-11-10 - 2014-11-14
Draft reporting finalised	2014-01-16
Final reporting finalised	2015-01-29
Technical review finalised	2015-01-29

2.7. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

2.8. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 1 additional team member, was appointed. Furthermore also the personnel for observation, the technical review and the final approval was determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme Competence ³⁾	Technical Competence ⁴⁾	Verification Competence ⁵⁾	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	Grzegorz Kochaniewicz	TÜV NORD CERT GmbH	TL ^{A)}	LA	☒	3.1	☒	☐	☒
☒ Mr. ☐ Ms.	David Lubanga	TÜV NORD CERT GmbH	TM ^{A)}	A	☒		☐	☒	☒
☐ Mr. ☐ Ms.			ETE ^{B)}	TE	☐		☐	☐	☐
☐ Mr. ☐ Ms.	Stefan Winter	TÜV NORD CERT GmbH	TR ^{B)}	SA	☒	3.1	☐	☐	☐
☒ Mr. ☐ Ms.	Kunal Rami	TÜV NORD CERT GmbH	TR/FA ^{B)}	SA	☒	1.2	☒	☐	☐

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

- 2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert
- 3) GHG auditor status (at least Assessor)
- 4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)
- 5) In case of verification projects
 - A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE
 - B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Statements of competence for the above mentioned team members are enclosed in annex 2 of this report.

2.9. Publication of the Monitoring Report

The draft Gold Standard MR^{/MR/} and Monitoring Usage Survey Report^{/MUS/}, as received from the project participants, has not been made publicly available in the Gold Standard website, as it is not required to publish the monitoring report under the current GS rules^{/GST/GSR/}.

2.10. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
The following potential risks were identified and divided and structured according to the possible areas of occurrence.	The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks. The following measures are implemented:	Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.	The additional verification testing performed is described. Testing may include: - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.

The completed table A-1 is enclosed in the annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a GS project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic GS verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	Reference	Verification Team Comments	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-2 are linked to the various requirements the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

2.11. Desk review

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

- the last revision of the PDD including the monitoring plan^{/PDD/}, the additional annexes to the PDD GS including the GS monitoring matrix.
- the last revision of the validation report^{/VAL/},
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet
- The Verification Report for Monitoring period 3^{/MR3/}.
- The emission reduction calculation for Monitoring period 3^{/XLS3/}.

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

2.12. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.
- Checking for possibility of double counting and/or leakage.

During the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of Hestian Innovation Ltd including the operational staff of the local entity, Area 55 were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel	- General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - 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 - GHG emission reduction calculation - Procedural aspects of the verification - Maintenance - Environmental aspect

Interviewed Persons / Entities	Interview topics
	- Sustainability indicators - Data management - Traceability and integrity of data - Sampling approach - PFT Studies - ER calculations

2.13. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

2.14. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

2.15. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

2.16. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

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

2.17. Final approval

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

After this step the verification team will submit the verification report including the verification opinion to the client via e-mail and to Gold Standard via the GS registry.

3. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report^{/MR/}, the calculation spreadsheet^{/XLS/}, PDD^{/PDD/}, the Validation Report^{/VAL/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
H - Project history	3	0	0
U - Update on Changes and Incidents	1	0	0
R - Monitoring Report – General	2	3	0
P - Monitoring Parameters	5	2	0
C - Emission Reduction Calculation	1	0	0
Q - Quality Management	0	0	0
SDM- Sustainable Development	2	2	1
SUM	14	7	1

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Finding:	H1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP is requested to clarify how the FAR from previous verification has been addressed in this MP4. <i>FAR P4: Leakage was not explicitly addressed in the usage survey report. Improvement of monitoring of leakage will be checked during subsequent monitoring period.</i>		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The PP re-examined section 6 of the methodology as well as MR3 verification findings pertaining to leakage, specifically focusing on the following potential sources of leakage for GS613: Finding P1 – the lack of survey questions specifically addressing the use of the stoves for space heating; and continued use of the baseline stove. For MP4, the PP revised the kitchen survey questionnaire to specifically offer "space heating" as an option offered with "cooking and heating water" and "other" as main task for the stove(s). The question itself was also amended from the usual "Main task for stove" requiring one response, to "Main task(s)..." which would allow for respondents to indicate a second or third main use for the stove. (Please refer to scanned questionnaire in PCS usage and monitoring report.) Of the 117 survey respondents using Chitetezo Mbaula, none claimed space heating to be a main use for their stove(s). In the baseline scenario conducted in March 2009 none of the respondents claimed space heating was a use of the three stone fire. The PP also attempted to capture use of continued use of baseline stoves together with the project stove by specifically asking how often the baseline stove is used (never, seldom or often), with "seldom" defined as once a week on average, and "often" being defined as at least once every 2 days. Analysis of the survey results (calculations in E.3 of the monitoring report), yielded a total of 1.98% leakage. The PP opted to apply 5% leakage to the overall ERs for PCS households so that estimations of emission reductions remain conservative.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Revised usage survey questionnaire for Portable Ceramic Stoves (PCS) was used during November 2013 Monitoring Survey. Based on the result of the survey PP calculated possible leakage due to use of PCS for space heating and use of 3 stone fire (stove in the baseline), to be 1,98%. Nevertheless PP has discounted conservatively 5% of ER due to possibility of leakage. Based on the review of provided Monitoring Survey Report and on experience from onsite visit, verification team confirms the conservativeness of the 5% estimated leakage.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding:	H2																																
Classification	☒ CAR	☐ CL	☐ FAR																														
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP shall explain how the FAR from previous verification has been addressed during this periodic verification. <i>FAR Q1: Taking into consideration the discrepancies in the average technical lifetime of the PCS cook stove surveyed by verification team during two consecutive onsite visits and the calculated by PP based on a statistical model, a validity of the model based on simple random selection of households seems necessary. The updated survey and calculation of the average technical lifetime of the PCS cook stove has to be provided for next periodic verification.</i>																																
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP continued to monitor PCS lifespan in MP4, analysing 144 surveyed households with PCS, yielding the following results: <table><tr><th rowspan="2">Stove Age (Years)</th><th colspan="2">MR4</th><th colspan="2">MR3</th></tr><tr><th>Av. Age of Sample (Months)</th><th>% of Sampled Stoves in Use</th><th>Av. Age of Sample (Months)</th><th>% of Sampled Stoves in Use</th></tr><tr><td>0-1</td><td>7</td><td>84%</td><td>7</td><td>88.4%</td></tr><tr><td>1-2</td><td>21</td><td>78%</td><td>18</td><td>73.4%</td></tr><tr><td>2-3</td><td>33</td><td>61%</td><td>38</td><td>65.8%</td></tr><tr><td>3-4</td><td>43</td><td>60%</td><td>47</td><td>50.3%</td></tr></table> While MR3 item H2 suggested a simple random sample, this action was not logistically or financially viable for the project. Instead, geographic clusters (Group Village Headmen) which contain several villages were random sampled, and a simple random sample was conducted among households in these GVHs that met the average age criteria. This was an improvement in the sample process since GVHs were previously selected based on ease of access (e.g. distance from project office, road condition). The results of MP4 surveys were sufficiently similar to MP3 statistical analysis such that the PP opted to continue using the MR3 lifespan of 1,417 technology days for ER calculations.				Stove Age (Years)	MR4		MR3		Av. Age of Sample (Months)	% of Sampled Stoves in Use	Av. Age of Sample (Months)	% of Sampled Stoves in Use	0-1	7	84%	7	88.4%	1-2	21	78%	18	73.4%	2-3	33	61%	38	65.8%	3-4	43	60%	47	50.3%
Stove Age (Years)	MR4		MR3																														
	Av. Age of Sample (Months)	% of Sampled Stoves in Use	Av. Age of Sample (Months)	% of Sampled Stoves in Use																													
0-1	7	84%	7	88.4%																													
1-2	21	78%	18	73.4%																													
2-3	33	61%	38	65.8%																													
3-4	43	60%	47	50.3%																													
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The VT assessed the repetition of survey and calculation of the average technical lifespan of the PCS cook stove conducted in November 2013 and found the applied methodological approach, selection of Multi-Stage Sampling to be in line with sampling guidelines (EB 50 Annex 30 and EB 75, Annex 8). Nevertheless following inconsistency was found: The Usage & Monitoring Survey Report from November 2013 reports random sampling from the database of 3-5 GVHs from total of over 500 GVHs, but in the provided excel calculation for age 0-4 over 10 GVHs were found. Clarification is requested on how the GVHs were selected.																																



Finding:	H2
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	As per the submitted usage and monitoring survey report dated May 9, 2014, 3-5 GVHs per <u>age group</u> were sampled for survey and in total households were surveyed from 16 GVHs.
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	A total of 144 households were sampled in the surveys and stratified into the age groups distributed within each of the 16 GVHs. The sampling procedure meets the minimum methodology requirements for sample sizes and ages.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	H3
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	FAR1 was raised during the GS three-week issuance review period from previous MP3 verification. <i>FAR 1: The PP will be required to conduct a design change request before future issuances, as the design of the project will be altered if the FES is discontinued.</i>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please refer to email from Gold Standard Regional Manager Africa to PP dated January 29, 2014, Re: Design changes to GS613. Design change is not necessary. In the current monitoring period being reported on, three of the five technologies are not claimed for as their uptake has been limited, and coupled with the monitoring costs their dissemination is not currently economically viable. In case that the scenario changes and that PP decides to claim for these technologies in the future, PP would comply with methodology monitoring requirements (amongst others monitoring frequency) for the respective vintages.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	As per GS ruling design changes are not required ^{/EMAIL/} . PP will not claim any emissions reduction for three of the originally implemented technologies and further maintain information about all technologies.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	U1
Classification	☒ CAR ☐ CL ☐ FAR

Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It was observed that PP reduced the number of originally applied technologies thereby altered the design of the project.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please refer to email from Gold Standard dated January 29, 2014, Re: Design changes to GS613. Design change is not required at the moment for reduction of technologies and no credits are being claimed for these technologies in MR4. In case that the scenario changes and that PP decide to claim for these technologies in the future, PP would comply with methodology monitoring requirements (amongst others monitoring frequency) for the respective vintages.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Information on all five technologies implemented in the project activity was provided in the section A of the MR version 2. In the final MR, only the technologies whose emission reductions are being claimed were included in this and subsequent monitoring round. A justification has been included.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. No information on change of project key personnel during 4 th monitoring period was provided. 2. No information about trainings conducted during 4 th MP was provided.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Please see Employment & Skills Development Excel attached. 2. Please see training document attached.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. List of employment was provided and evidenced of health insurance provided by The Medical Aid Society or Malawi and Horizon Health Ltd. Records show that The Medical Aid Society of Malawi insured only 8 persons in November 2013 and the Horizon Health Ltd 17 persons in March 2014. Further clarification on differences between number of employment and number of insured persons is requested. 2. List of trainings of permanent staff was provided. No training evidences of enumerators, surveyors and manufacturers were provided.		



Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. MASM insurance manifest covered only full-time project staff while the Horizon Insurance manifest also covers temporary workers who are specified in the submitted employment and skills development matrix. Due to the administrative burden of monitoring part-time and full-time producers and promoters, the project does not provide insurance for indirect project staff. 2. Please see revised employment and skills development matrix with training dates for enumerators and stove producers.
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Only permanent staff have been insured and the reasons sufficiently justified. 2. Employment and skills development matrix has been provided for verification and verified onsite through random checks and interviews with key personnel.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Following evidences were not provided: 1. PCS Monitoring Survey Report 2013. 2. ICS Monitoring Survey Report 2013. 3. Aging Stove Test 2013 4. Usage and Monitoring Survey (ICS) 2013 5. Kitchen Test, (ICS) 6. Data and calibration sheet for Voltcraft HS-30		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please see attached for MR4: 1. PCS usage and monitoring survey report 2. ICS usage and monitoring survey report 3. Water Boiling Test report 4. ICS usage and monitoring survey data 5. ICS kitchen test report 6. Voltcraft HS-30 Calibration Report		

Finding:	R2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	PP provided: 1. PCS Usage and Monitoring Survey Report, covering monitoring period October 2, 2012 to October 1, 2013. The usage and monitoring survey resulted in calculation of single usage parameter of 66.96%. The test was correctly conducted and found applicable. 2. ICS Usage and Monitoring Survey Report, conducted in September and October 2013, covering monitoring period October 2, 2012 to October 1, 2013. The usage and monitoring survey resulted in calculation of single usage parameter of 89.40%. The test was correctly conducted and found applicable. 3. Water Boiling Test Report, WBT conducted between May 2012 and March 2013. The WBT was conducted in line with Water Boiling Test protocol 4.1.2, standard. No significant differences in efficiency of aging stove were found. Therefore the initial value from the baseline used in the calculation of suppressed demand was applied. 4. ICS usage and monitoring survey data and excel calculation were provided. 5. ICS Kitchen Performance Test report, for the period covering monitoring period October 2, 2012 to October 1, 2013. 6. Voltcraft HS-30 Operating Instructions, versions 03/09. As per the instruction the scale has resolution of 0.02 kg. No special maintenance is required during the lifetime of the scale.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It is not clear what the replacement figures 112 and 643 given in MR section B.1 stand for.		

Finding:	R3
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Prior to MR3, the PP attempted to capture each household only once in the database, recording replacement stoves and additional stoves (more than 1 stove purchased by household) separate from the sales database used for ER calculations. By MR3, 112 households had been issued replacement PCS stoves while the effort to encourage households to adopt more than one stove had resulted in 643 households having additional stoves. In MR3 and as the project scales up, this becomes increasingly difficult for administration. Therefore, a lifespan approach was adopted for the stoves, removing the need for separate recording of additional and replacement stoves. Since this was already discussed in MR3, the PP has removed this reference from MR4 and future monitoring reports to avoid confusion, since these additional and replacement stoves are not counted for ER calculations.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The information on replaced and second cook stoves distributed during MP3 was removed from the current MP4. The issue has been clarified.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R4
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. It was observed that the emissions reduction for 2012 exceeds the given small scale limit. 2. PP shall also clarify why it was necessary to retroactively add the number of stoves installed during MP3 for MP4, given that the project's SSC limit was reached during MP3.



Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Small scale limit was revised in MR4 due to updated GWP values for CH₄ and N₂O (values the PP originally considered non-monitored parameters) which resulted in recalculation of emission factor of wood (please see calculation in E.1) that uses these values. The overall effect is increase in emission factor of wood from 1.871 in MRs 1 to 3, to 1.944 in MR4. The impact on small scale limit (please see E.4 for detailed calculations) is summarised below: 41,500 tonnes wood/year * 1.944 tonnes CO₂/tonne wood = 80,696 tonnes CO₂/year (revised small scale limit as of MR4) As opposed to 41,500 tonnes wood/year * 1.871 tonnes CO₂/tonne wood = 77,646.5 tonnes CO₂/year (small scale limit prior to MR4) 2. For MR 3, the small scale limit was met by including PCS up to December 5, 2011, with the announced intention in Note 2 under Section B.1 that "Devices which were sold in MP3 but are not included in MR3 will either be grouped into a new project or will be included as necessary for MR4, with the understanding that the emission reductions those devices would have generated in monitoring period 3 cannot be claimed in monitoring period 4." Due to drop offs in technology efficiency, usage, and by the project not claiming emission reductions for stoves over 1,417 days in use (the statistically determined "lifespan" of the project PCS), there was a "drop off" of 2,394 stoves in MP4 (see in ER Calculations Excel for MR4 'PCS DB' cells E1781:E1788). This created a need to include more stoves in the project to generate credits to reach the small scale limit in MR4, and the PP included stoves beginning December 6, 2011 through September 8, 2012.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. The limit of small scale of 180 GWh_{th} corresponding to 41,500 tonnes of wood/ year is now correct in the MP4. The increase of limit of ER was due to revised Emissions Factors for CH₄ and N₂O for the second commitment period. As the revised GWP values are applied only from the 1st of January 2013 using the revised EF value for 2012 is not correct. 2. In order to earn credits lost due to drop offs in use and efficiency, PP has added retroactively the 'orphaned' stoves from MP3 in order to reach the SSC limit during MP4. This is conservative as emission reductions for this already installed stoves were not been claimed during MP3
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Parameters have been revised to reflect old GWP up to December 31, 2012 and new GWP effective January 1, 2013



DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Appropriate corrections have now been carried out for CO ₂ and non-CO ₂ emission factors covering the dates ending and starting 2012-12-31 and 2013-01-01 respectively.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During onsite visit it was established that batch stove deliveries by Area 55 consulting (to some retailers) began in April 2013. Consequently, having ERCs from individual household stove purchases signed and returned has not been 100% and this may undermine the integrity of the reported data. 1. PP shall clarify how it is ensured that all the delivery notes are adequately stored and would be available for random checks. 2. PP shall clarify how the project technology days of the PCSs have been tracked and conservatively estimated in the calculation of emission reductions for MP4.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Area 55 will store hard copy delivery notes/books in main office, enter delivery data into spreadsheet/database and work toward scanning hard copies. 2. PP begins to claim ERs for stoves conservatively beginning one day after stove is sold and only claims for the number of days stove is used in monitoring period. For example, the stoves sold on September 1, 2012 would have spent a total of 365 days in MP4 as a 1-2 year old stove. By calendar period this means the stoves were used 91 days between October 2, 2012 and December 31, 2012 and 275 days between January 1, 2013 and October 1, 2013. In MP5 these same stoves would have spent 365 days in use as a 2-3 year old stove: 91 days October 2, 2013 – December 31, 2013, and 275 days January 1, 2014 – October 1, 2014. The ERs generated by stoves sold on September 1, 2012 in a given monitoring period is the product of the project technology days in that respective monitoring period * the tonnes/CO₂/HH/day for the specific stove age (a value calculated for stoves of each vintage with drop off rates and efficiency losses during the monitoring period factored in).		

Finding:	R5
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. All hard and soft copy records of stove sales including batch stove deliveries will be available at Area 55 premises and will be randomly checked during subsequent verifications. 2. Real issue has not been clarified. In the absence of actual sale dates provided by all retailers for individual stoves after batch deliveries, PP shall demonstrate in this finding how conservative project technology days are determined. It is the DOE's contention that the start of each stove use is not a day after batch deliveries as this could take upto a month to have all delivered stoves sold out. Issue remains open.
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. This is noted. 2. Cross-reference of 1,389 stoves delivered in batch from April 15 – December 29, 2013, against the implementer's total sales records up to September 2014 revealed that contracts were signed (this is done by purchaser of stove) on average 25.25 days after date of bulk delivery (please see analysis Excel). Therefore, the project will conservatively count bulk sales with delivery note but no ER contract at the end of the following month, i.e. batch deliveries throughout April 2013 (beginning April 1) with no ER contract will be entered on May 31, 2013 – an ultra-conservative approach to calculating project technology days.
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	2. The analysis for the batch deliveries has been scrutinized by the verification team^{/XLS/}. The approach of discounting the average days between batch deliveries and actual sale dates is accepted by the verification team.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	R6
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. It has been established onsite that the project participant works closely with Concern Universal, Clioma and other third parties not mentioned exclusively in the provided versions of the monitoring reports. Section C of the MR shall be revised to provide additional information on roles and responsibilities, an organizational structure and the relationship between the PP and the parties. 2. Please also confirm whether Hestian Innovation Ltd is the same as Hestian Rural Innovation Development.



Finding:	R6
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Section C has been appropriately updated. 2. PP also confirms that HRID and Hestian Innovation Ltd. are not the same entity. HRID was a Malawi-registered company with the mandate of disseminating wood saving technologies of GS613. As mentioned in MR3, Area 55 Consulting now assumes key role of project dissemination. Hestian Innovation Ltd. continues to be the PP.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Section C has been revised showing that most of the third parties play differentiated roles in community outreach and stove implementation activities, and do not source funds from ODA. 2. Sufficient as clarified
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P1
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It was observed that: MR4 reports distribution of ICS and PCS stoves during MP3 that were not reported previously in 3 rd Monitoring Period for years 2010, 2011 and 2012. Therefore the distribution of this stove (ICS, PCS) was not verified during MP3. Please refer to table in B1 in MP3 and MP4 as well as ER Calculation excel sheet. The assessment team cannot verify the retroactive distribution of additional stoves due to missing evidences.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	GS613 experienced rapid growth during MP3 as demand for stoves increased. As discussed in note 2 of section B.1 in MR3, only as many devices as necessary to meet the small scale limit would be included in MR3. It was expected that the "orphan stoves" would be absorbed by VPAs under a new PoA being developed by the PP. The PoA registration is still in progress; therefore, the PP opted to claim for these "orphan stoves" in MR4. Please note that they have not been claimed in MR3, adding to the overall conservativeness of the VERs. The PP is not claiming retroactive credits for the stoves (which would mean claiming for the number of days they were used as 1 and 2 year old stoves), but is only claiming for the number of days the stoves spent as 2 year old stoves during MP4. Please see attached emails received by PP (some during MR3 verification) with sales records and communication directly from the field offices where data is entered – with specific emphasis on the main sales record for PCS. For ICS, sales record contains phone numbers for as many institutions as possible, so existence of stoves can be confirmed.

Finding:	P1
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE is aware of higher distribution of cook stove during MP3. This was confirmed by interviews with Hestian Malawi and with Area 55 during previous onsite visit. Nevertheless PP did not report the higher numbers to DOE during MP3 and respectively the verification team did not conduct any onsite check on those cook stoves. As per GS Toolkit version 2.2 paragraph 4.7 site visit is required every 3 years after initial site visit in the first 2 years. Nevertheless it is not clear to DOE how the verification of new cook stoves reported in time where no site visit is performed can be conducted. DOE is to seek guidance from GS on the approach.
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Site visit has now been conducted to verify distribution of these cookstoves.
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	A site visit has been carried out between 2014-11-10 and 2014-11-14 to verify distribution of PCSs and ICSs in the project activity. Random samples of all ages and interviews have been conducted directly with households and institutions in different regions to ascertain the existence and effectiveness of the project technologies. So far no discrepancies have been discovered, and overall emission reductions claimed for MP4 are conservative.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P2
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Assumptions values applied in the ER calculation for: 1. Non-CO2 emission factor from use of biomass, 2. Emission factor of baseline and project fuels, are different from fixed values in the MP of registered PDD
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Non-CO2 emission factor based on GWP for CH4 and N2O which were assumed as fixed at the time of project registration. The emission factor of baseline and project fuel incorporates this non-CO2 emission factor. The PP was informed by GS of revised GWP values during validation process for registration of new PoA (latter half of 2013) and has therefore applied these values. PP was advised by GS that design change is not necessary at this moment to reflect this revision and classify non-CO2 emission factor as a monitored parameter.



DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	As the revised GWP values are applied only from the 1 st of January 2013 using the revised EF value for 2012 is not correct.
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Parameters have been revised to reflect old GWP up to December 31, 2012 and new GWP effective January 1, 2013
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Appropriate corrections have been carried out for CO ₂ and non-CO ₂ emission factors covering the dates ending and starting 2012-12-31 and 2013-01-01 respectively.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The sum of total days used up for technical lifetime of PCS (eg number of days as high as 1432) exceeds the number of days calculated in the statistical analysis (1417).		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP will make appropriate amendment in the ER calculations (original calculation was based on Excel formula to determine lifespan based on 47 month lifespan, as opposed to 1417 days).		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The lifespan of the cook stoves was corrected from 1432 to 1417 in the MR version 2 as well as in the ER calculation. The Emissions reduction calculation was corrected accordingly.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding:	P4		
Classification	☒ CAR	☐ CL	☐ FAR

Finding:	P4
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Following was observed and needs clarification: The number of <u>stove and of eaters</u> was retroactively increased for the year 2010. Eg., on 16 November 2010, 2,96 *10 000 eaters were reported in the MR 2 and MR 3 while on the same day the number increased to 10,05 *10 000 eaters in MR 4.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	As per item C2 in MR3 verification report, for the ICS the number of meals and eaters could vary from year to year based on the capacity and needs of the institution. The PP consequently requested in MR3 that the reporting format be such that the summary presentation will simply reflect the number of ICS disseminated year on year, instead of the previous method of displaying of number of 10,000 meals which is the value used for calculating ERs. During each monitoring period the PP collects data from the surveyed institutions on the number of meals and eaters, and feeding days for the MP.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Verification team agrees that the number of eaters can vary from year to year. Also the presentations of ER calculation with number of stove disseminated contributes to transparency. Further clarifications are requested on: 1. The increase of meals from 29,600 to 100,000 on November 16, 2010. 2. The increase of feeding days in schools (e.g. in Tschawde school the previous number of feeding days of 200/a, what suggests a day school, increased to 365, what suggests a boarding school facility. Provide evidence/confirmation of status and changes from the schools. 3. Explain a numerous commissioning of stove on the same days (e.g. 32 ICS on 2013-09-09; 79 ICS on 2012-09-14). Provide original (in copy) installation and commissioning reports. 4. Increase of adjusted meals from 1,133,700 in MP3 to 14,390,000 in MP4) 5. Inclusions of new stoves commissioned but not reported during previous MPs. Please evidence in original the commissioning dates and installations. 6. Explain 3456 daily primary meals in Balaka Primary School, with no adult meals. 7. Provide a summary of all significant changes of over 10% of previously reported feeding days, number of students and staff. 8. Link the calculation of "Total adjusted adult meals (10,000s) p.a." in the "ICS DB" in ER calculation excel sheet. DOE recommends seeking guidance from GS on the approach.

Finding:	P4
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Original information on feeding days and number of meals and people fed is collected and reported by stove builder when stove is commissioned. The increase for November 16, 2010 is based on new information on actual use of the stove during the usage and monitoring survey and is therefore the most accurate information – but is also subject to change over monitoring periods to reflect personnel turn over and for many schools with feeding programmes, their funding for meals. 2. As per communication from field team, in cases where school feeding days are year round, not all of the students go home when school close; some students remain behind for further studies in preparation for exams and also to finish their syllabus before exams, and some also go for summer studies in preparation for the next class. The information presented in revised TSR is based on information directly obtained from cooks and/or school representatives during 2013 monitoring. 3. Please see commission forms uploaded at https://drive.google.com/folderview?id=0B0t8M7AeIYO_bUNSNHpJVnJtTDA&usp=sharing and note that the values presented at time of commission will in most cases vary from that presented for ER calculations as explained in (1) above. 4. As mentioned during MR3, feeding days and number of people change every 3 – 6 months due to increase or decrease in enrollment, teachers, and community and committee members in the areas. Types of meals also change due to the type of school feeding program with the type of it's going to supply, funding and finances availability and different season types varies with food. To have the schools report to the project every time there is a change is too burdensome for the user and may discourage adoption. The PP has conducted a comparison (see Excel uploaded) and found that in over 50 institutions for survey and KPT, there was an average reduction in total 10,000 meals by 12.17%. PP has therefore applied 12.17% deduction to entire ICS TSR for calculations of ERs. 5. In note 2 under section B.1 of verified final MR3, the PP indicated that "Zero sales reflected for FES, RB, ICS and UCS as GS613's small scale limit is reached by including PCS sales up to December 5, 2011. Devices which were sold in MP3 but are not included in MR3 will either be grouped into a new project or will be included as necessary for MR4, with the understanding that the emission reductions those devices would have generated in monitoring period 3 cannot be claimed in monitoring period 4." Commission forms are uploaded to https://drive.google.com/folderview?id=0B0t8M7AeIYO_bUNSNHpJVnJtTDA&usp=sharing 6. For schools without adult meals, this will be because the staff do not receive meals and feeding programme is restricted to students. Note that values reported for this institution represent actual feeding practices at time of monitoring. 7. Please see summary Excel. 8. Noted. This has been done. 9. Site visit has now been conducted to verify dissemination of these stoves.

Finding:	P4
DOE Assessment #2 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. It was evidenced onsite that the number of eaters and number of days vary greatly even at the same institution. The samples and interviews carried out onsite revealed that for most institutions with an installed ICS, the numbers (eaters & days per year) are mostly under-reported. Therefore, the estimation of the number of meals is conservative. 2. Justification sufficient as per onsite observations. Most of the schools visited at some level of activity year round where staff and remaining students enjoyed at least one meal a day. However, normalization of these estimates is resolved under finding point 4 below and CL P6. 3. Commissioning forms have been provided and checked. It is also determined that there could be time drag between commissioning date and actual reporting by stove builders. The information presented is consistent with information gathered through samples during onsite inspection. 4. As discussed onsite PP has therefore applied 12.172% adjustment factor to entire ICS TSR for calculations of ERs. 5. All commissioning forms were checked randomly onsite and the same are uploaded in the google drive. Issue closed. 6. Sufficiently explained 7. OK as seen 8. Adjusted meals have been linked directly with the ER calculation as per VT request
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P5
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. The efficiency of the PCS is variously described as 31% and 32%. Please confirm the efficiencies of the PCS and ICS and include appropriate evidences 2. PP is also requested to clarify how for parameter Quantity of fuel that is consumed in the project scenario for ICS in year 0 "$P_{P, ICS, 2013}$" $\rightarrow$ 0.035 Kg / adjusted adult meal is less than the half of that was reported for last MP3 which was 0.0854 Kg / adjusted adult meal



Finding:	P5
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	32% is the average efficiency of PCS based on 3 different PCS tested 3 times each by CREEC Uganda. In registered PDD and ER calculations the conservative value of 31% is applied. CREEC report has already been submitted and GSF has accepted 31% efficiency, evidenced by registered PDD. Parameter table for $Eff_{P,PCS}$ appropriately amended to reflect 31% efficiency. Results of WBTs on aging stoves are also included in parameter table and were already verified for MR3. For ICS, WBTs are done for aging stoves every 2 years in this crediting period. Report for KPTs has been submitted for MR4. 2011 baseline and follow up KPT were accepted for MR2. As per approach verified by GSF, efficiency is determined based on quantity of fuel required by stove to cook 10,000 adult equivalent meals. - Awareness and training of stove users has certainly improved over time to contribute to these results, but to be conservative, we could use average of MR3 and 2013 monitoring (average of 0.035 and 0.0854 = 0.060 per adult adjusted meal / 0.602 tonnes per 10,000 adult adjusted meals) for stoves of all ages until we have data for 2015 KPTs
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	- Efficiencies of the PCS and ICS stoves are sufficiently justified - The provided ICS MR4 KPT report^{/KPT/} attributes the improved project stove consumption to better training and experience in the use of the ICSs. The protocol followed in conducting the ICS KPT including the outlined sampling approach has been reviewed in detail and found to have followed prescribed guidelines in the applied GS methodology. The PP has appropriately applied a regression analysis approach in order to project the ICS stove use and efficiency with age. No threat of misrepresentation and/or material misstatements is observed. Nonetheless, the PP has elected to conservatively apply 0.060 Kg / adjusted adult meal which is the average of MP3 and MP4.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P6
Classification	☐ CAR ☒ CL ☐ FAR

Finding:	P6
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During onsite visit it has been established that the project ICSs vary depending on the institutions concerned. PP is to demonstrate how N_{ICS} and quantity of woodfuel consumed are conservatively determined, given the varying number of eaters, meals and days per annum the institutions remain open
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Wood consumption determined by KPT every 2 years in the crediting period (please refer to report on KPT). The standard approved by GSF is quantity of wood to prepare 10,000 adult equivalent meals. During KPT, the number of meals prepared (converted to an adult equivalent meal) is recorded over 72-hour period, together with the quantity of wood (in kg) used to prepare those meals. Quantity of wood per 1 adult equivalent meal (kg) = quantity of wood used in 72 hour period / number of adult equivalent meals prepared in 72 hour period Tonnes wood per 10,000 adult equivalent meals (standard approved metric) = (kg wood per 1 adult equivalent meal * 10,000)/1,000 Please refer to ICS KPT Excel for real case examples of this approach. 12.17% discount factor (obtained by comparing information received from institutions at time of stove commission on feeding days and number of meals to actual feeding days and meals prepared at time of 2013 usage and monitoring surveys and kitchen performance tests; see ICS Variation Analysis Excel) is applied to ALL institutions, reducing their total 10,000 adult meals per year by 12.17% to cater for seasonal changes in feeding days and/or number of people fed. This discounted value is then applied in calculation of N_{ICS} ensuring that the end result of ER calculations is conservative and reflective of changes over time. The PP will continue to compare "commission data" to field data obtained in subsequent monitoring periods for the crediting period to derive appropriate discount factors for subsequent monitoring reports.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	A -12.172% discount factor has been applied to account for data variation in the installed ICSs (meals and feeding days). From DOE perspective this approach is deemed a conservative representation of the variations of samples as seen onsite by the audit team.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	P7
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Finding:	P7		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The value for the $N_{PCS, y}$ is neither correct nor consistent with Excel sheet.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	This is rectified.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	N_{PCS} for this MP4 has been corrected in the calculations		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding:	C1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Values applied in the ER calculation were not conservatively rounded up/down.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP has appropriately revised values in ER calculation to be conservative.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Emissions reduction calculations have been rounded down.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding:	SDM1		
Classification	☒ CAR	☐ CL	☐ FAR

Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Missing evidences: 1. Monitoring Reports of Sustainable Development Indicators was not provided. 2. Clay monitoring excel sheet 3. List of staff, work contracts and proof of insurance. 4. Prof of trainings conducted during MP4 5. Prof for creation of jobs during MP4 6. Invoices from new companies (Evidence of Charles Construction and Phukaphuka etc) supported by foreign investment
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please see 6 items attached.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	All requested evidences were provided. 1. Monitoring Reports of Sustainable Development Indicators with analysis of all SD indicators. 2. Clay monitoring excel sheet listing 17 extraction sites and planned re-cultivation activity. 3. List of staff, work contracts and proof of insurance. 4. Prof of trainings conducted by management staff during MP4 (see finding above). 5. List of employment (see finding above). 6. Invoices from: Phukaphuka for construction of barns (Charles Construction); Area 55 for monitoring activity; Zalero Contractors for delivery of cook stoves, to prove support to local companies were provided.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	SDM2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The monitoring of SD parameters reported in MR, section D "Monitoring Results for Gold Standard Sustainability Indicators..." was not conducted as per requirements of the registered MP and GS Passport (eg SD parameters were not surveyed as required but calculated from sells/distribution of cook stoves).		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please see report attached.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Monitoring Reports of Sustainable Development Indicators with analysis of all SD indicators. The analysis of SD parameters is in line with registered MP.		

Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed
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Finding:	SDM3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Soil Condition; Onsite inspection of two production sites has revealed evidence of soil harvesting on swathes of communal land without clear evidence of mitigation measures undertaken as per the registered GS passport. - Please clarify the measures taken to mitigate affected soils, in accordance with the registered GS Passport version 04. - PP shall also elaborate on the impact of brick production in local communities, in places where it is clear that soil excavation for stoves runs side by side with brick production.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	- As per registered PDD, when production groups are trained, they are encouraged to (1) collect clay from above-ground piles of earth where possible; (2) where not possible, to minimise pit depths; and (3) to develop a management plan for rapid replacement of clay removed from pits with biodegradable household and agricultural wastes. As per local knowledge of clay sources, approximately 10cm of surface soil is removed and pits in general go only as deep as 30cm, beyond which clay is not suitable for stove production. Trees are not uprooted in this process. Once clay extraction site is "decommissioned" the mitigation plans are implemented, e.g. backfilling with organic material, planting of trees. - Project implementers claim that it is not the norm to extract clay for stoves and bricks from same site as 'stove clay' is too sticky for making bricks (based on local knowledge and practices). Otherwise, clay collection sites are communal and used by local potters and stove makers. It is beyond the project's current scope to monitor impacts of local brick production.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	- The measures outlined in the response as reflected in the Sustainability Report^{/SDI} are deemed sufficient to mitigate the effects of soil harvesting activities among the production groups. - The issue is jettisoned as the scale of the project activity cannot permit monitoring of the same		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding:	SDM4		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It has been observed onsite that individuals can create production groups to produce and sell the PCS to the project entity, who will in turn distribute the same to households through Area 55 Consulting, third parties such as NGOs and individual promoters: PP to ensure that: - 1. There is clear training and instruction manual for production group owners/supervisors on land management/mitigation of degraded land. 2. There is a clear checking and reporting procedure by the leaders of the production groups on activities undertaken to mitigate the same, and reported to the project implementer/PP. 3. There is a clear instruction on use of fuel-efficient kilns at each production site and sustainable use of woodfuel in the kilns.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Production groups develop a clay site mitigation plan (shown in clay monitoring Excel) during the course of stove production training. (see stove production manuals attached) 2. Please see reporting structure now illustrated in report on sustainable development. During monitoring in MP6, PP will aim to collect information on status of implementation of mitigation plans and report accordingly within the Excel framework and SD report, and will continue to monitor in subsequent monitoring periods. 3. Producers are trained on efficient kiln construction during production training. A poster on efficient kilns and sustainable wood management is currently under review by project implementers (see draft version now included in SD report), and kiln manuals have also been developed in local vernacular (See attached).		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Proposed measures and supporting evidences will be checked in the next verification cycles		
Conclusion <i>Tick the appropriate checkbox</i>	☒ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☐ The finding is closed		

Finding:	SDM5		
Classification	☐ CAR	☒ CL	☐ FAR



Finding:	SDM5
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Human and institutional Capacity & Quantitative employment and income generation; Please clarify why the number of people trained has declined from previous MPs despite an increase in stove production and distribution.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Those not counted in MR4 are now involved in stove work under a different PP project to GS613. This is in keeping with the low volume of new stoves added to the project given small scale cap.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Small-scale limit was achieved earlier in the previous monitoring period. Therefore, the decline in the numbers of new stoves justifies the decline in this SD indicator.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

4. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

4.1. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity.

Table 5-1: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1	Republic of Malawi	Hestian Innovation Ltd

4.2. Implementation of the project

During the verification a site visit was carried out from 2014-11-10 to 2014-11-14. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project has been implemented and operated as described in the revised PDD version 06 and the GS Passport. Following details of distribution of the two technologies under consideration have been reported:

	24/11/2008 - 01/10/2009	02/10/2009 - 01/10/2010	02/10/2010 - 01/10/2011	02/10/2011 - 01/10/2012	02/10/2012 - 01/10/2013	Total
PCS	1,767	5,308	5,839	7,228	0	20,142
ICS	0	1	30	126	103	260

Project Participant included only new distributed PCS stove in the monitoring period 3. During the verification onsite visit the verification team has conducted sample crosschecks of the data entry from original sales records to the computer database. No material errors were identified and therefore we can confirm the correctness of the stated values in the emission reduction calculations.

4.3. Project history

This is the 4th periodic verification of the project activity at year 5 since the project starting date. During the 3rd periodic verification the DOE as well as GS raised issues that could not be closed or resolved during the verification. For this purpose 4 CARs had been raised. As consequence of low performance of UCS and FES stoves PP decided to remove the stove from the project activity. Statistical analysis was conducted to establish average technical lifespan of the PCS stove. With the application of average lifespan of the cook stove the monitoring of replacement will not be necessary (CAR H2). Usage rate was monitored in 2013 and found consistent with findings during our onsite visit. The application of usage rate and the average life-time of the stoves was found accurate and conservative approach in the ER calculation (CAR H3). No ER are claimed for stoves older than 5 years, hence, the usage rates only concern up to 0-4 years. The request from GS review to improve monitoring of data was met (CAR H4).

The verification team established that the monitoring was conducted as per monitoring plan and all FARs from previous verification were closed. Hence, no material irregularities were noted that would impact the accuracy of the ER data collected.

4.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are in compliance to the registered monitoring plan. Evidence^{/GSP//MR/PDD/} were available to the verification team to check the compliance of the monitoring plan and GS monitoring matrix.

The reporting procedures reflect the requirements of the monitoring plan. All relevant data is stored during the entire monitoring period.

The SD indicators as per the validated monitoring plan are monitored and reported appropriately and cross-verified by means of desk review of supporting documents, interviews with the PP, staff and relevant stakeholders. The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan.

4.5. Compliance with the sustainability monitoring plan

The SD indicators as per the validated monitoring plan are monitored and reported appropriately and cross-verified by means of desk review of supporting documents, interviews with the PP, staff and relevant stakeholders. The monitoring system and all applied procedures are in compliance to the registered monitoring plan and the Gold Standard conservativeness principle. Several findings were raised and sufficiently clarified.

4.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption (11/04/2011).”

4.7. Monitoring parameters

The monitoring parameters as per the GS monitoring plan

During the verification all relevant monitoring parameters (as listed in the PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, frequency, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

Parameter fraction of Non Renewable Biomass (fNRB)

The value of 81% fNRB approved by CDM – SSC WG for Malawi was applied. DNA, the Environmental Affairs Department of Malawi accepted on 15 June 2012 the default value of non-renewable biomass (fNRB) for the Republic of Malawi.

Quantity of fuel consumed in the project scenario for Portable Ceramic Stove ($P_{P,PCS}$)

This is the value of the average quantity of fuel that is consumed in the project scenario for PCS in year 0 and year 2 both used in suppressed demand calculations. The values from 2009 and 2011 have been used to estimate the monitored consumption of fuels for the purpose of ER calculations. The approach is conservative and as per the applied GS methodology.

Quantity of fuel consumed in the project scenario for institutional cookstove ($P_{P,ICS}$)

Biannual monitoring frequency is applied and used in calculation of project emissions. This value of 0.035 Kg/adjusted adult meal is applicable as per the KPT performed in 2013 for this MP4. The report^{/KPT/} has been checked and the enumerators were interviewed to determined data quality.

Cumulative usage rate of technologies in project scenario (parameters $U_{p,PCS}$ & $U_{p,ICS}$)

PP calculated 66.96% single-weighted usage rate for PCS stove for ages 0-4, and 89.4% for ICS stove for ages 0-4, in year 5 of the project. The usage rates were



calculated as single weighted average as per requirements of the methodology. Verification team conducted personal onsite inspection to assess the correctness of the value applied.

High acceptance and usage of PCS cook stove was confirmed. All ICS visited were found to be fully operational.

Verification team confirms correctness and conservativeness of the reported usage rates. A cumulative weighted usage rate value was calculated and applied.

Number of technology days per stove ($N_{PCS,y}$; $N_{ICS,y}$)

No new PCSs stove were distributed in the monitoring period 4 but excluded stoves during MP3 were included in the monitoring report (but accrued ERs outside MP4 are not being claimed). The value of Number of Technology Days was calculated using sales record. The counting starts conservatively a day after the sales of stove.

No new ICSs were reported but figures excluded during the previous MP3 were included this time around (103). The reported number of constructed stoves is plausible with the capacity of the reported production groups. The audit team also cross-checked the data collection and entries in sales record. Sample of randomly chosen stoves were selected from the database and checked. All relevant original records from artisans (liners delivery from production group), installers and end user confirmation were crosschecked with the computer database. The following activities were performed:

- Crosschecking the data collection and entries in total sales record^{/XLS//SR/}.
- Sampling of randomly chosen stoves from the database.
- Checking all relevant forms from production groups, owners and comparing with the computer database.
- Visual inspection and interviews of randomly selected homesteads^{/IM05/}.
- Verifying the sampling effort in the monitoring/usage survey^{/KS/} and calculations^{/XLS/}.
- A review of the QA/QC procedures to ensure correctness and data integrity

No errors in data collection and data entry were detected. In further steps the verification team randomly selected over 20 PCS stoves and ICS stoves from the sales database and conducted personal onsite interviews. The households contacted represented the entire regions and age groups. All reported cook stoves were found in place and still operational. Moreover parts of the original cook stoves reported in the database already replaced by entrepreneurs. Nevertheless, all randomly selected households were in possession of PCS and therefore the verification team confirmed the accuracy of the reported number of stove in the monitoring report. CL R5, CAR

P1, and CL P6 were raised in the determination of accurate technology days and data

Efficiency of aging stoves (parameters $Eff_{P,PCS}$; $Eff_{P,ICS}$)

To account for the changes of the project scenario over time an Age Test was conducted in line with the applied methodology. Water boiling test as per version of the University of California Berkley (UCB) Shell Foundation for PCS was performed. The results of the test are applicable for the 4th Monitoring period to PCS. Verification team conducted onsite interview with appointed enumerator and checked functionality of applied instrument and procedure. All instruments were functioning correctly. No inconsistencies in the applied procedure were found. Nevertheless the clarification CL P5 was raised and successfully closed. The validation team confirms the correctness of applied values.

The efficiency of the ICS stove ($Eff_{P,ICS}$) is determined every two years via KPT studies. During this monitoring period, a KPT was necessary in 2013 and has been carried out for ages 0-4 appropriately as per the monitoring plan to determine the cumulative efficiency of the aging ICSs.

Tonnes of dry biomass used in the project for technology and fuel combination (parameter $B_{py,y}$)

The baseline fuel wood use is measured as per methodology and calculated as average. The value used is still applicable as per the monitoring frequency defined in the MP.

Leakage ($LE_{p,MR2}$)

Leakage was assessed as 0 in the previous monitoring periods. Aggregate leakage is assessed for multiple project scenarios through ongoing monitoring surveys for both technologies, but reported every 2 years.

Six types of leakage were identified in the revised PDD. All types of leakage were assumed to be 0. The project participant collected leakage data related to space heating and transfer of old technology to be reused outside the project boundary. No leakage was found due to any of the identified leakage sources.

1. Displacement and further use of the old less efficient technology- the common technology used prior the project activity was three stone open fire. There is no need to transfer any open fires from the project activity, as the technology represents no economical value. Most of the interviewed households during the onsite visit confirmed very rare use of old technology in case of additional visitors like family or church meetings.

2. Compensation of space heating lost due to the project activity- Most of the kitchens are separated from the living areas. The tropical climate in the project area does not require additional heating pre or post project scenario. Displacement and



further use of the old less efficient technology- the common technology used prior the project activity was three stone open fire. There is no need to transfer any open fires from the project activity, as the technology represents no economical value. Most of the interviewed households during the onsite visit confirmed very rare use of old technology in case of additional visitors like family or church meetings.

In the previous MP3, a FAR P4 was raised to consider possible leakage due to space heating and continual use of the baseline stove. PP has consequently added questions to the survey questionnaire. No household uses the stoves for space heating as determined by kitchen surveys and by DOE during onsite visit. However, the verification team observed the presence of three-stone fire as two households visited.

PP conducted kitchen surveys as per guidelines and determined that the proportion of households who claim some form of baseline stove use was 1.98%. In line with the GS conservativeness principle, PP has applied 5% of emission reductions as leakage calculations (CAR H1).

Verification team has crosschecked the data collected during the Monitoring survey^{/MUS/} and conducted interviews with surveyors and households.

4.8. Contribution to sustainable development

During the verification, the SD indicators were verified with regards to the appropriateness that will contribute to sustainable development.

It was evidenced that the project positively contributes to improvement of:

1. Air quality
2. Water quality and quantity
3. Soil condition, biodiversity
4. Quality of employment
5. Livelihood of the poor
6. Access to affordable and clean energy services
7. Human and institutional capacity
8. Quantitative employment and Income generation
9. Balance of payments and investment
10. Technology transfer and technological reliance

The project will lead also to lower GHG emissions. The measurement of these indicators are listed in MR and excel file^{/SD/}. The frequency and monitoring arrangement is in line with registered GS613 PDD. All the improved conditions especially kitchen conditions and livelihoods including the human and institutional

capacity, quantitative employment and income generation were observed during onsite visit and confirmed in interviews ^{/IMO2/}.

It can be confirmed that all GS Sustainable Indicators have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

For further details concerning the sustainability indicators please refer to Annex A-1.

4.9. Monitoring report

The project participants submitted a Gold Standard Monitoring Report along with relevant supporting documents to the verification team. These documents form the basis for the verification opinion of TÜV NORD.

During the verification, mistakes and needs for clarification were identified. Relevant findings were raised and successfully closed. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and accordance with the registered PDD, the GS Passport and relevant GS requirements.

4.10. Sampling

4.10.1. Implementation of the sampling plan

During the monitoring period data on project technology usage rates, sustainability indicators and leakage were collected.

- PCS stoves from eligible age groups (0-4) were selected randomly from 5 representative village groups. The sample size was 144 households ^{/KS/}.
- 62 from total of 101 institutions using ICS were monitored by 2013-10-28 ^{/KS/}.

Statisticians from Faculty of Environmental Sciences, University of Malawi, conducted the statistical analysis. Where applicable the mean (+/- 90% confidence interval) was met. The sample size and the sampling procedure was found applicable.

Water boiling tests were conducted to determinate the efficiency of aging stoves. PCS stoves of various ages were randomly selected from one village. The water-boiling test followed the Water Boiling Test protocol 4.1.2.

4.10.2. Sampling approaches during verification

Verification team has cross-checked the correctness of data collection and sales record by sampling. Sample of 5 randomly chosen stoves were selected from the

database. All relevant original records from artisans (liners delivery from production group), installers and end user confirmation were crosschecked with the computer database. In further steps the verification team randomly selected 21 PCS stoves from the sales database and conducted personal onsite interviews in the households. The households contacted represented the entire regions and age groups with greater focus on the areas where most stoves are concentrated. In case of PCS stove no significant discrepancies between data collected during onsite visit and data reported by PP were observed.

4.11. ER Calculation

The ER calculation is based on the formulae:

$$ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y}$$

- $BE_{b,y} = B_{b,y} * (f_{NRB,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2} * NCV_{b,fuel}$ since both baseline fuel is the same as project fuel (i.e.fuelwood).
- $PE_{p,y} = B_{p,y} * ((f_{NRB,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$
- $LE_{p,y} = 5\%$

For this monitoring period:

Baseline emission for all project stove types for the monitoring period 4 was calculated as 119,581 tCO_{2e}, Project emissions as 37,682 tCO_{2e}, and leakage works out 3,855 tCO_{2e}. During the current monitoring period from 02/10/2012 to 01/10/2013 project activity reduced the emissions by 78,044 tCO_{2e}.

During the verification mistakes in the ER calculation were identified. Corresponding findings and related to minor inconsistencies were raised and successfully closed. A revised ER calculation was prepared by the PP and presented to the verification team. The emission reductions of 78,044 tCO_{2e} can thus be deemed as correct and devoid of material misstatements.

4.12. Quality Management

Quality assurance and quality control measures outlined in MR include: roles and responsibilities of project staff, trainings, involvement of third parties to conduct surveys and for statistical analysis, internal audits and control measures with regard to data entry, troubleshooting procedures were defined in the framework of this GS/CDM project activity. Therefore it evident that project stoves are traceable physically and through the database.

4.13. Comparison with ex-ante estimated emission reductions

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the revised PDD version 06. The emissions reduction in



the monitoring period 4 is slightly more than the ex-ante calculated in the PDD ver. 06 of 77,500 tCO_{2e}. This can be attributed to the following factors: -

- The small-scale project activity reached its limit of emissions reduction earlier than projected in the revised PDD v06.
- The revision of GWP (CH₄) for the second commitment period; and
- The improved ICS stove use efficiency due to experience^{/KPT/}.

4.14. Overall Aspects of the Verification

All necessary and requested documents were provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the project activity, which are relevant for the project performance, and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the GS criteria and relevant guidance provided by the GS and the secretariat.

4.15. Hints for next periodic Verification

FAR SDM4 has been raised for PP to improve the monitoring of soil condition as a result of the project activity.

5. VERIFICATION OPINION

Hestian Innovation Ltd has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 4th periodic verification of the project: "*Integrated Biomass Energy Conservation Project, Malawi*", with regard to the relevant requirements for GA project activities. The project reduces GHG emissions due to distribution of efficient cooking technologies. This verification covers the period from 2012-10-02 to 2013-10-01 (including both days).

In the course of the verification 14 Corrective Action Requests (CAR) and 7 Clarification Requests (CL) were raised and successfully closed. Furthermore 1 FAR was raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spread sheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved GS methodology, i.e.,
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 4th periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. The emission reductions are calculated in compliance with the monitoring plan and Gold Standard conservativeness principle. Furthermore all parameters listed in the Sustainability monitoring plan are duly monitored and verified. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: 78,044 tCO_{2e}

Essen, 2015-02-18



Grzegorz Kochaniewicz

TÜV NORD JI/CDM Certification Program

Verification Team Leader

Essen, 2015-02-18



Kunal Rami

TÜV NORD JI/CDM Certification Program

Final Approval

6. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/CAL/	Calibration Report for project weighing scale and moisture content scale: • Spring dial hoist scale: manufacturer Global Universal, 100 kg capacity, precision 0.5. • Hanging scale: Voltcraft HS-30, 30kg capacity, accurate to 20g • Digital high precision scale: My Weigh KD-8000, 8kg capacity digital scale, Accuracy of 1g • Wood humidity: Voltcraft FM-300, moisture measuring range 6% to 99%, $\pm 1\%$ (in moisture range 6% ~40%) • Digital hand thermometer: Voltcraft K 101 thermometer: measuring range – 200°C to + 137° (reversible °C/°F). Accuracy – 200°C to +200°C accuracy of 0.3% of the display, +1°C
/EMAIL/	GS email: Design changes to GS613, dated 2014-01-29
/GSP/	GS Passport. “Integrated Biomass Energy Conservation Project”, (GS 613) Version 04, 2011 January 4 th
/INSUR/	Insurance Manifest from the Medical Aid Society of Malawi (MASM), November 2013 (Area 55 Consulting) Premium Statement from Horizon Health Ltd, March 2014
/KPT/	ICS MR4 KPT Report 050614
/KS/	• ICS MR4 Usage & Monitoring Report 050614 • PCS MR4 Usage & Monitoring Report 050914
/LA/	Chitetezo Lifespan Analysis (47 months) March 2013
/MR/	Draft: - Monitoring Report, “Integrated Biomass Energy Conservation Project, Malawi” (GS 613) for the monitoring period 02-10-2011 to 01-10-2012, version 02 Final: - Monitoring Report, “Integrated Biomass Energy Conservation Project, Malawi” (GS 613) for the monitoring period 02-10-2011 to 01-10-2012, Version 05
/SD XLS/	• Air Quality Excel

Reference	Document
	- Clay monitoring excel - Livelihood of the Poor excel - Employment and Skills development excel
/ISR/	- GS613 PCS TSR MR4V2 050614 - GS613 ICS TSR MR4V2 050614
/SUR/	GS613 Sustainability Report 050814
/Tmanual/	Training Manual for field surveyors Area 55 Training Record
/UM/	Chitetezo Mbaula User Manual
WBT	- GS613 Water Boiling Test, : - PCS, 2010: test dates 31/01/2013; 01/02/2013 - Chitetezo Mbaula CREEC Test August 2012 - PCS Water Boiling Tests for Aging Stoves Report 012914
/XLS/	- ER Calculation ICS (24-11-08 to 01-10-12) - ER Calculation PCS (24-11-08 to 01-10-12) - ER Calculation MR4 V5 Verification 22012015 - GS613 Employment & Skills Development MR4V3 100114 - ICS Survey & KPT 2013 Data Entry 050614 - PCS MR4 Usage and Monitoring Survey 050714 - MR4V2 Balaka Clay Monitoring

Table 7-2: Background investigation and assessment documents

Reference	Document
/CPM/	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
/GSTOOL/	The Gold Standard TOOLKIT V.2.1.
/GSR/	GS Requirements Version 2.2
/GS-VVM/	The Gold Standard Validation and Verification Manual for Voluntary Offset Projects, dated June 2007
/IPCC-GPI/	IPCC Good Practice Guidance & Uncertainty Management in National

Reference	Document
	Greenhouse Gas Inventories, 2000
/IPCC/	1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/KPI/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/MR1/	Integrated Biomass Energy Conservation Project, Malawi, dated 2013-05-08
/METH/	<i>“Technologies and Practices to Displace Decentralised Thermal Energy Consumption – 11/04/2011”</i>
/PDD06/	GS approved design change GS-VER-PDD “” Integrated Biomass Energy Conservation Project – Malawi”, Version 06, dated 2 nd November 2012
/SM/	Perspectives_Sampling_Manual_Apr_2012.pdf
/2VER/	GS Verification Report for GS 613, 2 nd periodic verification dated 2013-01-24
/3VER/	GS Verification Report for GS 613, 3rd periodic verification dated 2013-06-12
/VAL/	Final Validation Report ‘Integrated Biomass Energy Conservation Project - Malawi. 'dated 2010-12-14
/VUM/	Voltcraft HS-30 User Manual
/VVM/	CDM Validation and Verification Manual (EB55)

Table 7-3: Websites used

Reference	Link	Organisation
/gs/	www.cdmgoldstandard.org	The Gold Standard Foundation
/hl/	http://www.hestian.com/	Hestian Ltd

Reference	Link	Organisation
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Conor Fox	Hestian Ltd/ Director
/IM01/	V	☐ Mr. ☒ Ms.	Cristel Cheong	Hestian Innovation Ltd/ Project Development Consultant
/IM02/	V	☐ Mr. ☒ Ms	Maya Stewart	Area 55 Consulting/ Director
/IM03/	V	☒ Mr. ☐ Ms	George Masache	Area 55 Consulting/ Data Manager
/IM04/	V	☒ Mr. ☐ Ms	Elia Kwenda	Hope Ministry/ Centre Manager
/IM04/	V	☒ Mr. ☐ Ms	Samuel Bonongwe	Hope Ministry/ Education Manager
/IM04/	V	☒ Mr. ☐ Ms	Tovia Chirwa	Adziwa/ Agricultural Adviser
/IM04/	V	☐ Mr. ☒ Ms	Mary Chikaonda	Children of Blessing/ Administrator
/IM04/	V	☒ Mr. ☐ Ms	Yamungu Botha	Concern Universal/ Project Manager
/IM04/	V	☒ Mr. ☐ Ms	MacFary Kapanga	Concern Universal/ MIS Officer
/IM04/	V	☒ Mr. ☐ Ms	Lloyd Archer	Concern Universal/ SEMU Manager
/IM04/	V	☒ Mr. ☐ Ms	Andrew Chingwenende	Concern Universal/ SCT Coordinator
/IM04/	V	☒ Mr.	Langster Mchekala	Concern Universal/ Field facilitator

Reference	Mol ¹		Name	Organisation / Function
		☐ Ms		
//IM04/	V	☒ Mr. ☐ Ms	Mayamiko Minofi	Concern Universal/ SEP Coordinator
//IM04/	V	☒ Mr. ☐ Ms	Chawa G. Mkandawire	Tilinanu Orphanage/ Director
//IM05/	V	☐ Mr. ☒ Ms	Mary Fungulani	Balaka/ Stove Promoter/ User
//IM05/	V	☒ Mr. ☐ Ms	Margaret Chiwaya	Gada 1 Village/ User
//IM05/	V	☒ Mr. ☐ Ms	Liya Buleki	Gada 1 Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Miga Osibati	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Abese Vanasiyo	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Elise Chipwaila	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Lute Chikumbutse	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Joice Tomasi	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Hanah Chikoti	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Ligelic James	Kalumba/ User
//IM05/	V	☐ Mr. ☒ Ms	Esther Sikoti	Gada 1/ Stove Promoter/User
//IM05/	V	☐ Mr. ☒ Ms	Catherine Brike	Gada 1 Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Yobo Bonongwe	Tithandizane Production Group/ Supervisor
//IM05/	V	☐ Mr. ☒ Ms	Rozina Nkatha	Kandulu Village/ User

Reference	Moi ¹		Name	Organisation / Function
//IM05/	V	☐ Mr. ☒ Ms	Sitilitha James	Kandulu Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Asiyatu Sailesi	Ngwena Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Martha Sailesi	Ngwena Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Jovitha Kamchacha	Ngwena Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Hannah Billy	Chimenya Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Rozina Chiboti	Chimenya Village/ User
//IM05/	V	☐ Mr. ☒ Ms	Alfred Chisale	Dziwani Production Group/ Team Leader
//IM05/	V	☐ Mr. ☒ Ms	Chrissy Mbalame	Ntcheu District/ Artisan Kalata Production Group/ User

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Verification Protocol
- A2:** Appointment / Authorisation statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of	• Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment	• Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures	• Site – visit (maintenance dept., gas supplier) • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system	• See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
- technology - Accuracy of values supplied by Third Parties	- Stand-by duty is organized - Training - Internal audit procedures - Internal check of QA/QC measures of involved Third Parties	- Insufficient accuracy - Inappropriate QA/QC measures of Third Parties	- Check of CDM related procedures - Application of CDM management system procedures - Check of trainings - Check of responsibilities - Check of QA/QC documentation / evidences of involved Third Parties	
Raw data collection and data aggregation				
- Wrong data transfer from raw data to daily and monthly aggregated reporting forms - IT Systems - Spread sheet programming - Manual data transmission	- Cross-check of data - Plausibility checks of various parameters. - Appropriate archiving system - Clear allocation of responsibilities - Application of CDM Management system procedures	- Unintended usage of old data that has been revised - Incomplete documentation - Ex-post corrections of records - Ambiguous sources of information - Non-application of management system procedures	- Check of data aggregation steps - Counter-calculation - Data integrity checks by means of graphical data analysis and calculation of specific performance figures - Check of management system certification	See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
- Data protection - Responsibilities	- Usage of standard software solutions (Spreadsheets) - Limited access to IT systems - Data protection procedures	- Manual data transfer mistakes - Unintended change of spread sheet programming or data base entries - Problems caused by updating/upgrading or change of applied software	- Check of data archiving system - Check of application of Management system procedures	
Other calculation parameters				
Emission factors, oxidation factors, coefficients	The values and data sources applied are defined in the PDD and monitoring plan	- Unintended or intended Modification of calculation parameters - Wrong application of values - Misinterpretations of the applied methodology and/ or the PDD - Missing update of applicable regulatory framework (e.g. IPCC values)	- Update-check of regulatory framework - Countercheck of the applied MP in the MR against the methodology and the PDD	See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
- Applied formulae - Miscalculation - Mistakes in spread-sheet calculation	- Advanced calculation and reporting tools - A CDM coordinator is in charge of the CDM related calculations - Usage of tested / counterchecked Excel spreadsheets - Involvement of external consultants	The danger of miscalculation can only be minimized.	- Countercheck on the basis of own calculation. - Spread sheet walk-through. - Plausibility checks - Check of plots	See Table A-2
Monitoring reporting				
- Data transfer to the author of the monitoring report - Data transfer to the monitoring report - Unintended use of outdated versions	- An experienced CDM consultant is responsible for monitoring reporting. - CDM QMS procedures are defined	- The danger of data transfer mistakes can only be minimized - Inappropriate application of QMS procedures	- Counter check with evidences provided. - Audit of procedure application	See Table A-2

Table A-1: (Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
1. Project history				
1.1 Open issues from validation (EB 55 Annex 1, §§ 181-183, 188c, 190c) <i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?</i>	/MR/ /gs/	<i>Description:</i> This is 4 th periodic verification. <i>Justification of evidences:</i> <i>Conclusion:</i>	N/A	OK
1.2 Open issues from previous verification (EB 55 Annex 1, § 193) <i>Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration the guidance as specified in VVS.</i>	/MR/ /3VER/ /GSR/	<i>Description:</i> During the 3 rd verification 2 FARs were raised by DOE and 1 FAR by GS as detailed in CARs H1-H3. <i>Justification of evidences:</i> As detailed in the 3rd Periodic Verification Report ^{/3VER/} and in GS 3-week issuance review from GS ^{/GSR/} the PP has to indicate how these FARs were dealt with. <i>Conclusion:</i> Refer to CAR H1 to H3.	CAR H1 CAR H2 CAR H3	OK
1.3 Requests for Deviations / Revisions of MP	/IM01/	<i>Description:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 201, 203, 212, 219) <i>Check if there have been any requests for deviations from the registered monitoring plan or requests for revisions of the monitoring plan. If any, make sure that the monitoring report reflects the application of the approved guidance from the CDM EB regarding the Rfdev. and that those issues are subject to verification?</i>	/PDD06/ /MR/	There is no request for deviation from registered monitoring plan <i>Justification of evidences:</i> This was confirmed during on-site visit. The Monitoring Report is as per registered monitoring plan ^{/PDD06/}. <i>Conclusion:</i> No deviations to monitoring plan observed.		
1.4 Initial verification <i>In case an initial verification has been carried out, check if all FARs, recommendations etc. have been addressed appropriately.</i>	/MR/ /gs/	<i>Description:</i> This is 4th Periodic Verification. No initial VER was carried out. <i>Justification of evidences:</i> As per Monitoring Report. <i>Conclusion:</i> No initial verification	OK	OK
1.5 Initial project implementation (EB 55 Annex 1, §§ 182, 195-201) <i>In case of first periodic verification: Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place? Further focus on the potential phase wise implementation and report on the</i>	/MR/ /gs/	<i>Description:</i> This is the 4TH Periodic Verification. <i>Justification of evidences:</i> As per Monitoring Report and GS Issuances.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
corresponding statuses and starting dates accordingly. Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67). In case of further periodic verifications: Go to next chapter.		Conclusion: This is the 4TH Periodic Verification		
2. Update on Changes and Incidents (during the Monitoring Period)				
2.1 Technical equipment (EB 55 Annex 1, § 187) Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent designations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications. In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation. Also, discuss –if applicable- any approvals of the	/IM01/ /MR/ /PDD06/	Description: Project equipment distributed in the project activity remains the same as per registered PDD. For this and further monitoring periods, the FES, RB,. UCS were removed from the project activity. Justification of evidences: The assessment is done by review of PDD, MR and onsite observation. Conclusion: Revision of design of project activity must be carried out. CAR	CAR H3	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i>		H3 was raised.		
2.2 Operation modes (EB 55 Annex 1, § 195) <i>Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.</i> <i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i> <i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i> <i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i>	/IM01/ /PDD/ /MR/	<i>Description:</i> The project technology is improved stoves hence no operation modes are involved. <i>Justification of evidences:</i> As per PDD, MR. <i>Conclusion:</i> OK.	OK	OK
2.3 Incidents (EB 55 Annex 1, § 187, 208a) <i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i>	/IM01/ /MR/ /PDD06/	<i>Description:</i> PP reports number of distributed and replacement stove in MR v01.	CLU1 CLU2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.		<i>Justification of evidences:</i> This was noted during desk-review of the Monitoring Reports. <i>Conclusion:</i> It was observed that number of ISC and PCS stoves reported during 3rd Monitoring Period for years 2010, 2011 and 2012, is inconsistent with number of stoves reported in 4th MP. It is not clear what the replacement figures 112 and 643 are standing for. Refer to CL U1, CL U2.		
2.4 Personnel Identify, if relevant personnel w.r.t. monitoring has been exchanged? In case of changes, assure that the implemented monitoring procedures have not been affected.	/IM01/ /PDD/ /MR/ /3VER/	<i>Description:</i> The project roll-out and Monitoring is carried out a local entity Area 55 Consulting. Other third parties help directly or indirectly such as Clioma, and NGO Concern Universal. Hestian Innovation Ltd. plays an oversight role. Area 55 replaced Hestian Rural Development Innovation, which was a local entity that implemented the project during the 2nd monitoring period. <i>Justification of evidences:</i> This was assessed via desk review and from interviews carried out onsite. <i>Conclusion:</i> No information on change of project key personnel 4th monitoring period was provided. No information about trainings conducted during 4th MP was provided. (CL U4).	CL U4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
2.5 Legislation Find out whether relevant legislation with effect on the project activity in the host country has been changed. In any case data source shall be referenced.	/IM01/ /IMR/ /2VER/	<i>Description:</i> There has been no change of relevant legislation in the host country that would affect the project. <i>Justification of evidences:</i> Based on host country knowledge and review of relevant literature. <i>Conclusion:</i> No legislation changes have taken place that would affect the project.	OK	OK
3. Monitoring Report – General				
3.1 Monitoring period Check if the monitoring period is in line with a) the crediting period and/or b) previous monitoring periods?	/PDD/ /IMR/ /3VER/ /gsl/	<i>Description:</i> The monitoring period is in line with the crediting period. The previous monitoring period run from 2011-10-02 to 2012-10-01 both days inclusive. The current monitoring period is stated as 2012-10-02 to 2013-10-01 both days inclusive. <i>Justification of evidences:</i> The verifier crosschecked the crediting period stated in the registered PDD; the MR and the 3 th verification report. <i>Conclusion:</i> The monitoring period is correctly stated.	OK	OK
3.2 Publication of the Monitoring Report Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.	/gsl/	<i>Description:</i> N/A – this is a Gold Standard project.	N/A	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Justification of evidences:</i> <i>Conclusion:</i>		
3.3 References <i>Check if the monitoring report provides the correct references, in detail: project title, UNFCCC registration No., applied methodology/ies, meth tools.</i>	/MR/ /PDD06/ /METH/ /gs/	<i>Description:</i> The PP submitted the draft Monitoring Report (version 02) to the verification team. The GS registration No. GS 613 as well as the project title are stated correctly in the MR. <i>Justification of evidences:</i> The verification team undertook a desk review of the draft MR and crosschecked it against the applied methodology and the registered PDD. <i>Conclusion:</i> The references in the Monitoring Report are correct.	OK	OK
3.4 Completeness (EB 55 Annex 1, §§ 182, 195, 202, 206) <i>Assess if the monitoring report is complete, i.e. have all relevant issues been addressed? The MR shall include: (i) The implementation status of the project during the monitoring period (ii) Monitoring systems and procedures incl. QA/QC system employed (iii) all parameters to be monitored</i>	/MR/ /PDD06/ /METH/ /MANUA L/	Yes all relevant issues are covered; in detail: ☒ (i) Implementation status ☒ (ii) Monitoring systems and procedures (esp. QA/QC) ☒ (iii) All parameters and corresponding intervals ☒ (iv) Information on calibration of monitoring instruments ☒ (v) Emission factors, IPCC default values etc. ☒ (vi) Reference to deviations, if applicable N/A	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>and reported at the intervals required by the MP and the Meth (iv) information on calibration of monitoring instruments (v) Emission factors, IPCC default values etc. (vi) reference to any deviation request approved by the EB, (vii) calculation of ER including reference to formulae and methods used (viii) comparison of the actual ER claimed in the MP with the estimate in the registered PDD and explanation in case of significant increase.</i>		☒ (vi) Calculation of emission reductions ☒ (viii) Comparison of actual ER with estimated ER as per PDD Specific findings of the verification team related to each of the issues above will be discussed in the relevant sections of this checklist protocol.		
3.5 Comparison of estimated and actual ER (EB 55 Annex 1, § 198c) <i>Have differences between the monitored ER and the ex-ante ER been reported and appropriately justified? Please assess potential impacts on baseline and additionality.</i>	/MR/ /PDD06/ /XLS/	Description: The draft MR contains a comparison of ex-ante ER and actual ER. A justification is presented in the Monitoring Report. Justification of evidences: This was verified through review of the MR and ER calculations excel spread sheet. Conclusion: However since this is small scale project the emissions reduction for 2012 exceed the given limit. CL P5,	CL C1	OK
3.6 Transparency <i>Assess if the monitoring report is transparent, i.e. clear and unequivocal in all respect?</i>	/MR/ /PDD06/	Description: The MR contains all the relevant aspects necessary for verification.	CL U2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Justification of evidences:</i> The verification team checked the text of MR to ensure consistency with MP was checked. <i>Conclusion:</i> The MR is considered transparent. Nevertheless CL U2 was raised.		
3.7 Misstatements on general issues <i>Assess whether the monitoring report is free of material misstatements regarding issues other than the monitoring parameters.</i> <i>Discuss the monitoring parameters in detail in chapter “Monitoring Parameters”.</i>	/MR/	<i>Description:</i> The MR contains all the relevant aspects necessary for verification. And is free of misstatements. <i>Justification of evidences:</i> The verification team checked the text of MR to ensure consistency with MP. <i>Conclusion:</i> OK	OK	OK
3.8 Deviations from the validated monitoring plan (EB 55 Annex 1, §§ 196-197, 204-206, 211-212) <i>Assess whether the MR is in line with the validated monitoring plan?</i> <i>In case of intended changes: Have they been approved?</i>	/MR/ /PDD06/ /IM01/	<i>Description:</i> No deviations from validated monitoring plan were observed. <i>Justification of evidences:</i> The verification team assessed the MR in comparison with the validated MP. <i>Conclusion:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		OK		
3.9 Deviations from the approved methodology (EB 55 Annex 1, §§ 200, 201, 203) <i>Assess whether the MR in line with the applied monitoring methodology?</i>	/ MR/ / METH/ / PDD06/	<i>Description:</i> No deviation from the approved methodology. <i>Justification of evidences:</i> The verification team assessed the MR in comparison with the approved methodology. <i>Conclusion:</i> OK	OK	OK
4. Monitoring Parameters <i>(List all parameters of the PDD chapter B.7.1; pl. copy the 6 lines below for each parameter)</i>				
4.1. fNRB		Description: Non-renewability status of woody biomass fuel in scenario i in year y		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the</i>	/ PDD06/ / METH/ / 2VER/ / MR/ / unfccc/	<i>Description:</i> As per registered PDD, this parameter is fixed to be updated if necessary. The applied fNRB of 81% was accepted by the host country DNA in June 2012. No update is considered necessary. <i>Justification of evidences:</i> As per MR and crosschecked on UNFCCC website.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>		<i>Conclusion:</i> The parameter is correctly determined.		
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/PDD06/ /METH/ /2VER/ /MR/ /unfccc/	☒ Correct ☐ Not correct <i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> By review of referenced documents. <i>Conclusion:</i> OK	OK	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/PDD06/ /METH/ /2VER/ /MR/ /unfccc/	<i>Description:</i> The parameter value is confirmed by the host country DNA. <i>Justification of evidences:</i> By review of referenced documents. <i>Conclusion:</i> OK.	OK	OK
d) Accuracy	/PDD06/	<i>Description:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/METH/ /2VER/ /MR/ /unfccc/	Refer to checklist item above. <i>Justification of evidences:</i> By review of referenced documents. <i>Conclusion:</i> OK		
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	//PDD06/ /METH/ /2VER/ /MR/ /unfccc/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> By review of referenced documents. <i>Conclusion:</i> OK	OK	OK
4.2. LE_{p,y}		Description: Leakage in project scenario p in year y		
a) Measurement / Determination method	/MR/	<i>Description:</i> Leakage was monitored in 2013 in line with applied	CAR H1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/PDD06/ /METH/	methodology and registered monitoring plan. As an result of monitoring, PP calculated 1.98% leakage and applied 5% conservative value. <i>Justification of evidences:</i> Assessment is based on review of methodology; MR and PDD. <i>Conclusion:</i> Leakage was conservatively accounted for.		
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /PDD06/ /METH/	<i>Description:</i> Continuous use of baseline devices was identified as an source of leakage. <i>Justification of evidences:</i> Assessment is based on review of methodology; MR, PDD and observations during onsite assessment. <i>Conclusion:</i> Refer to CAR R2	CAR R2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been</i>	/MR/ /PDD06/ /METH/	<i>Description:</i> The data was collected during Monitoring Survey in November 2013. <i>Justification of evidences:</i>	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		Desk review and interviews onsite <i>Conclusion:</i> Refer to CAR R2		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/MR/ /PDD06/ /METH/	<i>Description:</i> The value was monitored via questionnaire. <i>Justification of evidences:</i> Assessment is based on review of methodology; MR, PDD and observations during onsite assessment. <i>Conclusion:</i> Refer to CAR R2	CAR R2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/MR/ /PDD06/ /METH/	<i>Description:</i> The value was monitored via questionnaire during Monitoring Survey 2013. <i>Justification of evidences:</i> Assessment is based on review of methodology; MR, PDD and observations during onsite assessment. <i>Conclusion:</i> Refer to CAR R2	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
4.3. $P_{p,y}$ ($P_{p,PCS}$), ($P_{p,ICS}$),		Description: Quantity of fuel that is consumed in project scenario p during year y		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/MR/ /PDD06/ /KPT/ /CAL/	Description: The parameter is measured through Kitchen Performance Tests performed every two years and continuous total stove sales. For PCS stoves the measurement is quantity in kg/household/day. The ICS measured by kg/adult meal/ICS. The consumption quantities are adjusted for usage and aging. The equipment used is the generic spring-dial hoist scale (100kg capacity, 0.5kg precision), digital high precision scales "My Weight KD-8000 (8 kg capacity, accuracy 1g); Voltcraft HS-30 (30 Kg capacity, accuracy 20g), Voltcraft FM-300 Moisture meter (capacity to measure moisture content up to 40%; accuracy 1%) and measuring tape. The equipment is calibrated as per manufacturer's instructions. Justification of evidences: The assessment is based on review of MR, PDD, sales records and KPT reports. Conclusion: Refer to CAR R2	CAR R2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and</i>	/MR/ /PDD06/ /KPT/	Description: See above. Justification of evidences: The assessment is based on review of MR, PDD and KS reports.	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>descriptions of the CARs raised.</i>		<i>Conclusion:</i> Refer to CAR R2		
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/ MR/ / PDD06/ / KPT/ / METH/	<i>Description:</i> A pre-testing scenarios were carried out and a paired test was carried out to minimise external factors. Calibration of measuring equipment is as per manufacturer's instructions. <i>Justification of evidences:</i> By review of MR, applied methodology and monitoring surveys. <i>Conclusion:</i> Refer to CAR R1	CAR R2	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/ MR/ / PDD06/ / KPT/ / METH/	<i>Description:</i> See assessment in 4.3 (a) above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR R2, CAR P2	CAR R2 CAR P2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and</i>	/ MR/ / PDD06/ / KPT/ / METH/	<i>Description:</i> Refer to checklist above. <i>Justification of evidences:</i>	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		Conclusion: CAR R2		
4.4. $U_{p,y}$ ($U_{p,PCS}$), ($U_{p,ICS}$),		Description: Usage rate in project scenario p during year y (Percentage of stoves of age x remaining in use in year y)		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /MR/ /KPT/ /PDD06/ /METH/	Description: This parameter is measured by usage surveys for all technologies. The frequency of measure is annual or more frequently. For the stoves usage is measured against age of stove. PCS stoves usage is measured for stoves aged 0-1; 1-2; 2-3 and 3-4 years. Random sampling was applied. Justification of evidences: The verification team reviewed the MR, PDD, usage survey reports, applied methodology and made onsite assessment. Conclusion: CAR R2	CAR R2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e)	/IM01/ /MR/	Description: Refer to checklist item above.	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/KPT/ /PDD06/ /METH/	<i>Justification of evidences:</i> <i>Conclusion:</i> CAR R2		
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/IM01/ /MR/ /KPT/ /PDD06/ /METH/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR R2	CAR R2	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /MR/ /KPT/ /PDD06/ /METH/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR R2	CAR R2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data</i>	/IM01/ /MR/ /KS/ /PDD06/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i>	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.	/METH/	Conclusion: CAR R2		
4.5. Eff_p		Description: Efficiency of aging project stove PCS		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /KS/ /MR/ /PDD06/ /METH/	Description: This parameter is to assess how the efficiency of project PCS compares with baseline conservative estimation of 31%. As project stove demonstrates efficiency of more than 31% and has to be factored in the suppressed demand calculation. Justification of evidences: The assessment is based on document review. Conclusion: The water-boiling test from previous verification is still valid. OK	OK	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e)	/IM01/ /KS/	Description: Refer to checklist item above.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /PDD06/ /METH/	<i>Justification of evidences:</i> <i>Conclusion: OK</i>		
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/IM01/ /KS/ /MR/ /PDD06/ /METH/	<i>Description:</i> Refer to checklist above. <i>Justification of evidences:</i> <i>Conclusion: OK</i>	OK	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /KS/ /MR/ /PDD06/ /METH/	<i>Description:</i> See checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> OK	OK	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement /</i>	/IM01/ /KS/ /MR/ /PDD06/ /METH/	<i>Description:</i> See checklist item above. <i>Justification of evidences:</i>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		Conclusion: OK		
4.6. N_{p,y}		Description: Stove and barn Sales		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/SALES/ /IM01/ /PDD06/ /MR/	Description: The sales record is continuously updated by local project managing entity (Area 55) and the database is maintained by project coordinator. The verification team found the sales record well maintained and traceable. Justification of evidences: By review of documents. Conclusion: However it was observed that number of ISC and PCS stoves reported during 3 rd Monitoring Period for years 2010, 2011 and 2012, is inconsistent with number of stoves reported in 4 th MP. Moreover clarification is requested as MR 4 reports distribution of stoves (PCS, ICS) during MP3 that were not reported previously in MR3. Therefore the number of stove was not verified. Pls refer to same table in B1 in MP3 and MP4.	CAR P1 CAR P3 CAR P4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/SALES/ /IM01/ /PDD06/ /MR/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR P1, CAR P3, CAR P4	CAR P1 CAR P3 CAR P4	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/SALES/ /IM01/ /PDD06/ /MR/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR P1, CAR P3, CAR P4	CAR P1, CAR P3, CAR P4	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/SALES/ /IM01/ /PDD06/ /MR/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR P1, CAR P3, CAR P4	CAR P1, CAR P3, CAR P4	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and</i>	/SALES/ /IM01/ /PDD06/ /MR/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i>	CAR P1, CAR P3, CAR	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		Conclusion: CAR P1, CAR P3, CAR P4	P4	
Sustainable Development Variables (Gold Standard Requirement)				
4.7. Air Quality				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /IMR/ /KS/ /SD XLS/ /GSP/	Description: This parameter is monitored through Kitchen survey (KS) performed yearly. The KS for all cooking stoves indicate the less smoke in the kitchen. Justification of evidences: The verifier carried out random interviews of stove end users during previous verification and reviewed relevant documents. Conclusion: The measure was found to be in line with the GS registered monitoring plan. However evidences were not provided. CAR SDM1	CAR SDM1	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e)	/IM01/ /IMR/ /KS/	Description: This parameter is measured through kitchen surveys. This is in lined with the registered GSP.	CAR SDM1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/SD XLS/ /GSP/	<i>Justification of evidences:</i> The verification team checked 50 households randomly drawn from the sales record during 3th verification. Each household reported less smoke, reduced eye irritation and reduced coughing. <i>Conclusion:</i> CAR SDM1.		
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/IM01/ /MR/ /KS/ /SD XLS/ /GSP/	<i>Description:</i> An third party assesses the measure for this parameter qualitatively. <i>Justification of evidences:</i> QA/QC procedures were checked by end user interviews. <i>Conclusion:</i> CAR SDM1	CAR SDM1	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have</i>	/IM01/ /IM02/ /MR/ /KS/ /SD XLS/ /GSP/	<i>Description:</i> See checklist item. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM1	CAR SDM1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>been made for calculating ERs.</i>				
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /MR/ /KS/ /SD XLS/ /GSP/	<i>Description:</i> See checklist item. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM1	CAR SDM1	OK
4.8. Livelihood of the Poor				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i>	/IM01/ /IM02/ /MR/ /SD XLS/ /GSP/	<i>Description:</i> The parameter is the estimated by: - The total value of wood saving is estimated at 159.2 million Malawian Kwacha (MK) per year. - Cooking/curing time saving is estimated at 157.3 million MK per year. - RB: Improved quality and quantity of tobacco is estimated at 70 million MK/year.	CAR SDM 1 CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.		<i>Justification of evidences:</i> The verification team interviewed randomly stove owners during previous verification. They all confirmed fuelwood saving resulting in reduced cooking time and fuel collection <i>Conclusion:</i> CAR SDM 1, CAR SDM 2		
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/IM01/ /IM02/ /MR/ /KS/ /SD/ /GSP/	<i>Description:</i> This parameter is assessed through annual monitoring surveys. The survey frequency for all stoves meets the required survey interval. The surveys generally indicate above average usage. This indicates that end-user's livelihood has improved in terms of money spent on fuelwood or time spent collecting fuelwood. <i>Justification of evidences:</i> The verification team reviewed the survey reports and carried out on-site interviews in randomly selected households in different locations. <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1 CAR SDM 2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been	/IM01/ /IM02/ /MR/ /KS/ /SD/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i>	CAR SDM 1 CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>	/GSP/	<i>Conclusion:</i> CAR SDM 1, CAR SDM 2		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /IM02/ /MR/ /KS/ /SD/ /GSP/	<i>Description:</i> See checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1 CAR SDM 2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /MR/ /KS/ /SD/ /GSP/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1 CAR SDM 2	OK
4.9. Quantitative employment and income				

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
generation				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/IM01/ /IMR/ /SD XLS/ /IGSP/	<i>Description:</i> This parameter is measured by the number of jobs created by the project as per registered GS Passport. Jobs were created for stove & barn producers, retailers and coordinators. Total of 1078 people were employed by the project. <i>Justification of evidences:</i> During onsite visit the verifier was able to confirm that the project was providing employment to the local population. <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	<i>Description:</i> Refer to checklist above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	<i>Description:</i> Refer to checklist above. <i>Justification of evidences:</i>	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		Conclusion: CAR SDM 1, CAR SDM 2		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	Description: Refer to checklist above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	Description: Refer to checklist above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
4.10. Quality of Employment				

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /IM02/ /IMR/ /SD XLS/ /GSP/	Description: This parameter is measured by qualitative assessment of employment conditions such as health insurance and training according to GS Passport. It was evident from interviews with producers that trainings were given by sub-contractors. Justification of evidences: The assessment is done through desk review and onsite interview. Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/IM01/ /IM02/ /IMR/ /SD XLS/ /GSP/	Description: See comments above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been	/IM01/ /IM02/ /IMR/ /SD XLS/ /GSP/	Description: Refer to checklist item above. Justification of evidences: The verification checked the MR monitoring procedure against	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		the MP. <i>Conclusion:</i>		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	<i>Description:</i> See comments above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /IMR/ /SD XLS/ /IGSP/	<i>Description:</i> See comments above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
4.11. Access to Energy Services				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /IM02/ /MR/ /GSP/ /SALES/	<i>Description:</i> This parameter assesses the improvement in energy access. It is monitored on the basis of annual sales from number of stoves made. 20,051 households have access to energy services from efficient stoves (PCS); 101 institutions have access to energy services from ICS. <i>Justification of evidence:</i> As stated earlier, the sales records were found in good order and traceable hence this parameter is fulfilled. <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/IM01/ /IM02/ /MR/ /GSP/ /SALES/	<i>Description:</i> Please see comments above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been	/IM01/ /IM02/ /MR/ /GSP/ /SALES/	<i>Description:</i> Please see comments above. <i>Justification of evidences:</i>	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		<i>Conclusion:</i> CAR SDM 1, CAR SDM 2		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /IM02/ /MR/ /GSP/ /SALES/	<i>Description:</i> Please see comments above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /MR/ /GSP/ /SALES/	<i>Description:</i> Please see comments above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
4.12. Human and Institutional Capacity				

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/IM01/ /MR/ /GSP/ /SD XLS/	<i>Description:</i> This parameter is measured by the number of women employed & trained by the project. It was evident during onsite visit that PCS production was predominantly a women's job as well as its retailing. Training has been done for PCS stoves 616 trainees (82% women) and marketing and retailing 403 trained (59% women). The monitoring is done bi-annually to check of number of employees are women. <i>Justification of evidences:</i> The verification team interviewed producers and sub-contractors during onsite visit. <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/IM01/ /IM02/ /MR/ /SD XLS/	<i>Description:</i> See checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures</i>	/IM01/ /IM02/ /MR/	<i>Description:</i> See checklist item. <i>Justification of evidences:</i>	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.	/SD XLS/	Conclusion: CAR SDM 1, CAR SDM 2		
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/IM01/ /IM02/ /MR/ /SD XLS/	Description: Please see comment above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/IM01/ /IM02/ /MR/ /SD XLS/	Description: Please see comment above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
4.13. Technology transfer and technological self-reliance				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IMR/ /IM02/ /GSP/ /SALES/	Description: Appropriate technology transfer shall be monitored every two years to establish project technology dissemination levels as per registered GS Passport. This is established through the sales record – establishing the number of stoves that are supplied. Justification of evidences: The verification team checked the sales record and carried out on-site interview with end-users. Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/IMR/ /IM02/ /GSP/ /SALES/	Description: Please see description above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) Describe whether all applicable QA/QC procedures	/IMR/ /IM02/	Description: Please see description above. Justification of evidences:	CAR SDM 1, CAR SDM 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.	/GSP/ /SALES/	Conclusion: Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR C4	
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.	/MR/ /IM02/ /GSP/ /SALES/	Description: Please see description above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be	/MR/ /IM02/ /GSP/ /SALES/	Description: Please see description above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>				
4.14. Balance of payments and investments				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/MR/ /IM01/ /GSP/ /SALES/ /ISSUAN CE/	<i>Description:</i> This parameter shall be monitored every 2 years to assess increase of investments from improved devices as per registered GS Passport. It is also done through monitoring of VER sales. <i>Justification of evidences:</i> By document review and interview of project owner. <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /IM01/ /GSP/ /SALES/ /ISSUAN CE/	<i>Description:</i> See description above. <i>Justification of evidences:</i> <i>Conclusion:</i>	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		CAR SDM 1, CAR SDM 2 CAR C4		
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/MR/ /IM01/ /GSP/ /SALES/ /ISSUAN CE/	<i>Description:</i> See description above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/MR/ /IM01/ /GSP/ /SALES/ /ISSUAN CE/	<i>Description:</i> See description above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure,</i>	/MR/ /IM01/ /GSP/ /SALES/ /ISSUAN CE/	<i>Description:</i> See description above. <i>Justification of evidences:</i>	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		Conclusion: CAR SDM 1, CAR SDM 2 CAR C4		
4.15. Biodiversity				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/MR/ /GSP/ /KS/ /SALES/	Description: This parameter shall be monitored annually by assessing reduced deforestation due to reduced fuel wood consumption attributed to improved stoves. This is assessed through monitoring surveys to establish usage rates to determine level of wood consumption. 20,142 households use improved cookstoves, 101 institutions use ICS. The surveys are carried out at least annually for all project technologies. Justification of evidences: Assessment was based on review of GSP monitoring requirements and cross-checking monitoring surveys to check if stoves are used. Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e)	/MR/ /GSP/	Description: Refer to checklist item above.	CAR SDM 1, CAR	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/KS/ /SALES/	<i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	SDM 2 CAR C4	
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data</i>	/MR/ /GSP/ /KS/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i>	CAR SDM 1, CAR SDM 2 CAR	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.	/SALES/	Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	C4	
4.16. Soil condition				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IMR/ /GSP/ /SALES/ /SD XLS/	Description: This parameter shall be monitored annually to assess reduced fuel wood consumption and hence reduced deforestation which is attributed to improved stoves. Soil condition is also assessed through monitoring the collection of clay for the production of PCS to ensure it does not cause soil erosion. This is done bi-annually by the local NGO (Concern Universal) that checks and compiles clay monitoring reports. Justification of evidences: By the assessment of MR, GS Passport and MP. Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4 CL SDM 3 FAR SDM4	OK
b) Correctness	/IMR/	Description:	CAR	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 202, 206, 221e) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/GSP/ /SALES/ /SD XLS/	Refer to checklist item above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	SDM 1, CAR SDM 2 CAR C4	
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.	/IMR/ /GSP/ /SALES/ /SD XLS/	Description: Refer to checklist item above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.	/IMR/ /GSP/ /SALES/ /SD XLS/	Description: Refer to checklist item above. Justification of evidences: Conclusion: CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/MR/ /GSP/ /SALES/ /SD XLS/	<i>Description:</i> Refer to checklist item above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
4.17. Water quantity and quality				
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> This parameter shall be monitored by assessing reduced woodfuel consumption attributed to improved stoves. The measurement of this parameter is by monitoring of sales and usage of stoves. As indicated earlier, monitoring surveys are done at least annually, which is in line with the requirements. <i>Justification of evidences:</i> The assessment is by review of monitoring surveys, sales and monitoring plan. <i>Conclusion:</i>	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>plan of the PDD and the applied methodology.</i>		CAR SDM 1, CAR SDM 2 CAR C4		
b) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Please see comment above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Please see comment above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
d) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Please see comment above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
e) Verification (EB 55 Annex 1, §§ 184a, 184b, 186, 203, 205, 206b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/MR/ /GSP/ /KS/ /SALES/	<i>Description:</i> Please see comment above. <i>Justification of evidences:</i> <i>Conclusion:</i> CAR SDM 1, CAR SDM 2 CAR C4	CAR SDM 1, CAR SDM 2 CAR C4	OK
5. ER Calculation				
5.1 Traceability (EB 55 Annex 1, § 182) <i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i>	/XLS/ /XL Summary / /METH/ /PDD06/ /MR/ /IM01/	<i>Description:</i> The ER calculation is given in the excel file (XL Summary) and individually for each project device (XLS). Whereby the project emissions and leakage are subtracted from baseline emissions adjusted for suppressed demand as per methodology guidelines. The calculation follows the <i>GS Technologies and Practices to Displace Decentralised Thermal Energy Consumption (11/04/2011)</i> in the same as per registered PDD. <i>Justification of evidences:</i> The ER calculation traceability was assessed by comparing	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		sales records, PDD, MR, and excel files and onsite observation during VER 3. <i>Conclusion:</i> The ER calculation is traceable		
5.2 Parameter consistency (EB 55 Annex 1, § 186) <i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?</i> <i>Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure that consistent designations for parameters in PDD, MR, calculation spreadsheet are applied. The evaluation of the correctness of the parameter values itself should be discussed in the chapter “Monitoring Parameters”.</i>	/XLS/ /XL Summary / /METH/ /PDD06/ /MR/ /IM01/	<i>Description:</i> The monitoring report and excel ER spreadsheet calculation were compared for all project technologies to check their consistency. Generally there is correct data exchange between the MR and the calculation spreadsheet and it is clear/traceable how the values are generated. <i>Justification of evidences:</i> Assessment is based on review of excel spreadsheets, applied methodology and MR. <i>Conclusion:</i> The parameters are applied consistently	OK	OK
5.3 Applied formulae (EB 55 Annex 1, §§ 204-206) <i>Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan</i>	//XLS/ /XL Summary /	<i>Description:</i> The formulae applied in the MR are derived from <i>GS Technologies and Practices to Displace Decentralised Thermal Energy Consumption (11/04/2011)</i> which is the methodology applied in the registered PDD (PPD06).	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
and / or the approved methodology.	/METH/ /PDD06/ /MR/	<i>Justification of evidences:</i> The verification team reviewed the formulae stated in the applied methodology and the GS-VER-PDD and compared to the formulae applied in the XLS calculator. <i>Conclusion:</i> The applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and the approved methodology.		
5.4 Completeness of calculation (EB 55 Annex 1, § 205a) Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan. Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.	/XLS/ /XL Summary / /METH/ /PDD06/ /MR/ /IM01/	<i>Description:</i> Refer to 5.1. above. <i>Justification of evidences:</i> <i>Conclusion:</i> OK	OK	OK
6. Quality Management; defined organisational structure, responsibilities and competencies Internal QA/QC and document control				
6.1 Management System (EB 55 Annex 1, § 184 a (iii))	/MR/ /XLS/	<i>Description:</i> During this monitoring period, the project management system	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Check if the GHG data monitoring system is embedded in a (certified) company quality management system, if so, check if all CDM monitoring procedures been fully integrated in the project participant's quality management system. If not how the GHG management system has been implemented.</i>	/PDD06/ /IM01/	was transferred from carried out Rural Innovation Development (HRID) to a new local entity Area 55. Key project staff remains the same. Area 55 ensures quality control of the monitoring system including managing the electronic sales records and back-up records. It liaises with the surveyors on the regular surveys. The project coordinator manages the electronic database of total sales record. During onsite, the verifier found a traceable and operation management system in place. <i>Justification of evidences:</i> The management system was assessed through checking the consistency of the data monitoring in place against the requirements of the MP. <i>Conclusion:</i> The GHG management system has been implemented and is functional.		
6.2 Roles and Positions <i>Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.</i> <i>Check further if only duly qualified personnel is involved in the monitoring procedures.</i>	/MR/ /PDD06/ /IM01/	<i>Description:</i> As indicated above, the project management is operated by Area 55. The personnel structure is well defined whereby the project coordinator manages the electronic database. Sub-contractors are hired to implement project equipment and manage BS and KS periodic surveys. <i>Justification of evidences:</i> This was crosschecked onsite document review and interview.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Conclusion:</i> The roles and responsibilities are clearly defined in the MR and are in line with what was observed onsite.		
6.3 Trainings <i>Check if initial trainings have been carried out, in case deemed necessary.</i>	/MR/ /IM01/ /2VER/	<i>Description:</i> A new entity Area 55 has taken over the management of the project operations. Although as indicated above, key project personnel remain unchanged from the previous monitoring period, training records for new workers was not provided. (CL R3). <i>Justification of evidences:</i> Through desk review and as observed onsite. <i>Conclusion:</i> OK	OK	OK
6.4 Troubleshooting procedures <i>Describe relevant troubleshooting measures and assess whether these troubleshooting procedures have been implemented.</i>	/MR/ /PDD/ /IM01/ /IM02/	<i>Description:</i> The project has developed a good network with sales facilitators who keep track and liaise with their stove/barn customers (each sales location is management by a specific sales representative). Customers are encouraged to purchase a second stove for the continuity of stove usage; this was very evident with PCS & ICS customers. However as non-regular usage continues to be observed among FES stoves, troubleshooting procedures for when these devices were not provided (CAR H3). Further, during the onsite visit it was discussed the incentive of project owner to start new project in	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		the same area using the same technology and the same production and distribution system. (CLU3) Clarification is sought in regards of: • Preventing of double counting, • Separation of different projects during data collection and; • Ensuring unique identification of each project-stove in the field. <i>Justification of evidences:</i> The verifier checked project documents and interviewed end users and project implementers. <i>Conclusion:</i> OK.		
6.5 Maintenance procedures Are appropriate maintenance procedures in place?	/IMR/ /PDD06/ /IM01/ /IM02/	<i>Description:</i> Construction of project devices is carried out by sub-contractors. Maintenance is carried out by field facilitators who operate in specific areas and manage client demands such as maintenance stoves. <i>Justification of evidences:</i> The verifier confirmed during onsite visit that the maintenance procedures were adequate.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Conclusion:</i> Appropriate maintenance procedures are in place.		
6.6 Internal QA/QC <i>Assess whether there are any procedures in place on when, where and how checks and reviews of relevant monitoring parameters as well as further processing of the same are to be carried out. Please determine the evidences to be documented. (This might include spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.)</i>	/MR/ /PDD06/ /IM01/	<i>Description:</i> As indicated above, each stove/barn type is implemented by specific sub-contractors who manage the original sales records, project database, and sustainable development indicators. These are then forwarded to Area 55 for quality control and filing. The project coordinator ensures quality control and manages the data base. A third party, Clioma Ltd is sub-contracted to conduct Usage and Monitoring surveys. <i>Justification of evidences:</i> The verifier checked the monitoring process and it was functioning. <i>Conclusion:</i> QA/QC procedures are assessed as sufficient.	OK	OK
6.7 Data archive Check whether all records of monitoring parameters are archived according to the monitoring plan.	/MR/ PDD06/ /IM01/ /IM02/	<i>Description:</i> The data recording keeping is in good form. <i>Justification of evidences:</i> The verifier crosschecked field data records and electronic files	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		and they were fully traceable. <i>Conclusion:</i> The records of monitoring parameters are archived according to the monitoring plan.		
6.8 Data protection Assess whether appropriate measures have been taken in order to avoid unintended or intended manipulation of the measured data.	/MR/ /PDD06/ /IM01/ /IM02/	<i>Description:</i> Same as above. <i>Justification of evidences:</i> <i>Conclusion:</i> OK	OK	OK

ANNEX 2: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Grzegorz Kochaniewicz

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2016-01-24
VCS / ISO 14064-2	Lead Assessor	2016-01-24

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies
3.1	Energy Demand
14.1	Forestry

173 – Rev. 3, Date: 2013-10-07

173_S01-VA060-F20_2013-10-07_rev3

S01-VA060-F20_rev3 / 2013-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. David Lubanga

SCHEME	STATUS	VALID UNTIL
CDM	Assessor	2015-08-09
VCS / ISO 14064-2	Assessor	2015-08-09

251 - Rev. 1, Date: 2012-08-10

251_S01-F003_2012-08-10_rev1.doc

S01-F003 rev2 / 2012-04-05



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal energy generation	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Total
1.2	Renewable Energy	
2.2	Heat distribution	
3.1	Energy demand	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
13.2	Animal waste management	
15.2	Animal waste management	

163 – Rev. 2, Date: 2011-08-10

163_S01-F003_2011-08-10_rev2

S01-F003 rev1 / 2011-08-02



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Kunal Rami

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-02-27
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2016-02-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
6.1	Construction	
13.1	Waste Handling and Disposal	13.1.1 Waste Management 13.1.2 Waste Water Management

224 – Rev. 4, Date: 2013-02-28