Gold Standard Verification and Certification Report

of

Aberdares Improved Cook Stoves

GLC Report No: 032.01, Rev. 08

Germanischer Lloyd Certification GmbH • Brooktorkai 18 • 20457 Hamburg • Germany
Handelsregister Hamburg, Abt. B., Nr. 52078

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Organisational Unit	
Germanischer Lloyd Certification GmbH (GLC), Greenhouse Gas Services	
Client "co2balance UK Ltd"	Client reference person Mr. Matt Thomas

Summary:

Gold Standard Ref.	"GS 883"	
Project Name:	Aberdares Improved Cook Stoves	
Project Country:	Kenya	
Sectoral Scope, Technical Area	CDM Sectoral Scope 3, Technical Area 3.1	
Methodology(ies) / Version(s):	Gold standard Methodology for improved cook stoves and kitchen Regimes version 02	
Project Size:	☐ Large Scale	☒ Small Scale
Number of verification:	2	
Dates of monitoring period (incl. both days)	2012-04-01 to 2013-03-31	
Verified emission reductions	24,191 t CO_2	
Included post registration changes	☐ yes ☒ no	

Project Assessment Team:	Technical Review Team:	Approval by:
Srikanth Meesa (Auditor) Karunakar Avuram (ATL)	Jose- Emilio Moreno Fernando, Rangel Villasana	Markus Weber
Date of this revision:	Revision No.	Number of pages
2013-07-11	08	56

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History of report revisions:

Rev.	Date	Person (short sign or name)	Function	Action
01	2013-06-14	Srikanth Meesa/ Karunakar Avuram	Auditor/ Assessment team leader+ Technical Expert	Draft Report Preparation
02	2013-06-25	Fernando Rangel Villasana	Reviewer	Review with revisions and comments
03	2013-07-03	Srikanth Meesa	Auditor	Addressed the TR comments
04	2013-07-05	Fernando Rangel Villasana	Reviewer	Review with revisions and comments
05	2013-07-09	Srikanth Meesa	Auditor	Addressed the TR comments
06	2013-07-09	Fernando Rangel Villasana	Reviewer	Review and closing of comments
07	2013-07-11	José Emilio Moreno	Technical Expert	Review of project documentation with minor revisions
08	2103-07-11	Markus Weber	Final reviewer and approver	Final reviewed and approved

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board (the board)
CL	Clarification request
CMP	Meeting of the Parties to the Kyoto Protocol
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
COP/MOP	The Conference of the Parties to the United Nations Framework Convention on Climate Change serving as the Meeting of the Parties to the Kyoto Protocol
CTF	Carbon Transfer Forms
CZK	Carbon Zero Kenya
DNA	Designated National Authority
DOE	Designated Operation Entity
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GLC	Germanischer Lloyd Certification GmbH
GPS	Global Positioning System
GS	Gold Standard
ICS	Improved Cook Stoves
KS	Kitchen Survey
KPT	Kitchen Performance Test
MKS	Monitoring Kitchen Survey
MP	Monitoring Plan
MR	Monitoring Report
NRB	Non –Renewable Biomass
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
RSPM	Respirable Suspended Particulate Matter
TDR	Total Distribution Records
TSPM	Total Suspended Particulate Matter
UNFCCC	United Nations Framework Convention on Climate Change
US	Usage Survey
VER	Voluntary Emission Reduction

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1 INTRODUCTION

"co2balance UK Ltd" has commissioned the Germanischer Lloyd Certification GmbH (GLC) to carry out the 2nd verification of the Gold Standard project, Aberdares Improved Cook Stoves registered by the GS as a GS-VER project "GS 883" with regard to the relevant requirements of Gold Standard version 2.1. The verifiers have reviewed the implementation of the monitoring plan (MP) as described in the registered PDD /2/ , GS Passport /4/ and the Monitoring Report /5/, version 06, dated 2013-07-08.

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard /1/ of the UNFCCC. This report summarizes the findings and conclusions of the 2nd verification of the above mentioned Gold Standard 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

- that the project activity has been implemented and operated as per the registered PDD and passport and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- that the monitoring report and other supporting documents provided are complete and verifiable and in accordance with applicable GS and CDM requirements;
- that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the applied GS methodology;
- that the data is recorded and stored as per the applied GS monitoring methodology.

1.2 Scope

The verification of this registered project is based on the validated project design document /2/, GS Passport/4/ the monitoring report /5/, emission reduction calculation spread sheet /11/, 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 and required.
The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol /9/,
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 /10/ and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard /1/,
- monitoring plan as given in the registered PDD /2/,
- Applied GS methodology “Methodology for Improved Cook-stoves and Kitchen Regimes V.02 – 08/02/2010” /6/.

- GS Requirements and the Toolkit as per version 02.1[27]

2 VERIFICATION TEAM

2.1 Assessment Team

A competent team with relevant knowledge and experience in the specific sectoral scopes and project activity was appointed by GLC. Furthermore the appointment of the team takes into account the required knowledge of the host country and general project activity knowledge requirements for verifying the project activity design and the relevant VERs will be achieved. The assessment team can be composed of an Assessment Team Leader (ATL), auditors (A) and host country or technical expert (E). Table 1 below shows the composition of the assessment team, the qualification of the team members and their functions.

Table 1: Verification team

Name	Function [1)]	Sectoral scope specific knowledge	Technical area specific knowledge	Local knowledge	Type of involvement				
					Desk review	On-site visit / interviews	Reporting	Supervision of work	Expert input
Avuram, Karunakar	ATL+ TE+ LE	X	X	X	X		X	X	X
Meesa, Srikanth	A				X	X	X	X	

A	Auditor	FE	Financial expert	T-ATL	Trainee ATL
ATL	Assessment team leader	LE	Local expert	T-A	Trainee auditor
				TE	Technical expert

2.2 Technical Review Team and Approval

Before submission of the final verification report to the GS registry, a technical review of the whole verification and the draft report was carried out by an appointed technical review (TR) team. The TR team is composed of persons competent to the technical area and project activity falls under. Each person involved in the reviewer is independent to the verification assessment.

The complete assessment prepared by the verification team is checked, if required adjusted and finally confirmed by the TR process.
The TR team and the person responsible for approval of the report are found in the table below:

Table 2: Technical review team and approval

Name	Function [2)]	Technical area specific knowledge	Sectoral scope specific knowledge	Supervision of work
Rangel Villasana, Fernando	R			X
Jose –Emilio, Moreno	R+TE	X	X	
Weber, Markus	FR+AP	X	X	X

AP Approver
FR Final reviewer
TE Technical expert
T-R Trainee reviewer
R Reviewer

3 METHODOLOGY

3.1 Verification Process

The verification process was based on the guidelines described in the UNFCCC's Validation and Verification Standard/1/ and the relevant GS requirements. In addition to that standard auditing techniques have been applied. The verification team performed first a desk review, followed by an on-site visit to review the project realisation. In case of lack of clarity or inconsistencies related findings were raised. The findings were provided as the list of findings. The next step was to close out the findings through direct communication with the PPs and finally prepare the final verification report. This verification report and other supporting documents then underwent a technical review by the "GLC GmbH" prior to the submission to the Gold Standard registry.

3.2 Desk review

From 2013-04-10 and 2013-04-16, GLC conducted a desk review of all documents initially provided by the client and publicly available documents relevant for the verification. The main reviewed documents are listed below:

- The registered PDD /2/, including the monitoring plan and the corresponding validation report/3/;
- Final version of the GS Passport /4/
- Previous verification report /18/;
- The applied monitoring GS methodology /6/;
- The monitoring report/5/ and the corresponding emission reduction calculation spread/11/ sheet along with the relevant evidence documents
- Relevant decisions, clarifications and guidance from the Gold Standard, CMP and the CDM Executive Board;
- Any other information and references relevant to the project activity's resulting emission reductions (e.g., IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).
- Addressing of FARs identified during the previous verification.

3.3 On-site assessment

From 2013-04-22 to 2013-04-25, Mr. Srikanth Meesa of GLC's verification team carried out an on-site visit.

The main tasks covered during the on-site visit include, but are not limited to:

- The on-site assessment included an investigation of whether the envisaged cook stoves are distributed and the project is implemented as envisaged in the registered PDD
- 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 monitored data collected through sampling and surveys were checked on the basis of available sampling guidelines
- The data aggregation trails were checked via spot sample down to the acceptable quality level inline with the sampling standard and the guidelines

The main topics of the interviews and interviewed persons are summarized in Table 3 below. The main topics of the interviews were:

Some potential interview topics:

- General aspects of the project
- Design and construction manual of the cook stoves.
- Changes since validation
- Monitoring and measurement equipment
- Remaining issues from previous verification
- Calibration procedures
- 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 calculation
- Procedural aspects of the verification
- Maintenance
- Environmental aspects
- Sustainability monitoring plan

Table 3: Interviewed persons

Name	Organization/Function
Mr. Lloyd Archer	Project Manager, co2balance UK Ltd.
Ms. Pamellah Otajah	Country Co-ordinator, Carbon Zero Kenya Ltd.
Mr. Jack Otieno	M & E and Logistics Co-ordinator, Carbon Zero Kenya Ltd.
Ms. Virginia Njeri	Project Officer, Carbon Zero Kenya Ltd.
Ms. Damaris Kamene	Education officer, Carbon Zero Kenya Ltd.
Ms. Lilian Kinya	Education officer, Carbon Zero Kenya Ltd.
Mr. Martin Mwnehe	Education officer, Carbon Zero Kenya Ltd.

3.4 Resolution of Findings and Reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further after the background investigation the verification findings were raised. In case any inconsistencies or lack of clarity were identified during the verification the team has raised a
Corrective Action Requests (CARs), if:

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- the CDM and/or GS requirements have not been met;
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification Request (CL), if:

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

In case the team has identified essential risks for further verifications or the actual status requires a special focus on this item for the next consecutive verification, or an adjustment of the monitoring plan is recommended a Forward Action Request (FAR) was raised.

All CARs, CLs and FARs raised have been sent to the client with the request to address the findings. After the findings have been answered by the client in an appropriate manner, the CARs, CLs were closed out. There are total 8 FARs raised during the previous verification. FAR1, FAR 2 and FAR 7 are carried over to the next verification and remaining all other FARs are closed out.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification please refer to Annex –A.

4 VERIFICATION REPORTING

4.1 Verification of Compliance

4.1.1 Compliance of the Project implementation in Accordance with the Registered Project Design Document

During the verification an on-site visit was carried out to assess the implementation of the project activity. Based on this on-site visit and the reviewed project documentation, the verification team confirms that the realized technology, the project equipment has been implemented and operated as described in the registered PDD. This project was registered on 2010-12-30/5/. The GS VERs for the first verification were issued for the period 2010-12-01 to 2012-03-31/18/. Currently, it is undergoing second verification from 2012-04-01 to 2013-03-31/5/.

The project involves the distribution of improved (i.e. energy efficient) cook stoves in the villages of Lari and Gatamaiyu Divisions, in Central Province in Kenya. During the site visit, it was assessed that the cook stoves were distributed in those villages that were included in the registered PDD. This project not only reduces the GHG emissions due to usage of reduced fire wood but also it helps curb the ongoing deforestation. Moreover, it also contributes to the health of the households inhabitants by reducing indoor smoke levels. The studies present that approximately 2 billion people rely on biomass for cooking and heating/28/. Another study by the WHO shows that 4-5 % the global deaths occur due to exposure to smoke particulates/29/.

These cook stoves are called as Carbon Zero Kenya (CZK) cook stoves. This is constructed in the rocket style with an inner ceramic liner. Clay and mortar are used to construct the CZK cook stoves. Due to its improved and efficient design, it emits less smoke and always produces high thermal energy and maintains the heat. Thus, this efficient cook stove also consumes less firewood for cooking or to produce the thermal energy. This project is implemented by the Project Participant co2balance UK Ltd. in 23 villages, 2 divisions, Lari District located in the Central Province of Kenya. The GLC verification team has checked the individual serial numbers of cookstoves chosen in the acceptance sample along with their GPS coordinates. During the site visit, one cook stove number did not match the observed GPS coordinates recorded. FAR 1 was raised to address this. PP has addressed that the newly designed standard operating procedure would be in place by the next monitoring period to avoid such mishaps. Hence, the FAR 1 is continued to address this and also reported in Annex- A.

As per the registered PDD the project includes the installation of 23,033 improved cook stoves at zero cost to the user. During the course of verification, it was noticed that 149 pilot stoves were distributed in the project region Aberdares in June 2010. Subsequently, PP conducted a local stakeholders' consultation and the baseline study from June to December 2010 to apply the project for Gold Standard. Hence, the distribution of stoves was halted in June 2010 and recommenced in December 2010. It continued for six months till June 2011 and up until then PP has installed/constructed 9,311 cook stoves., Afterwards, PP has temporarily paused cook stoves distribution in order to concentrate on the implementation of cook stove projects in other regions. During interviews with PP's representatives the GLC verification team was informed that the project would be implemented i.e. all planned improved cook stoves would be distributed, during the crediting period. Thus, it was assessed that PP would be eligible to claim the emission reductions for the installed 9,311 cook stoves. However, as per the GS

requirements, a PP can only claim emission reductions for the stoves that have received the carbon Trading forms (CTFs[1]) from the households. Accordingly, 7,946 cook stoves are credited in the current monitoring period since the CTFs for 1,365 cook stoves were not available. Hence, these are not considered for the calculation of emission reductions. PP has also confirmed that no new stoves were installed over the current monitoring period. It is noteworthy that out of this 7,946 distributed cook stoves that are credited during the current monitoring period which contain the CTF forms, 173 CTF forms were added compared to the previous monitored period. Further in this, out of the 173 CTF forms 121 forms were not considered in the previous monitoring period and 52 CTFs were newly collected in the current monitoring period as a part of data collection. All these CTF forms were submitted to the verification team. The GLC verification team has checked the total distribution records/12/ of the current and previous monitoring period and confirms the considered number of CTFs is correct.

Usage survey and the monitoring kitchen survey are conducted as per the registered monitoring plan. The results of the surveys are also illustrated in the final version of the monitoring report/5/.

The emission reductions being claimed during this monitoring period are nearly 67.24 % less than the estimated emission reductions in the registered PDD/2/, as given in the table below:

Period	Annual average emission reductions as per the registered PDD (estimated)	As per the final Monitoring report (2012-04-01 – 2013-03-31) (12 months)
Emission Reductions	73,833	24,191
% Deviation (+/-)	-	(-) 67.24%

As presented in the table above, the reported emission reductions during the verification period are ~67.24% less than the ex-ante estimated amount of annual emission reductions. The actual emission reductions can be accepted by GLC based on the two reasons as follows:

As outlined above the number of stoves envisaged to be constructed were 23,033, however only 9,311 stoves were effectively installed so far as PP diverted the resources to implement other cook stove projects at different locations. Furthermore, out of the 9,311, only 7,946 cook stoves are credited for which the CTF forms are available/12/.

4.1.2 Compliance of the Monitoring Plan with the Monitoring Methodology Including Applicable Tools

During the document review and furthermore during the on-site visit the verification team has reviewed the registered monitoring plan and compared it with the monitoring methodology to verify their compliance. Based on this review the verification team confirms that the monitoring plan of the registered PDD and the GS passport is in compliance with the monitoring methodology./6/.

[1] CTF form is signed form from the households that the Carbon Zero UK Ltd. is eligible to claim the emission reductions.

4.1.3 Compliance of Monitoring Activities with the Registered Monitoring Plan

The application of the monitoring plan for the verification period is summarized in this section. The information flow and the values in the monitoring report were verified as follows:

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	$AF_{pj,i,y}$ Mass of alternative fuel i combusted in the project in year y (t_fuel/unit-year) Zero. In the baseline this value is considered zero. PP has considered that consumption of alternative or renewable fuels can be assumed as zero in the baseline and project scenario as well for simplicity and practical purposes while conducting the KPT. PP has confirmed through baseline surveys that there was mixing of alternative/renewable fuels in the project area and that the status of this parameter remained same in the project scenario. However, the KPTs were designed to only focus on measuring the primary fuel. Hence, assuming this value as zero is considered valid and correct. The same was confirmed through the document review/11/13/16/ and on-site interviews.
Type of monitoring equipment:	Not applicable (N.A.) The parameter is monitored through Monitoring Kitchen Surveys which are conducted quarterly (once in three months).
Verification of data generation:	Monitoring Kitchen Surveys (MKS). Data obtained through the MKS survey is transferred to the local office located in Nairobi and afterwards it is stored in the files and later recorded in a MKS survey results Excel sheet/13/. The GLC verification team has reviewed the MKS survey results Excel sheet data/13/11/ with the data provided in the MKS survey record sheets stored/16/ in the project participant's office at Nairobi. Furthermore, these results were also confirmed with the local stakeholders and the cook stove users during the on site interviews. Thus, the GLC verification team asserts that the data obtained through surveys is reliable and verifiable.
Measuring frequency:	Quarterly Monitoring Kitchen Surveys are conducted quarterly in May, August, December 2012 and February 2013.
Is measuring frequency in accordance with the monitoring plan and monitoring	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and also the

methodology? (Yes / No)	monitoring plan. However, there is a one month delay in conducting the MKS 7. Kindly refer below.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	N.A. It has to be noted that the data is collected through the surveys. The survey team is trained to collect the precise information. The survey sample size was chosen as 45 which is more than the recommended sample size (25) as per applied methodology. Furthermore, PP has hired an independent third party i.e. Centre for Research in Environment Kenya. This is confirmed by reviewing the signed contract declaration provided in the monitoring protocol /36/ to review all the surveys to obtain the data accurately from the beneficiary households. It should be noted that a delay of one month occurred: for the MKS scheduled for November 2012 the survey was applied until December 2012. The GLC verification team understands that this delay was unintentional and caused by temporary unavailability, due to illness, of the surveying staff. Hence, one month delay in MKS frequency is considered acceptable. The GLC team has reviewed the monitoring protocol containing the details of the survey process and contract of with third party Center for research in Environment Kenya and the organogram containing the flow of data and it's internal cross checking/21//36/. This was found that the survey process was duly implemented and the conducted surveys meet the QA/QC requirements during the verification site visit by interviewing the survey team and monitoring team handling the monitored data. Thus, it is assessed that the monitoring method represents a good monitoring practice.
Verification of data aggregation:	Monitoring Kitchen Survey (MKS) results were submitted to the verification team. As discussed above the data is transferred from the survey records to the Monitoring Kitchen Survey Excel sheet. Later it is aggregated in the same sheet/13/. The GLC verification team has reviewed this Excel sheet and checked the relevant links.
Verification of data recording:	The data obtained through the quarterly conducted MKS survey is stored in the MKS Excel sheet/13/ and is sent to head office in UK. The recorded survey results that are kept in the local office at Nairobi were reviewed. Thus, the verification team understands the PP has adequate data recording systems to ensure

	the quality and accuracy of the data.
Verification of data calculation and reporting	It is to be noted data is collected through surveys but not calculated. Hence, the collected data is recorded in the survey questionnaire. This data is transferred to the MKS Excel sheet /13/ and sent to H.O. Later, it is reported in the MR, MKS Excel sheet and the analysis present in the ER sheet/11/ for the current verification. After checking all the records and the above referred Excel sheets, GLC verification team is convinced that the reported data is credible.
Reporting frequency:	Quarterly and annually during the course of verification in May, August, December 2012 and February 2013.
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	It should be noted that a delay of one month occurred i.e. the MKS survey was conducted in December 2012 instead of November 2012 due to ill- health of the project staff. PP has provided a confirmation statement to the verification team/37/. This was confirmed with the survey team during the site visit .Thus, verification team is of the opinion that one month delay is unintentional and acceptable.
If applicable, has the reported data been cross-checked with other available data?	This data presented in the ER sheet was cross checked with the MKS survey results and was also confirmed with the stakeholders during the on site visit.
How were the values in the monitoring report verified?	As discussed above the reported data has been checked with the data available in the survey results records. It has revealed that the reported data is of good quality and is credible.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The source of data is the survey. The GLC verification team has interviewed the survey team and other personnel who are involved in data collection, recording, transfer and its quality check. The GLC verification team was convinced that the existing data management system is maintained well to ensure the quality of the data.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	$X_{re,pj,j}$ Woody biomass combustion avoided due to renewable energy form in year y in project (Fraction) Zero. As discussed in the above parameter, PP has considered that consumption of alternative or

	renewable fuels can be assumed as zero in the baseline and project scenario as well for simplicity and practical purposes while conducting the KPT. PP has confirmed through baseline surveys that there was mixing of alternative/renewable fuels in the project area and that the status of this parameter remained same in the project scenario. However, the KPTs were designed to only focus on measuring the primary fuel. Hence, assuming this value as zero is considered valid and correct. The same was confirmed through the document review/13/16/ and on-site interviews by the GLC verification team.
Type of monitoring equipment:	N.A. The parameter is monitored through Monitoring Kitchen Surveys which are conducted quarterly (once in three months).
Verification of data generation:	Monitoring Kitchen Surveys. Data obtained through the MKS survey is transferred to the local office located in Nairobi and further it will be stored in the files and later recorded in the MKS Excel sheet. The GLC verification team has reviewed the MKS Excel sheet data with the data provided in the record sheets stored in the project participant's office. Furthermore, these results were also confirmed with the local stakeholders and the cook stove users during the on site interviews. Thus, the verification team asserts that the data obtained through surveys is reliable and verifiable.
Measuring frequency:	Quarterly Monitoring Kitchen Surveys are conducted quarterly in May, August, December 2012 and February 2013/13/.
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and also the monitoring plan. However, there is a one month delay in conducting the MKS 7. Kindly refer below.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	N/A. It has to be noted that the data is collected through the surveys. The survey team is trained to collect precise information through the application of a standardized set of questions and measurements at each selected household. The survey sample size was choosen as 45 units which is more than the sample size of 25 recommended by the applied methodology/6/. The GLC verification team has reviewed the monitoring protocol containing the details of the survey process and contract of with third party Center for research in Environment Kenya and the organogram containing the flow of data and it's

	internal cross checking/21//36/. This was found to be adequately implemented and the conducted MKS surveys meet the QA/QC requirements during the verification site visit by interviewing the survey team and monitoring team handling the monitored data. Thus, it is assessed that the monitoring methods represent a good monitoring practice.
Verification of data aggregation:	MKS survey results were provided to the verification team. As discussed above the data is transferred from the survey records to the MKS survey results Excel sheet/13/. Later it is aggregated in the sheet. The GLC verification team has reviewed this Excel sheet and confirmed data is consistently transferred from the MKS survey results records to the MKS Excel sheet/13//16/.
Verification of data recording:	The data obtained through the quarterly conducted MKS survey is stored in the MKS survey results Excel sheet/13/ and is sent to head office in UK. The recorded survey results/16/ that are kept in the local office at Nairobi were reviewed. Thus, the GLC verification team understands PP has adequate data recording systems to ensure the quality and accuracy of the data.
Verification of data calculation and reporting	N/A. It is to be noted data is collected through surveys but not calculated. Hence, the collected data is recorded in the survey questionnaire. This data is transferred to the MKS survey results Excel sheet/13/ and sent to H.O. Later, it is reported in the MR and ER sheet/13/11/ during the course of verification. After checking all the records and the MKS survey results Excel sheet/13//16/, the verification team is convinced that the reported data is credible.
Reporting frequency:	Quarterly and annually during the course of verification in May, August, December 2012 and February 2013. Kindly refer below.
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	It should be noted that a delay of one month occurred i.e. the MKS survey was conducted in December 2012 instead of November 2012 due to ill- health of the project staff. PP has provided a confirmation statement to the verification team/37/. This was confirmed with the survey team during the site visit .Thus, verification team is of the opinion that one month delay is unintentional and acceptable.
If applicable, has the reported data been cross-checked with other available data?	This data presented in the ER sheet/11/ was cross checked with the MKS survey results/13/ and was also confirmed with the stakeholders during the on site visit.

How were the values in the monitoring report verified?	As discussed above the reported data has been checked with the data available in the survey results records/13/16/. It has revealed that the reported data is of good quality and is credible.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The source of data is the MKS survey. The GLC verification team has interviewed the survey team and other personnel who are involved in data collection, recording, transfer and its quality check. The GLC verification team was convinced that the existing the data management system is maintained well to ensure the quality of the data.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	Woody biomass combustion avoided due to alternative fuels in year y in project ($X_{af, Pj,Y}$) (Fraction) Zero. As discussed in the above parameter, PP has considered that consumption of alternative or renewable fuels can be assumed as zero in the baseline and project scenario as well for simplicity and practical purposes while conducting the KPT. PP has confirmed through baseline surveys that there was mixing of alternative/renewable fuels in the project area and that the status of this parameter remained same in the project scenario. However, the KPTs were designed to only focus on measuring the primary fuel. Hence, assuming this value as zero is considered valid and correct. The same was confirmed through the document review/13/16/ and on-site interviews by the GLC verification team.
Type of monitoring equipment:	N.A. The parameter is monitored through Monitoring Kitchen Surveys which are conducted quarterly (once in three months).
Verification of data generation:	Monitoring Kitchen Surveys. Data obtained through the MKS survey is transferred to the PP's office located in Nairobi and further it will be stored in the files and later recorded in the MKS survey results Excel sheet/13/. The GLC verification team has reviewed the Excel sheet data with the data provided in the record sheets/16/ stored in the project participant's office. Furthermore, these results were also confirmed with the local stakeholders and the cook stove users during the on site interviews. Thus, the GLC verification team asserts that the data

	obtained through surveys is reliable and verifiable.
Measuring frequency:	Quarterly Monitoring Kitchen Surveys are conducted quarterly in May, August, December 2012 and February 2013.
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Monitoring frequency is in accordance with the applied monitoring methodology and also the monitoring plan. However, there is a one month delay in conducting the MKS 7. Kindly refer below.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	No. It has to be noted that the data is collected through the surveys. The survey team is trained to collect the precise information. The survey sample size was chosen as 45 which is more the sample size (25) recommended by the applied methodology/7/. The GLC verification team has reviewed the monitoring protocol containing the details of the survey process and contract of with third party Center for research in Environment Kenya and the organogram containing the flow of data and it's internal cross checking/21//36/. This was found to be adequately implemented and the conducted surveys meet the QA/QC requirements during the verification site visit by interviewing the survey team and monitoring team handling the monitored data. Thus, it is assessed that the monitoring methods represent a good monitoring practice.
Verification of data aggregation:	MKS survey results were provided to the verification team. As discussed above the data is transferred from the survey records/16/ to the MKS survey results Excel sheet/13/. Later it is aggregated in the same sheet/13/. The GLC verification team has reviewed the Excel sheet and checked the consistency of the transferred data/13//16/.
Verification of data recording:	The data obtained through the quarterly conducted MKS survey is stored in the MKS survey results Excel sheet/13/ and is sent to head office in UK. The recorded survey results/16/ that are kept in the Project Participant's office were reviewed. Thus, the verification team understands PP has adequate data recording systems to ensure the quality and accuracy of the data.
Verification of data calculation and reporting	It is to be noted data is collected through surveys but not calculated. Hence, the collected data is recorded in the survey questionnaire. This data is transferred to the MKS survey results Excel sheet/13/ and sent to H.O. Later, it is reported in the MR and ER sheet during the course of verification. After checking all the records and the Excel sheets/13//11/, the verification

	team is convinced that the reported data is credible.
Reporting frequency:	Quarterly and annually during the course of verification in May, August, December 2012 and February 2013. Please refer below.
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	It should be noted that a delay of one month occurred i.e. the MKS survey was conducted in December 2012 instead of November 2012 due to ill- health of the project staff. PP has provided a confirmation statement to the verification team/37/. This was confirmed with the survey team during the site visit .Thus, verification team is of the opinion that one month delay is unintentional and acceptable..
If applicable, has the reported data been cross-checked with other available data?	This data presented in the ER sheet was cross checked with the MKS survey results and was also confirmed with the stakeholders during the on site visit.
How were the values in the monitoring report verified?	As discussed above the reported data has been checked with the data available in the survey results records. It has revealed that the reported data is of good quality and is credible.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The source of data is the survey. The GLC verification team has interviewed the survey team and other personnel who are involved in data collection, recording, transfer and its quality check. Verification team was convinced that the existing data management system is well maintained to ensure the quality of the data.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	Usage in year y (Fraction)
Type of monitoring equipment:	N.A.
Verification of data generation:	Usage Surveys
Measuring frequency:	Usage surveys are conducted biennially (once in a two year period)
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and the registered monitoring plan as well.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	N.A. As it is a survey, accuracy of monitoring equipment is not relevant to this parameter. The GLC verification team has reviewed the questionnaire and the interviewed the survey team and the beneficiary households using the cook stove. Thus, it was assessed that the surveys are conducted to get the precise relevant information on the usage of cook

	stove. The survey sample size was choosen as 100 units which is complying with the applied methodology/6/. The GLC verification team has reviewed the monitoring protocol containing the details of the survey process and contract of with third party Center for research in Environment Kenya and the organogram containing the flow of data and it's internal cross checking/21//36/. This was found to be adequately implemented and the conducted surveys meet the QA/QC requirements during the verification site visit by interviewing the survey team and monitoring team handling the monitored data. Hence, it is concluded that it represents a good monitoring practice.
Verification of data aggregation:	As per the registered monitoring plan, the usage survey results are sent to the local office, The M&E co-ordinator transfer the data into an electronic sheet which will be again sent to their H.O in UK. The GLC verification team has reviewed the results of the usage survey that are stored in the file with the submitted Usage Survey Excel sheet/15/. Furthermore, the verification team has also interviewed the survey team and the households to assess the veracity of the collected data. Thus, the GLC verification team confirmed that the collected data is of good quality.
Verification of data recording:	As discussed above the data is collected, aggregated and recorded in the Usage Survey Excel file//15/. It was submitted to the verification team and was also cross checked. Thus, verification team confirms that the data is recorded and PP has adequate standard operating procedures/19/ to avoid manual errors.
Verification of data calculation and reporting	Data collected through the survey is reported biennially and was reviewed. Hence, the GLC verification team is convinced that data is reliable.
Reporting frequency:	Biennially. The survey was conducted during the 1st monitoring period in July 2012 and hence it will be conducted again in 2014 as per the registered monitoring plan.
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
If applicable, has the reported data been cross-checked with other available data?	This data provided in the Usage survey results Excel sheet/15/ was cross checked with the hard copy of the survey results records/16/ and was also assessed during the stakeholders interviews during the site visit.
How were the values in the monitoring report verified?	As discussed above, data reported in the MR was crosschecked with the Usage Survey Excel sheet data

	and the survey results records were submitted to the verification team during the site visit. After the review, the verification team confirmed that data is reliable and verifiable.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	PP has prepared standard operating procedure to ensure the quality of the data management. PP has also declared that this monitoring system to ensure the quality of the data is anticipated to be implemented by the next monitoring period. Thus, a FAR is also raised. However, during the verification team it was noticed that QA/QC processes/21//36/ are in place for the project activity.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	Age (Adjustment to values of $B_{pj,,y}$ and $AF_{pj,i,y}$ for stoves of age x) (Fraction) 1 It is to be noted that baseline KPT was re-conducted in July 2012 and all the stoves were considered new in the baseline KPT. As all the stoves were considered new, the value of ageing stove KPT is determined as 1. After two years, it will be calculated and applied to determine the emission reductions.
Type of monitoring equipment:	Digital scales
Verification of data generation:	Aging stove Kitchen Performance Test (KPT) to assess the performance of the stoves.
Measuring frequency:	KPTs are conducted biennially/once in a two-year period
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and the monitoring plan.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. As per the registered PDD "*Sets of digital hanging scales accurate to at least 50g will be used, ideally with Kenya Bureau of standards certification. Where equipment is acquired outside of Kenya it will be taken to the Kenya Bureau of Standards for calibration and certification.*/2/" Technical specifications of the purchased and used digital scales were furnished and they were accurate to 10g /30/. As per the calibration procedure prepared based on the available guidelines during the validation/35/, PP has chosen the calibration frequency as 3 years. It is to be noted that these equipments were purchased in May 2011/30/. Hence, they will be calibrated in May 2014 or PP will use newly purchased scales to conduct the KP

	tests.
Verification of data aggregation:	The GLC verification team has reviewed the KPT results Excel sheet/14/ calculations and the formulae linked that were used to aggregate the data. Thus, it is assessed that aggregated data is of good quality. Moreover, the personnel conducting the survey and the personnel recording and aggregating the data are competent enough to ensure the quality.
Verification of data recording:	Data is collected, aggregated and recorded in the ER sheet/11/ as per adequate standard operating procedures/19/
Verification of data calculation and reporting	Data collected through the survey is reported biennially. The latest surveys were carried out in July 2012 and were reviewed by the GLC's verification team. In addition, these surveys were overseen by independent third party HED consulting during October 2010/38/. At that time the KPT was conducted with the sample size of 45. This could not meet the required confidence and precision level. Upon GS recommendation, PP has conducted the KPTs again in July 2012 considering 90 samples. The results of the latest KPTs are presented in the KPT results excel sheet and were crosschecked with the KPT test records made available on-site/14//16/. Hence, verification team convinced that data is reliable.
Reporting frequency:	Biennially
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per the registered monitoring plan and the monitoring methodology, the reporting is done biennially. The KPT was conducted in July 2012/14/ within in two years from the project registration date in Decemeber 2010/5/.
If applicable, has the reported data been cross-checked with other available data?	Data presented in the KPT results Excel sheet/14/ is cross checked with the test results records of KPT/16/ that the stoves are functioning well. The same was also confirmed with the stakeholders during on-site interviews.
How were the values in the monitoring report verified?	As discussed above, data reported in the MR was crosschecked with the KPT results Excel sheet/14/ data. The survey results records were submitted to the verification team during the site visit. After the review, the verification team confirmed that data is reliable and verifiable.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	PP has prepared standard operating procedure to ensure the quality of the data management. PP has also declared that this monitoring system to ensure the quality of the data is anticipated to be implemented by the next monitoring period. Thus, a FAR is also

	raised. However, during the verification team it was noticed that QA/QC processes/21//36/ are in place for the project activity.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	Leakage (t CO_2e)
Type of monitoring equipment:	N.A.
Verification of data generation:	NA. Kitchen Surveys. As per the monitoring plan of the registered PDD /2/, leakage is considered only when new stoves are installed. As per the registered PDD, PP has envisaged to implement the project by December 2011/2/. However, PP has installed only 9,311/5//12/ cook stoves till June 2011. Since then no cook stoves are installed to date. Further, in the current monitoring period there are no new stoves installed. Hence leakage is considered zero and it is consistent with the estimation provided in the registered PDD/2/.
Measuring frequency:	Biennially
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not Applicable.
Verification of data aggregation:	N.A
Verification of data recording:	N.A
Verification of data calculation and reporting	N.A
Reporting frequency:	Biennially/ Once in a two-year period
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
If applicable, has the reported data been cross-checked with other available data?	N.A.
How were the values in the monitoring report verified?	N.A.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	N.A.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	$X_{nrb,pj,y}$ (Fraction) Non-renewability of woody biomass fuel in year y in project scenario 0.95
Type of monitoring equipment:	N.A.
Verification of data generation:	Third party Report/22/ prepared by C4 Ecosolutions
Measuring frequency:	Biennially/Once in a two year period
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology/6/ and the monitoring plan.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	It has to be noted this is a calculated value by a third party, C4 Ecosolutions, which is a consulting company specialized in carbon sequestration and climate change adaptation, Furthermore, the verification team has cross checked the value applied for the host country in one of the programme of activity projects registered under the CDM with reference number PoA 5336 (http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/GND0CTW7MQ6ZJ2IE5XA4KL3SF1YP9U/view). The value reported in the registered CDM-PoA-DD for non-renewability of biomass (NRB) is 0.96. Even though this value is not specifically defined for a particular province, it has been applied as the NRB value for the host country of Kenya. Hence, the verification team is able to confirm that the NRB value applied by the PP is credible and reliable.
Verification of data aggregation:	N.A. Data is sourced from a third party report. Thus, this value assessed as reliable.
Verification of data recording:	Data is sourced from a third party report. Thus, this value is assessed as reliable.
Verification of data calculation and reporting	N.A. Data is sourced from a third party report. Thus, this value assessed as reliable.
Reporting frequency:	Biennially. It was noted that this value was assessed again on June 2012 within in two years from previous study conducted in November 2010./22/ Thus, the frequency of the reporting/determination of the applied NRB value is considered valid.
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per the registered monitoring plan and the applied monitoring methodology this study is conducted biennially by a third party to determine the non-renewability of woody biomass in the project scenario in the year y.
If applicable, has the reported data been	N.A. As this study is conducted by third party, the data

cross-checked with other available data?	is assessed as reliable.
How were the values in the monitoring report verified?	This data provided in the MR was cross checked with the third party NRB report and found correct/5/. Hence, the values are assessed as correct.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	N.A. As this study is conducted by third party, provided data is assessed as reliable.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	$B_{bl,,y}$ (t biomass/ t/ year) Mass of woody biomass combusted in the baseline in year y.
Type of monitoring equipment:	N.A.
Verification of data generation:	Kitchen Performance Test reports
Measuring frequency:	KPTs are conducted biennially/ once in a two year period
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and the monitoring plan.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. As per the registered PDD *"Sets of digital hanging scales accurate to at least 50g will be used, ideally with Kenya Bureau of standards certification. Where equipment is acquired outside of Kenya it will be taken to the Kenya Bureau of Standards for calibration and certification./2/"* Technical specifications of the purchased and used digital scales were furnished and they were accurate to 10g /30/. As per the calibration procedure prepared based on the available guidelines during the validation/35/, PP has chosen the calibration frequency as 3 years. Further, the new digital scales were purchased in May 2011/30/. Hence, these scales will be calibrated in May 2014 or PP will use newly purchased scales to conduct the KP tests.
Verification of data aggregation:	Data obtained through the tests are aggregated at the local office by the M& E co-ordinator. The test reports are sent to the local office from the surveyors. This information is provided to the verification team. The GLC verification team has reviewed the KPT results Excel sheet/14/ calculations and the formulae linked that were used to aggregate the data. Thus, it is assessed that data aggregation is of good quality. Moreover, the personnel conducting the survey and

	the personnel recording and aggregating the data are competent and have received training[/20/] to ensure data quality.
Verification of data recording:	Data is collected, aggregated and recorded in the KPT results Excel file[/14/]. It was submitted to the verification team and was also cross checked. Thus, the verification team confirmed that the recorded data is of good quality and that PP has adequate standard operating procedures[/19/] to avoid manual errors.
Verification of data calculation and reporting	Data collected through the KP tests is reported biennially and was reviewed by the verification team. It is noteworthy that these tests were conducted under the supervision of third party HED consulting in October 2010[/38/]. It did not meet the required confidence interval due to the taken sample size of 45 households., PP has conducted the tests by employing their staff upon receiving the permission from GS with increased sample size of 90 households in July 2012[/14/]. This data was furnished to the verification team and test result sheets were crosschecked with the test report documents available at their office in Nairobi. Hence, the GLC verification team is convinced that data is reliable.
Reporting frequency:	Biennially
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. As per the registered monitoring plan and the monitoring methodology, the reporting is done biennially. The KPT was conducted in July 2012[/14/] within in two years from the project registration date in Decemeber 2010[/5/].
If applicable, has the reported data been cross-checked with other available data?	N.A. This value is determined during the baseline study and is consistently applied to determine the emission reductions.
How were the values in the monitoring report verified?	As discussed above, the value was reviewed and noticed the value is consistent with the ex-ante value provided in the registered PDD.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	N.A. This is already determined and assessed during the validation.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	$B_{pj,y}$ (t biomass/ t/ year) Mass of woody biomass combusted in the project in year y.
Type of monitoring equipment:	Digital scales

Verification of data generation:	Kitchen Performance Test
Measuring frequency:	KPTs are conducted biennially/once in a two years.
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and the monitoring plan.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. As per the registered PDD *"Sets of digital hanging scales accurate to at least 50g will be used, ideally with Kenya Bureau of standards certification. Where equipment is acquired outside of Kenya it will be taken to the Kenya Bureau of Standards for calibration and certification./2/"* Technical specifications of the purchased and used digital scales were furnished and they were accurate to 10g /30/. As per the calibration procedure prepared based on the available guidelines during the validation/35/, PP has chosen the calibration frequency as 3 years. It is to be noted that the digital scales were purchased in May 2011/30/. Hence, they will be calibrated in May 2014 or PP will use the newly purchased digital scales to conduct the KP tests.
Verification of data aggregation:	Data obtained through the tests are aggregated at the local office by the M& E co-ordinator. The test reports are sent to the local office at Nairobi from the surveyors. This information is provided to the verification team. The GLC verification team has reviewed the KPT results Excel sheet/14/ calculations and the formulae linked that were used to aggregate the data. Thus, it is assessed that data aggregation is of good quality. Moreover, the personnel conducting the survey and the personnel recording and aggregating the data are competent and received training/20/ to ensure the quality.
Verification of data recording:	Data is collected, aggregated and recorded in the KPT results Excel file/14/. It was submitted to the verification team and was also cross checked. Thus, the verification team confirmed that the recorded data is of good quality and that PP has the adequate standard operating procedures/19/ to avoid the manual errors.
Verification of data calculation and reporting	Data collected through the KP tests is reported biennially and was reviewed. It is noteworthy that these tests were conducted by third party HED consulting during October 2010/38/. As it did not meet the required confidence interval due to considered sample size of 45 households. PP has conducted the tests by employing their staff upon receiving the permission from GS with increased sample of 90 during July 2012/14/. This test results were furnished to

	the verification team and test result sheets were crosschecked with the test report documents/14//16/ available at their office in Nairobi. Thus, the GLC verification team is convinced that data is reliable.
Reporting frequency:	Biennially
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in accordance with the monitoring plan and the monitoring methodology/2/6/.
If applicable, has the reported data been cross-checked with other available data?	Data presented in the KPT results Excel sheet/14/ is cross checked with the test results/16/ as well as assessed during the stakeholders interviews during the site visit.
How were the values in the monitoring report verified?	As discussed above, data reported in the MR/5/ was crosschecked with the KPT results Excel sheet/14/ data. The survey results records were submitted to the verification team during the site visit. After the review, the GLC verification team confirmed that data is reliable and verifiable.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	PP has prepared standard operating procedures/19/ to ensure the quality of the data management. PP has also declared that this monitoring system to ensure the quality of the data is anticipated to be implemented by the next monitoring period. Thus, a FAR is also raised. However, during the site visit, it was noticed that the QA/QC processes as referred in the monitoring protocol/36/ are in place for the project activity.

	Assessment activities
Data / Parameter (as per monitoring plan in the registered PDD):	New Stove
Type of monitoring equipment:	N.A.
Verification of data generation:	New Stove KPT. There are no new stoves installed in the current monitoring period.
Measuring frequency:	Biennially
Is measuring frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Monitoring frequency is in accordance with the applied monitoring methodology and the monitoring plan/2//6/.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Verification of data aggregation:	N.A

Verification of data recording:	N.A
Verification of data calculation and reporting	N.A
Reporting frequency:	N.A
Is reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	N.A
If applicable, has the reported data been cross-checked with other available data?	N.A
How were the values in the monitoring report verified?	N.A.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	N.A.

Gold Standard Sustainability Monitoring Parameters:

	Assessment/ Observation
Sustainability Indicator	Air Quality
Parameter(s) (as per monitoring plan in the registered Passport):	1. Total suspended particulate matter (TSPM) – measured indirectly by wood consumption 2. Respirable suspended particulate matter (RSPM) – measured indirectly by wood consumption. These were the chosen parameters in the baseline. It is also stated in the passport that PP would not measure the TSPM and RSPM, and thus wood consumption is chosen as the parameter.
Assess the monitoring: method: Whether it is inline with the approved GS –Passport,. Provide the details of the reviewed documents and the data.	As per the GS passport[/4/] and the applied methodology, PP has to monitor this parameter quarterly and biennially by conducting the kitchen surveys and kitchen performance tests. From the document review and site visit, it is confirmed that PP is monitoring this parameter as per the passport and the methodology. This data is collected as a part of the quarterly conducted monitoring Kitchen Survey (MKS) by survey team.The GLC verification team has interviewed the survey team in order to assess the competency of the survey team and found the team is competent and has the relevant experience and training to conduct the surveys. In addition to this the GLC verification team has also conducted a

	physical check of the households that are using the improved cook stoves. It is confirmed that the wood consumption is reduced by more than 50% from the interviews. Furthermore, the KPT was conducted in July 2012 which was confirmed by reviewing the previous verification report/18/ and will be conducted again during 2014.

	Assessment/ Observation
Sustainability Indicator(II)	Quality of the employment
Parameter(s) (as per monitoring plan in the registered Passport):	Number of training workshops organized, number of attendees.
Assess the monitoring: method: Whether it is inline with the approved GS –Passport. Provide the details of the reviewed documents and the data.	As per the GS passport, this data is collected and kept in the stove contractor records by the project developer. As per the passport, PP has maintained and provided these records to the verification team which were reviewed during the site visit at their office in Nairobi. After the review, the verification team confirmed that PP has decided to conduct the training program every year and submitted the conducted details of the training provided in July 2012 and January 2013/20/. It has to be noted that there are no new stoves included in the project during the current monitoring period. Thus, the trainings provided to the survey team and employees who conduct the surveys are vital to maintain the quality of the project and to get the precise data from the improved cook stove users. Moreover, training conducted helps assessing the competency of the survey team and the employees- The GLC verification team interviewed them and is of the opinion that the team is competent and has the relevant experience and training to conduct the surveys.

	Assessment/ Observation
Sustainability Indicator	Livelihood of the Poor
Parameter(as per monitoring plan in the registered Passport):	Wood consumption
Assess the monitoring: method: Whether it is inline with the approved GS –Passport, Provide the details of the reviewed documents and the data.	As per the GS passport and the applied methodology, PP has to monitor this parameter quarterly and biennially by conducting the kitchen surveys and kitchen performance tests. From the document review and site visit, it is confirmed that PP is monitoring this parameter as per the passport

	and the methodology/6/. This data is collected as a part of the quarterly conducted monitoring Kitchen Survey (MKS) by survey team. The GLC verification team has interviewed the survey team in order to assess the competency of the survey team and found the team is competent and has the relevant experience and training to conduct the surveys. In addition to this verification team has also physically went to check it with the households who are using the improved cook stoves. It is confirmed that the wood consumption is reduced by more than 50% from the interviews. It was revealed from the surveys that the fuel collection time was reduced to almost 2 hours and the distance travelled to collect the firewood was reduced to 2 km/13//16/. During the on-site interviews, the verification team has learnt that in the baseline scenario, the households owners used to spend almost 4 hours and travel about 4 km to collect the firewood. They have started to utilise the time to generate income such as micro businesses.

	Assessment/ Observation
Sustainability Indicator	Access to affordable and clean energy services
Parameter (as per monitoring plan in the registered Passport):	Change in volume of traditional fuel consumption
Assess the monitoring: method: Whether it is inline with the approved GS –Passport, Provide the details of the reviewed documents and the data.	As per the GS passport, this data is collected and kept in the stove contractor records by the project developer. As per the passport, PP has maintained and provided these records to the verification team which were reviewed during the site visit in the office at Nairobi. After the review, the verification team confirms that PP has decided to conduct the training program every year and submitted the conducted details of the training provided in July 2012. It has to be noted that there are no new stoves included in the project during the current monitoring period. Thus, the trainings provided to the survey team and employees who conduct the surveys are vital to maintain the quality of the project and to get the precise data from the improved cook stove users. To assess the competency of the survey team and the employees, verification team interviewed them and understood that the team is competent and has the relevant experience and training to conduct the surveys. In

	addition to this, verification team has interviewed the households to check this information during the site visit. Based on the above, it is confirmed that the wood consumption is reduced by more than 50% from the interviews. Further, these improved cook stoves are more efficient and reduce the smoke and improves the indoor air quality. In addition to this, the CZK stove saves time and reduces the distance to collect firewood which enables the household owners to focus on other productive activities to generate more income/13//16/.

	Assessment/ Observation
Sustainability Indicator	Quantitative employment and income generation
Parameter (as per monitoring plan in the registered Passport):	Household income generated from employment generated by the project
Assess the monitoring: method: Whether it is inline with the approved GS –Passport. Provide the details of the reviewed documents and the data.	As per the GS passport, this data is collected and kept in the stove contractor/ project developer records/33/ by the project developer. As per the passport, PP has maintained and provided these records to the verification team which were reviewed during the site visit at their office, in Nairobi. After the review of the list of employees including their income levels and the contracts with the local stove manufacturers/33/, the verification team confirmed that the provided details in the final version of the MR/5/ are deemed correct and verifiable.

Thus GLC confirms that

- the monitoring activities comply with the monitoring plan of the registered PDD/2/ and the sustainability monitoring plan of the GS passport/4/.
- all parameters that are baseline, project and leakage emission parameters are monitored as described in the registered monitoring plan.
- the frequency of monitoring and the accuracy of the measurement equipments are in line with the registered monitoring plan.
- In addition to this all the GS sustainability monitoring parameters are adequately described in the MR consistent with the approved GS passport/4/.

Based on the document review and on-site visit interviews, GLC verifies that the registered monitoring plan is implemented as planned and confirms that the operational and management system is implemented as per the registered monitoring plan.

During the on-site visit the verification team was able to verify that monitoring organization structure/20/ is in line with monitoring plan of the registered PDD/2/, GS Passport and monitoring report. Moreover, the

verification team has interviewed the households; survey team and the personnel of Carbon zero Kenya and verified relevant documents, like office records containing the usage survey, MKS and KPT survey questionnaire and results and data recording and archiving systems of the company. An operational structure was established with responsibilities clearly identified.

GLC was able to verify that authorities and responsibilities for monitoring and reporting of all data related to the emission reductions were clearly defined for this monitoring period from 2012-04-01 to 2013-03-31. Moreover, all project related surveys were conducted by the qualified and trained staff. PP had appointed an independent third party i.e. Centre for Research in Environment Kenya in 2010 to review their data collections and recording procedures. It is assessed that the data collected through the surveys by the survey team is sent to the local office at Nairobi. All the hard copy documents of the surveys, kitchen tests reports, builders records are all kept in the designated location in the local office. The GLC verification team had reviewed all the relevant survey records to assess the credibility of the data and a CAR is raised due to the observed discrepancy in the number of stoves. Later, PP has addressed the CAR and submitted all the required documents to close the finding. It is also understood that file is documented on site and entered into the Excel sheet and the M&E co-ordinator send these sheets along with the scan copy of the CTFs to the head office located in the UK. These were again reviewed and the file is kept in the database. This data is finally extracted and sent to the verification team for verification. Thus, the GLC verification team is able to assert that the PP has adequate data collection, recording, transfer and storage systems to ensure not only the quality of the data. During the course of assessment, it was noticed that the data stored in the lap top pertaining to trainings were lost due to virus. PP was sought to address this and a FAR is raised to address sue and ensure the robust back –up of the data. The frequency of monitoring, collection of data and reporting details were conducted as outlined in the final version of the MR/5/ which is consistent with the monitoring plan available in the latest version of the PDD/2/.

4.1.4 Compliance with the Calibration Frequency Requirements for Measuring Instruments

There is no defined calibration frequency stated in the registered PDD. PP has furnished the details of the newly purchased and used digital scales in the previous KP tests conducted in 2012. It is noteworthy that these digital scales were purchased in May 2011/30/, hence the equipment used for KPTs over the monitoring period was within its three-year calibration period and the measured readings obtained during the KP tests are thus considered valid for the current monitoring period. These digital scales will be calibrated in May 2014 or PP will replace them with newly purchased digital scales. These documents are reviewed and it is understood that PP has chosen to calibrate the equipments at least once in three years as per the calibration procedure. This procedure is prepared on the basis of the available CDM general guidance at the time of validation/35/. Hence, it is assessed as that three years calibration frequency is acceptable.

4.1.5 Assessment of Data and Calculation of Emission Reductions

The document review and the site visit revealed that a complete set of data for the specified monitoring period is available for a total number of eligible stoves of 7,946 units.

Total distribution records: Total distribution records presenting details of the constructed cook stoves was submitted to the GLC verification team in an Excel sheet/12/ containing the data of distributed cookstoves till the end of the current monitoring period (2013-03-31). This Excel sheet was verified with

total distribution records data stored in the CTF files available on-site/12/. Thus, during the crosscheck it was detected that the number of cook stoves with CTF forms was inconsistent. In order to address the issue, the verification team has raised a CAR and PP has provided the realistic data and exact number of newly added CTFs from the previous year. All the records were checked.

Monitoring Kitchen Survey:
As per the sampling guidance the MKS survey is conducted on a quarterly basis except the MKS 7. Thus MKS 5, 6, 7 and 8 are conducted in the current monitoring period during May, August, December in 2012 and February 2013. It was assessed reasonable that PP has conducted the MKS 7 in December 2012 instead of November 2012 due to the non-availability of staff due to ill-health/37/. This was confirmed with the survey team during the on-site visit. GLC verification team is of the opinion that this delay is unintentional and PP has endeavoured to maintain the monitoring frequency. For the sake of transparency, a table is illustrated on page number 10 of the final version of the MR indicating the chronology of each survey. Each MKS contains 70 questions to assess the demographics, seasonality, fuel use and cooking habits and sustainability monitoring parameters. As per the applied methodology, the sample size for the MKS survey should not be less than 25. However, PP has chosen a sample size of 45 which is better than the minimum sample (25) stipulated by the applied Gold Standard methodology "Methodology for Improved Cook-stoves and Kitchen Regimes"/6/. The results obtained from the monitoring kitchen survey are crosschecked with the MKS survey results/13/ documents made available during the site visit/16/. The GLC verification team has interviewed the stove users to extract the information related to the demography, no. of family members, fuel use, cooking habits and the sustainability aspects as well/34/. This information was found consistent with the provided MKS survey results.

After the site visit interviews with the selected households the verification team confirmed that the provided data is fully consistent with the data obtained from the households. This, all data obtained through MKS survey is assessed as credible and deemed verifiable for the current monitoring period.

Usage Survey: As per the registered monitoring plan, the usage survey is conducted biennially. This was conducted in June 2012. It has to be noted the project was registered on 2011-12-30/5/. Hence, it is clear that this survey is conducted with in two years after the project registration date.

As per the applied methodology, for a group of size more than 1,000 the minimum sample size should be 100. Accordingly PP has taken a sample of 100 for the population of a group of 9311 cook stoves to determine the usage of the improved cook stoves in the chosen location. This survey consists of 12 questions and the results presented in usage survey results Excel sheet. The GLC verification team has reviewed the sheet and the results were also cross checked during the verified during the site visit. /13//16/. The GLC verification team has used a checklist to assess the required details and confirms that the results of the usage survey are consistent with the observations noted during the site visit /34/.

Kitchen performance Tests: As per the registered monitoring plan, the Kitchen performance tests were conducted biennially. This was conducted in July 2012.

As per the applied methodology 20-60 households are sufficient to assess the variation in the cooking patterns of the baseline and project households/6/. Further, it was observed that the KPT test was conducted in October 2010 under the supervision of third party HED consulting. It did not meet the required confidence interval due to the taken sample size of 45 households. PP has conducted the tests

again by employing their staff upon receiving the permission from GS with increased sample size of 90 households in July 2012[/14/]. This data was furnished to the verification team and test result sheets[/16/] were crosschecked with the test report documents available at their office in Nairobi. Thus, it is also assessed that data presented in the emission reduction sheet[/11/] is reliable and credible.

Calculations of baseline emission, project emissions and leakage emissions were done as per the formulae and methods stated in the registered monitoring plan and the monitoring methodology[/6/].

The emission reduction sheet is also reviewed and all the formulae are linked and the values are reproducible[/11/]. Hence, the verification team confirms that the reported emission reductions for the current monitoring period are assessed credible and deemed correct.

Sampling Approach and Application of Materiality:

The GLC verification team has applied the latest guidelines on sampling to determine the acceptance sample size of the project activity. The applied sampling guidelines are as follows:

- Standard for sampling and surveys for CDM PAs and PoAs, EB 69, Annex 4[/25/.]
- Guidelines for sampling and surveys for CDM project activities and the programme of activity, EB 69, Annex 5[/26/].

Sampling guidelines are applied to choose the acceptance sample to assess the reliability of the data provided by PP. The GLC verification team has applied the guidelines and chosen the acceptance number as 2 with an acceptance quality level of 1 % and un-acceptance quality level of 20%. Accordingly, 22 samples were randomly selected out of a total of 145 (100 from usage survey and 45 from MKS survey) samples chosen by the PP. All these households were physically met and interviewed by the verification team during the onsite verification to assess the veracity of the provided MKS and usage survey details for the current monitoring period. Out of the acceptance sample of 22, only one unit was found non –operational i.e. one household was not using the cook stoves. Thus, the error in the acceptance sample is less than 20 % (1/22=4.5%). As per para 26 of "Standard for sampling and surveys for CDM PAs and PoAs", EB 69, Annex 4 : the maximum error limit should be lower than 5% while determining the size of the sample[/25/]. Thus, the chance of rejecting the PP's sample is less than 5 %. Hence, in line with the guidelines it is assessed that the PP' sample is acceptable. Based on the above assessment, verification team concludes that the chosen sample and the data verified ensures the reasonable level of assurance.

Assessment of the Open finding from the previous verification :

Open findings from the previous verification are assessed in the table below:

S.No.	FARs	PP response	GLC assessment
1	FAR1 : Distribution data collection included manual data handling on 3 levels (builders, their supervisors, and co2balance office personnel). This increases risks of errors considerably.	Since the last stoves were constructed in the project area the PP has designed updated Standard Operating Procedures that reduce data handling	The existing standard operating procedures[/19/] include data handling procedures to avoid the errors due to manual intervention and to

	Please reduce the level of manual data handling and transfer and improve quality checks on the collected data.	and improve data quality. The PP is currently working on an additional SOP to cover Monitoring and this will be complete in time for next verification. When construction recommences in the project area these procedures will be implemented.	improve the data quality. PP has clearly responded that these operating procedures will be fully in place and implemented by the end of next monitoring period. Thus, this FAR 1 is carried over to the next verification.
2	FAR 2: Although it is clear from the interviews that the personnel have been trained, keeping training records would give a picture of how many people were trained, and would present verifiable evidence: Please record training events and maintain training material and lists of attendee.	The PP is putting in place improved record keeping for training events. co2balance UK Ltd have records for two staff training sessions conducted during this monitoring period, the first was a companywide training day held in Nairobi, attended by all staff in Kenya covering a wide range of topics. The agenda and attendance records can be found in the document 'Agenda Training 5 July 2012.' The second training session was conducted by the Country Coordinator in the Project Area in January 2013, details of which can be found in the document 'Aberdares Training January 2013.' Moving forward the PP will conduct at least one major training event per year for all staff in Kenya. The last was conducted in July 2012 and the next is scheduled for July 2013. Smaller project area specific training events will happen on an ad hoc basis and reported on if/when they are happen.	PP has defined the training frequency to address the finding. During the site visit, the verification team interviewed all the personnel involved in the project. It was understood that they have the required knowledge and training was also provided after their joining on the cook stoves including the details of the number of trained personnel through the document review. The GLC verification team interviewed the survey team and the personnel involved in the data recording and transfer to their H.O. All the personnel were competent and trained to maintain the quality of the data. Thus, the verification team is convinced that the quality of the employment is maintained in the project. Though the verification team was provided with a document titled 'Agenda Training 5 July 2012', and 'Aberdares Training January 2013',/20/ the fact that all other data pertaining to trainings were found lost due to the

			virus affect was noticed. Hence, verification team sought and explanation from the PP on how such incidents will be handled in the future. Furthermore to address this issue, FAR 2 is raised to avoid and handle such incidences without the loss of data.
	FAR 3: MKS questionnaires included a qualitative question on the difference in smoke level. This leads to either "more" or "less" response, potentially discouraging respondents to give a response "no difference". It can hardly be expected that smoke levels would be higher than with the 3-stone fire but similar levels could be observed including but not limited to cases where cook stove is not used properly. Please revise questionnaire to avoid leading the beneficiaries to give a response that smoke levels are reduced.	PP has provided the results of the revised questionnaire and also referred to FAR 6 (which is also linked to the revision of the questionnaire)	PP has submitted the revised questionnaire to get clarity on the smoke reduction. This is also applied during MKS 8. It is noted that the previous verification was completed by November 2012. Hence, PP could not apply the revised questionnaire in MKS 5, 6, and 7 which were conducted during the previous verification. Thus, verification confirms that FAR 3 is addressed appropriately and it is closed.
	FAR 4: The sustainability parameters "Quality of employment" and "Technology transfer and self-reliance" have not been monitored in accordance with the sustainability monitoring plan. For this verification period, the parameters been scored as 'neutral', and the PP has suggested alternative monitoring: Please revise the monitoring plan in the GS passport accordingly before the next verification.	Sustainable development criteria are reported biennially and as they were reported in the previous monitoring period they are not included in this one. However the PP will continue to score 'Quality of Employment' based on the parameter training workshops delivered as stated in the GS Passport as this simply requires improved record keeping in line with FAR2. However as stated by the DOE during first verification 'Technology transfer and self reliance' can only be scored positively if the general public is trained. Having	PP has submitted the revised approved GS passport during the course of verification excluding the two sustainability monitoring parameters i.e. "Quality of employment" and "Technology transfer and self-reliance" Accordingly, the MR is updated and includes the sustainability monitoring parameters as per the revised passport. Hence, FAR 4 is closed.

		reviewed the GS Passport v4 it appears that this parameter was already scored as neutral and therefore should not have been included in the Sustainable Monitoring Plan of the Passport (v4). The Monitoring plan in the GS Passport has been amended and the PP will cease to monitor 'Technology transfer and self reliance.'	
	FAR 5: The usage survey revealed conflicting messages, where, for example, 99% of the surveyed beneficiaries stated that their cook stoves were working correctly, but 87% also revealed that their cook stoves were damaged. Similarly confusing, 99% of beneficiaries stated that they knew how to use the stove correctly, yet 69% stated that their stove was either in need of repair, or that they were in need of training on how to use it. Please provide further investigation and explanation regarding these unclear results in the next monitoring period, including analysis of what kind of damage households reported, and modify questionnaire for usage survey if needed.	The PP has changed some of the questions and layout of the Usage Survey to improve the quality and usefulness of results. Q8 – Is your CZ stove working correctly has been removed as it is effectively a duplicate of 'Is your stove damaged?' this should lead to less confusing results. Furthermore surveyors will now not ask if the stove is damaged but make a self assessment based on a visual inspection of the stove. Our surveyors are well placed to understand what constitutes damage that will affect efficiency and usefulness as opposed to the cosmetic damage that is often reported by users when asked. The PP is already conducting a project wide survey of stoves to ascertain if they are modified/damaged and this will continue as part of our monitoring procedure. Finally Q10 asking if the beneficiaries would like repair or training is no longer a question but an outcome	OK. PP has updated the usage survey questionnaire in order to avoid the ambiguity. The same is provided to the verification team. Thus, the GLC verification team concludes that FAR 5 is closed.

		of questions 7 and 10. Please see the attached Excel that illustrates the original survey as well as the updated version.	
	FAR 6 : Verification team has noted that results of the first verification period indicate that MKS questionnaires may need a few additional questions or modifications: •MKS questionnaires so far have assumed that households continue either collecting or buying wood or questions ask only for trends in time or money spent. However, there is a possibility that some households would change from buying to collecting or vice verse. The questionnaire should include a way to record such change • A considerable share of CZK stoves got modified or damaged. MKS questionnaires or their information collection sheets so far do not include a way to record whether a stove is damaged or modified in any way. Please modify MKS questionnaire and/or its information collection sheet to include ways to record if households have changed a way of getting fuelwood, and whether stoves are modified/damaged.	The Verification Report for the first period was finalised and signed in November 2012 at which point the PP reviewed the Forward Action requests and began acting on them. At this point 2 Monitoring Kitchen Surveys for the period had already been conducted and the third was due imminently. It was therefore not possible to include the changes suggested in FAR 3 and 6 before December 2012. These changes were made in early 2013 and incorporated into MKS 8.	The response adequately addressed the findings. In the recent MKS 8 PP has applied the revised MKS survey questionnaire and it is also substantiated n the MR[/5/]. The GLC verification team has reviewed the revised questionnaire and the survey results to assess whether PP has applied the questionnaire. This was also confirmed with the beneficiary households. Thus, the verification team concludes that the FAR 6 is closed.
	FAR 7 : The PP shall study for the next KPT whether there is a difference in efficiency between broken and not broken stoves on a fuel use per person meal day basis	During the next KPT the PP will analyse whether there is a difference in efficiency between the broken and not broken stoves as highlighted by the Usage Survey. This is scheduled to be conducted in June 2014 based on the biennial monitoring requirements of the methodology.	As per the registered PDD, usage survey is conducted biennially. PP has conducted the study in July 2012 during the previous monitoring period and the verification was completed in November 2012. Hence, PP has stated that it will be conducted in 2014. Thus, this FAR is continued as FAR 3.
8	FAR 8: The PP shall report for the next verification the results of the incentive mechanism targeting households to surrender their baseline stove, by, e.g. by recording the reduction of households relying on baseline stoves.	As noted on page 15 of the PDD and taken from the baseline survey: 'It is striking that 80% of households are still using three stone fires alongside the CZ stove, with nearly 30% cooking on them three times each day [……], given that the	OK. PP has provided the adequate justification on incentive for the cook stove comparison. It was observed that 80% of the households were using the baseline 3 stone cook stoves in the baseline as referred in the registered PDD. The monitoring

		average number of meals cooked per day is less than three.' As illustrated by the table below there has been a significant decrease in baseline stove usage alongside the CZK stove, with on average only 34% of people saying that they still use a supplementary stove as well as their CZK (compared to 80% in the baseline). On average the 34% of households that use more than one stove type still use the CZK more than 50% of the time. Based on this it can be said that since the beginning of the project beneficiaries are reducing their 3-stone fire use and increasing CZK use. Appropriately captured this will result in greater emissions reductions however this has been conservatively excluded.	survey results reveal that about 34% of the households use the baseline cook stoves or both. The GLC verification team has reviewed the PDD and the survey results. After the review and on-site interviews with the households, verification team is convinced that the people are willing to use the improved cook stoves. Thus, it is evident that the incentive mechanism is working well. The number of households using the baseline stoves has reduced. Thus, the FAR is closed.

Two FARs are carried over as discussed above and one new FAR is raised. In total, PP is required to address three FARs during the next verification. They are also included in Annex - A.

4.2 Post Registration Changes

This assessment:

☒ Does not include any post registration changes and therefore this section is not applicable to this project activity.

☐ Includes changes as part of the request for issuance. The assessment of the changes is done in a separated document.

☐ Includes changes that required prior approval of the Board. The assessment of the changes was done in a separated document.

There are no changes in the project design; hence PDD does not include any changes. However, the passport was revised in order to address a FAR and it was also approved by the GS registry during the course of verification and prior to the TR submission.

5 VERIFICATION STATEMENT

Germanischer Lloyd Certification GmbH (GLC) has performed the 2nd verification of the project: Aberdares Improved Cook Stoves with regard to the relevant requirements for GS and CDM project activities. The project reduces GHG emissions due to deforestation/ reduction in the firewood consumption. It involves the free distribution of the energy efficient or improved cook stoves to the households. In the baseline, most of the households were using the 3 stone stoves which consumed more firewood. The improved cook stove not only consumes the less firewood (approximately 50% less) but also reduces the smoke levels. This verification covers the period from 2012-04-01 to 2013-03-31(including both days).

It is GLC's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. GLC does not express any opinion on the selected baseline scenario or on the validated and registered PDD and the GS passport. GLC conducted the verification on the basis of the applied GS monitoring methodology, "Methodology for Improved Cook-stoves and Kitchen Regimes" version 02, the monitoring plan included in the PDD of the project and the monitoring report of the project "Aberdares Improved Cook Stoves" dated 2013-07-08, version 06/5/ The verification included:

i) checking whether the design of the project is implemented and installed as planned and described in the registered project design document;
ii) checking whether the provisions of the monitoring methodology and the monitoring plan in the PDD were consistently and appropriately applied
iii) the collection of evidence supporting the reported data.
iv) checking whether the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately
v) all the Gold Standard sustainability monitoring parameters are also monitored during the quarterly MKS survey and reported in the monitoring report/5/

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

In GLC's opinion, the GHG emissions reduction for the Aberdares Improved Cook Stoves as reported in the final Monitoring Report are calculated without considerable misstatements in a conservative and appropriate manner. The GHG emission reductions were correctly calculated on the basis of the approved monitoring methodology mentioned above, the monitoring plan of the registered PDD and the sustainability monitoring plan contained in the GS passport for the project.

All the sustainability parameters were also found monitored as per the registered passport and thus it complies with all the monitoring requirements as conducted in the MKS survey.

Verification and Certification Report

GLC Report No: 032.01, Rev. 08

Germanischer Lloyd Certification GmbH herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions 2012 (2012-04-01 - 2012-12-31):	18,143	t CO_{2e}
Emission reductions 2013(2013-01-01 - 2013-03-31):	6,048	t CO_{2e}
Emission Reductions Total (2012-04-01 - 2013-03-31):	24,191	t CO_{2e}

2013-07-11

Markus Weber

Germanischer Lloyd
Certification

6 REFERENCES

Reference	Author: Title, version, date of issue
/1/	CDM-EB: Clean Development Mechanism Validation and Verification Standard (version 03)
/2/	co2balance UK Ltd: Project Design Document for GS project: "Aberdares Improved Cook Stoves" version V.10, dated 2012-09-19.
/3/	Bureau Veritas: Validation Report for GS VER project "Aberdares Improved Cook Stoves" Revision 03 dated 2011-08-04.
/4/	co2balance UK Ltd: GS Passport: "Aberdares Improved Cook Stoves" version v.4 dated 2012-01-13. co2balance UK Ltd: Revised GS Passport: "Aberdares Improved Cook Stoves" version v.5 dated 2013-06-14.
/5/	co2balance UK Ltd: Monitoring Report for GS VER project "Aberdares Improved Cook Stoves" version 01, dated 2013-03-28 co2balance UK Ltd: Monitoring Report for GS VER project "Aberdares Improved Cook Stoves" version 06, dated 2013-07-08
/6/	GS: Approved GS Methodology : "Methodology for Improved Cook-stoves and Kitchen Regimes V.02 – 08/02/2010"
/7/	Germanischer Lloyd Certification GmbH CDM GHG Services Manual (incl. procedures and forms)
/8/	IPCC: 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/9/	UNFCCC: Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998)
/10/	UNFCCC: Decision 3/CMP. 1 (Marrakesh – Accords)
/11/	co2balance UK Ltd.: "Emission reduction calculation spreadsheet" version 01 co2balance UK Ltd.: "Emission reduction calculation spreadsheet" version 02.
/12/	co2balance UK Ltd.: Total Distribution Records Excel sheet /Sample of Carbon

	Transfer Forms file records
/13/	Monitoring Kitchen Survey Results for the current monitoring period (2012-04-01 – 2013-03-31) during May, August, December in 2012 and February 2013.
/14/	Revised baseline Kitchen Performance Test Results and ageing stove KPT for the current monitoring period (2012-04-01 – 2013-03-31) conducted in July 2012.
/15/	Usage Survey Results and sample copies (dated July 2012)
/16/	Sample of answered questionnaires for the MKS, KS and Usage surveys Conducted during the monitoring period 2012-04-30- 2013-03-31.
/17/	Scanned copies of Carbon Transfer forms for CZK stoves newly added in the current monitoring period. (2012-04-01- 2013-03-31)
/18/	ERM: 1st Verification report of the GS project: "Aberdares Improved Cook Stoves" version 2.1 dated 2012-11-01.
/19/	co2balance UK Ltd.: Standard Operating Procedures, version 01. June 2013.
/20/	co2balance UK Ltd.: Agenda of the training dated 2013-07-05 and Aberdares training dated January 2013.
/21/	co2balance UK Ltd.: Organogram for the project activity "Aberdares Improved Cook Stoves" containing QA/QC process of the monitored data.
/22/	C4 Ecosolutions.: NRB Study Report compiled by Anthony Mills (PhD) and Diane Southey (MSc), dated June 2012.
/23/	The Gold Standard: Confirmation mail for applying the confidence level/precision of 90/30 to determine the efficiency in the Kitchen Survey, dated 2012-10-31.
/24/	co2balance UK Ltd.: Baseline Report of Aberdares dated 2012-09-18.
/25/	Standard for sampling and surveys for CDM PAs and PoAs, Annex -4, EB 69.
/26/	Guidelines for sampling and surveys for CDM project activities and the programme of activity, Annex – 5, EB 69.
/27/	Gold Standard Version 02.1 requirements and toolkit

/28/	http://www.cdmgoldstandard.org/wp-content/uploads/2013/03/Q1-Newsletter-2013.pdf
/29/	The health effects of indoor air pollution exposure in developing countries", WHO, 2002 : http://whqlibdoc.who.int/hq/2002/WHO_SDE_OEH_02.05.pdf
/30/	Wei Heng.: Manufacturer's echnical specifications of the digital scales used since May 2011 co2balance UK Ltd : co2balance calibration procedures including proof of purchase of digital scales purchased in May 2011.
/31/	co2balance UK Ltd : Newly added CTF forms during the current monitoring period (2012-04-01 – 2013-03-31)
/32/	Carbon Zero Kenya Cook Stoves manufacturing Manual. Dated 2011-06-10.
/33/	co2balance UK Ltd : Improved cook stove contractor employment records / Project developer records
/34/	Checklist document prepared by the verification team to assess the Usage survey and MKS survey results.
/35/	EB: General guidelines to SSC CDM methodologies. http://cdm.unfccc.int/filestorage/B/7/L/B7LDPO0KY4C9HAVTX5WIZQUMJ8SNR1/eb61_repan21.pdf?t=cGl8bW9kbXkwfDAUH8FPgR7EJZoWnb3T44SM
/36/	co2balance UK Ltd: Monitoring Protocol: co2balance monitoring and data collection procedure dated 2012-08-21.
/37/	co2balance UK Ltd: Statement from the PP on the staff illness during November 2012 which lead them to delay the MKS survey by one month dated 2013-07-08.
/38/	HED consulting: Baseline KPT report prepared by the third party dated November 2010.

ANNEX A: RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS (LIST OF FINDINGS)

Resolution of Corrective Action and Clarification Requests including list of Forward Action Requests

Description of Finding (CAR, CL, FAR) *Describe the finding in a transparent manner i.e. state clearly what is required and why; address the context (e.g. section)*	Project Participants Response *This section shall be filled by the PP. The finding shall be addressed with suitable arguments and evidence*	GLC's Assessment *The assessment shall include how the finding is closed i.e. how it is found that the response is assessed to be appropriate and meeting the specific requirement of the finding. In case the response is not satisfactory, additional response and DOE assessments (#2, #3, etc.) shall be sought.*	Final Conclusion (OK or OPEN)
CAR 1 (2013-05-07) During the verification site visit, it was noticed that all the information that was included in section C of the MR was not available in the original documentation at the local office at Nairobi. Hence, PP is required to update the section C.1 of the MR as per the available details and as per the implemented monitoring plan.	2013-05-13 (1st round): The PP has included a summary table highlighting the source of each piece of information, who was responsible for collecting it as well as whether the data was initially recorded as a hard or soft copy.	2013-05-24 (1st round): OK. PP has provided a transparent description in the table describing the responsible person that is instrumental in collecting the data while implementing the monitoring plan.	OK
CAR 2 (2013-05-07) It is stated in section B.1 of the PDD "*No new stoves have been constructed in this monitoring period however due to ongoing data collection field staff have located an additional 58 stoves in the project area that had previously not had any data associated with them and an additional 100 CTFs.*" PP is required to provide a transparent description of this additional 58 stoves and information of the newly collected 100 CTFs along with the relevant documents.	2013-05-13 (1st round): The PP has compared the Distribution Record from the previous verification (Saved: Aug 2012) with the Distribution Record from this period (Saved: May 2013). The comparison has highlighted a total of 173 stoves that are crediting this period that weren't crediting in the previous period. These 173 stoves are comprised of 52 stoves that were completely 'new,' i.e. there were no records in last periods verification period and 121 stoves that were in last periods distribution record but did not have a CTF and were therefore not credited. The PP has provided scans of CTF hardcopies for each of the stove IDs identified as not crediting in the previous period.	2013-05-24 (1st round): Not OK. PP has submitted all the CTFs form and the revised total distribution records for assessment. The GLC verification team confirms that total 173 new CTFs are added in the current monitoring period However, PP is required to clear the ambiguity on the number of additional CTFs included i.e. 173 more from the last verification. After considering them the total number of stoves will be 7946 rather than 7948. Moreover, as per the submitted ER sheet and the CTFs it is evident that total 52 new CTFs and 121 missed CTFs from the previous monitoring period were added to the current monitoring period.	OK

	Please see the Excel '2013 05 15 Distribution Record – Verification 2' for further details and explanation.	The Excel sheet and the MR are needed to be revised to include the exact number of added CTFs in the current monitoring period.	
	2013-05-28 (2nd round): The PP has updated the MR and Spreadsheet with the correct stove crediting figure of 7946. ERs have also been adjusted down accordingly.	2013-05-29 (2nd round): OK. PP has submitted the revised MR and ER sheet with the exact number of newly added CTFs during the current monitoring period.	
CAR 3 (2013-05-07) PP is required to review the following information and update the MR inline with the implementation of the current second monitoring period. 1. In section C.2, PP has referred to MKS 4 which was not conducted during the current monitoring period. 2. The amount of VERs need to be revised in section E.4, E.5 and E.6 of the MR to make it consistent with the presented ER sheet and the other sections of the MR. 3. In section E. 3 of the MR the leakage is described as zero. However, value is provided in the table.	2013-05-13 (1st round): 1. After reviewing the section again it says: *'MKS 4 from monitoring period 1 was shortened to 53 questions in response to householder concerns that the 70 question version was too long and interrupted daily routines, however this version of the questionnaire proved to be sub-standard and the PP has since reverted to the 70 question version.'* The reason therefore for mentioning MKS 4 is to explain the reason for changing surveys again back to the 70 question version. The PP has left this as it is so that future auditors can follow what changes occurred during the project and why. 2. The PP has updated the ER figures 3. Value has been removed from the table to be consistent with the earlier section.	2013-05-24 (1st round): Not OK. Verification team understands the views of the PP. However, it highlights that this is MR has include the details relevant to the current monitoring period. Hence, PP is required to make the necessary changes to include only the relevant information.	OK

		2. Not OK. Refer to CAR 2 and make the required changes to the ER sheet. 3. OK. The changes are reflected in the revised MR.	
	2013-05-28 (2nd round): 1. PP has removed mention of the questionnaire used for MKS4 as part of the previous monitoring period 2. PP has updated the ER figures based on 7946 stoves crediting in line with CAR2.	2013-05-29 (2nd round): 1. OK. PP has revised the MR and excluded the information on the questionnaire used in MKS 4 which is not falling under the current monitoring period. 2. PP has updated the ERs as per the exact number of newly added CTFs in the current monitoring period.	
CAR 4 (2013-05-07) During the document review, it was noticed that all the GS parameters are included in the MR are not found consistent with the registered GS Passport. Hence, PP is required to revise the MR to include the relevant GS parameters inline with registered GS passport. Moreover, the information related to these parameters is required to be updated for the corresponding monitoring period. Hence, PP is required to update the GS parameters corresponding to the current monitoring period in section D.2 of the MR. As per the registered GS passport technology transfer and self –reliance is not a monitoring parameter as it is not given +ve scoring. However, it is included in the monitoring plan. Hence, PP is required to update the monitoring pan inline with the registered GS passport.	2013-05-13 (1st round): PP has updated SD indicator reporting in the Monitoring Report to include parameter values for surveys conducted in this period. The PP has also removed 'technology transfer and self reliance' from the GS passport in line with FAR04 from Monitoring Period 1. The GS Passport (v5) and the MR should now contain consistent information.	2013-05-24 (1st round): OK. PP has revised the MR adequately to details on the SD indicators. The parameter "technology transfer and self reliance" is also removed from the monitoring plan and made consistent with the registered GS passport.	OK
CAR 5 (2013-05-07) FAR 1 is converted to CAR 5. *Distribution data collection included manual data handling on 3 levels*	2013-05-13 (1st round): Please see the attached document titled '2012 08 21 Monitoring Protocol' for details on the co2balance monitoring process including parties responsible for specific tasks as well as	2013-05-24 (1st round): PP has described that fully operating SOP is under preparation and by the next verification it would be in place. Thus, FAR 1 is raised and will be verified by the verification entity.	Refer to FAR 1.

(builders, their supervisors, and co2balance office personnel). This increases risks of errors considerably. Please reduce the level of manual data handling and transfer and improve quality checks on the collected data PP has described that the standard operating procedures are prepared to reduce the risk considerably. The standard operating procedures (SOP) were reviewed and distribution data collection included manual data handling. Thus, it is confirmed that the new SOP will reduce the risk of manual errors. However, it was also noticed that the data collected during the MKS and Kitchen surveys needs to be reviewed and PP did not include the procedures how the quality of the data will be maintained throughout the crediting period. Hence, PP is required to provide a transparent description on the data handling procedures after the project's implementation during the crediting period.	data handling and checking requirements. Co2balance are working towards a fully operation Monitoring SOP and aim to have this in place in time for the next verification.		
CAR 6 (FAR 2 is converted to CAR 6) : (2013-05-07) *Although it is clear from the interviews that the personnel have been trained, keeping training records would give a picture of how many people were trained, and would present verifiable evidence: Please record training events and maintain training material and lists of attendees.* PP's response : The PP is putting in place improved record keeping for training events. As these are generally required to be reported on biennially as part of the Sustainable Development Assessment the PP will report on all training events conducted in the following Monitoring Report. PP is required to define the training frequency for the sake transparency and submit all the training documents to the verification team.	2013-05-13 (2nd round): The PP will conduct at least one major training event per year for all staff in Kenya. The last was conducted in July 2012 and the next is scheduled for July 2013. Details of the previous training session have been included as evidence for SD Parameter 'Quality of Employment.' Smaller project specific training events will happen on an ad hoc basis and reported on if/when they are happen. A number of such events have occurred in the project area during the last monitoring period however due to a computer virus on the Country Coordinators computer the majority of documents have been lost. Records have been located for one event which was	2013-05-24 (1st round): OK. PP has defined the training frequency to address the finding. During the site visit, verification team interviewed all the personnel involved in the project. It was understood that they have the required knowledge and training was also provided after their joining on the cook stoves. Thus, verification team is convinced that the quality of the employment is maintained in the project. Verification team acknowledged the facts that due to the virus affect the data was lost. Hence, verification team seeks the PP how	Refer to FAR 2

	conducted in the project Area in January 2013 by the Country Coordinator, evidence of which is supplied with SD parameter Quality of Employment.	such incidents will be handled in the future. Furthermore to address this issue, FAR 2 is raised to avoid and handle such incidences without the loss of data.	
CAR 7 (FAR 4 is converted to CAR 7) (2013-05-07) *"The sustainability parameters "Quality of employment" and "Technology transfer and self-reliance" have not been monitored in accordance with the sustainability monitoring plan. For this verification period, the parameters been scored as 'neutral', and the PP has suggested alternative monitoring: Please revise the monitoring plan in the GS passport accordingly before the next verification"* *PP's response: Sustainable development criteria are reported biennially and as they were reported in the previous monitoring period they are not included in this one. However the PP will continue to score 'Quality of Employment' based on the parameter training workshops delivered as stated in the GS Passport as this simply requires improved record keeping in line with FAR2. However as stated by the DOE during first verification 'Technology transfer and self reliance' can only be scored positively if the general public is trained. Having reviewed the GS Passport v4 it appears that this parameter was already scored as neutral and therefore should not have been included in the previous monitoring report. The GS Passport therefore stays the same and the PP will cease to monitor 'Technology transfer and self reliance.* PP has justified the reason for non-inclusion of the 'technology transfer and self-reliance' as the GS monitoring parameter. i.e. as this parameter	2013-05-13 (2nd round): The PP has created a new version of the GS Passport (v5) and removed 'Technology transfer and self reliance' from the monitoring plan. This is based on guidance in FAR 04 from the previous monitoring period that stated '*Please revise the monitoring plan in the GS passport accordingly before the next verification'*	2013-05-24 (1st round): OK. PP has described transparently that the parameter 'Technology transfer and self reliance' is removed from the new passport version v5 in order to address the earlier raised FAR. This revised GS passport with the change in monitoring plan will be submitted to the GS registry. It was also approved by the GS. Thus, verification team confirms that the MR is prepared in line with the revised GS passport.	OK

is not given a +ve scoring, it need not to be monitored. However, it is included in the GS monitoring parameters in the MR. Hence, PP is required to address the issue and seek the permission from GS to revise the GS passport monitoring plan and accordingly the MR. Furthermore, as discussed in the above finding CAR 4, PP is required to include the monitored data of the GS parameters corresponding to the monitoring period.			
CAR 8 (2013-05-07) PP is required to make the following changes in the submitted ER sheet. Include the project title, date and version in the ER sheet	2013-05-13 (1st round): Complete.	2013-05-24 (1st round): OK. All the required changes are made to the ER sheet.	OK
CL 1 (2013-05-07) During the verification site visit, it was noticed that CZK 8090 was found in the GPS location of CZK 7369. Hence, PP is required to clarify the reason for such discrepancy in the cook stove number and propose the measures taken by the PP to avoid such manual errors.	2013-05-13 (1st round): After further investigation the PP can only determine that this is an error in data collection and will be rectified in time for the next verification. Errors such as these will be greatly reduced at any subsequent stove building events with the application of the new company SOPs.	2013-05-24 (1st round): OK. Verification team has reviewed the newly prepared standard operating procedures. It is evident it reflects the best procedures to avoid the errors due to human intervention. However, as referred in FAR1 the fully operating SOP will be in place by the next verification. Hence, FAR 1 is raised to verify the SOP during the next verification.	Refer to FAR 1
FAR 1(2013-05-24) PP has described in the response CAR 5 and CL 1 that the fully operational SOP is under preparation and will be in place by the next verification. Accordingly, verification team has raised a FAR 1 raised. It involves the assessment on the preparation and execution of the fully	2013-05-28 (1st round): Noted, the PP will address this issue in time for next Verification	2009-05-29 (1st round): This will be assessed by the DOE during the next verification.	

operational SOP.			
FAR 2 (2013-05-24) PP has described that the data was lost and could not submit all the documents related to the conducted trainings. However, the verification team is able to confirm that all the personnel working on the project are competent enough to conduct the efficient surveys and ensure the qualify of the data. The necessary measures to avoid such data loss were not provided in the monitoring report. Hence, PP is required to demonstrate the data handling procedures and its implementation by the next verification. Thus, FAR 2 is raised.	2013-05-28 (1st round): Noted, the PP will address this issue in time for next Verification	2009-05-29 (1st round): This will be assessed by the DOE during the next verification.	
FAR 3 (2013-05-24) In the MR, PP has responded to the earlier FAR 7 raised during the verification that the PP shall conduct the efficiency tests for broken and not broken stoves during the next KPT. PP has conducted the KPT during 2012 and next KPT is due in June 2014. Thus, this is forwarded to the next verification and DOE needs to assess this FAR.	2013-05-28 (1st round): Noted, the PP will address this issue in time for next Verification.	2009-05-29 (1st round): This will be assessed by the DOE during the next verification.	