VERIFICATION REPORT

- RETROACTIVE VERIFICATION –

< E+ CARBON >

< IMPROVED HOUSEHOLD CHARCOAL STOVES IN GHANA >

GS REF. NO. : <GS 413>

Monitoring Period: 2007-09-09 to 2009-09-08
(incl. both days)

Report No: 8106152911 – 09/308 V01

Date: 2010-05-27

TÜV NORD CERT GmbH
JI/CDM Certification Program
Langemarckstraße, 20
45141 Essen, Germany
Phone: +49-201-825-3335
Fax: +49-201-825-3290
www.tuev-nord.de
www.global-warming.de

Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8106152911– 09/308 V01	1	2010-04-20	2010-05-27
Project:	***Title:*** Improved Household Charcoal Stoves in Ghana		***Registration date:***	***GS-No.:***
			2009-09-09	GS 413
Project Participant(s):	***Host party:***		***Other involved parties:***	
	Ghana			
Applied methodology/ies:	***Title:***		***No.:***	***Scope:***
	Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes, Version 1		NA	4
Monitoring:	***Monitoring period (MP):***		***No. of days:***	***MP No.***
	2007-09-09 to 2009-09-08- both days included		731	1
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	Improved Household Charcoal Stoves in Ghana		01	02
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Pankaj Mohan Samir Beqqal Prakash Kumar Mishra Martin Emilio		Grzegorz Kochaniewicz Stefan Winter	Rainer Winter
Emission reductions: [t CO_{2e}]	***Verified amount***		***As per draft MR:***	***As per PDD:***
	51230 t		50361 t	25852 t /a

Summary of Verification Opinion:

E+ Carbon has commissioned the TÜV NORD JI/CDM Certification Program to carry out the Retroactive periodic verification of the project: Improved Household Charcoal Stoves in Ghana", with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to fuel-efficient charcoal stoves. The project is based on pilot work by Toyola Energy Limited (TEL), Ghana. It is owned and managed by highly educated and trained entrepreneurs. This verification covers the period from 2007-09-09 to 2009-09-08 (including both days).

In the course of the verification 5 Corrective Action Requests (CAR) and 6 Clarification Requests (CL) were raised and successfully closed. Furthermore 5 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

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

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved GS methodology ,i.e., Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes, Version 1
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the Retroactive periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions:	2007	**1246**	t CO_2
	2008	**20974**	tCO_2

	Till 8th September 2009 **29010** tCO_2 Total **51230** tCO_2	
Document information:	*Filename:*	*No. of pages:*
	2010-05-27 FVerR-Ghana_cook_stoves	81

Abbreviations:

CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CER	**Certified Emission Reduction**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
CL	**Clarification Request**
ER	**Emission Reduction**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
MP	**Monitoring Plan**
MR	**Monitoring Report**
PDD	**Project Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

E+ Carbon has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the Retroactive periodic verification of the project

"Improved Household Charcoal Stoves in Ghana"

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered GS project number GS 413.

GHG data for the monitoring period covering 2007-08-31 to 2007-09-08 was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verfication Manual /VVM/ of the UNFCCC.

This report summarizes the findings and conclusions of this Retroactive periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

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

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

1.2. Scope

The verification of this registered project is based on the validated project design document /PDD/, the monitoring report /MR/, emission reduction calculation spread sheet /XLS/, 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 /KP/,

- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 /MA/, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Manual /VVM/,
- monitoring plan as given in the registered PDD /PDD/,
- Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes", (version 1)/METH/.

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

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

Table 2-1: Project Characteristics

Item	Data
Project title	Improved Household Charcoal Stoves in Ghana
Project size	☒ Large Scale ☐ Small Scale
Gold standard registration No.	GS413
Date of Gold Standard registration	09-09-2009
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	1
Applied Methodology	Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes", (version 1)
Crediting period	Retroactive Crediting Period
Start of crediting period	2007-08-31

2.2. Project Verification History

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

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration	2009-09-09	-
2	Start of crediting period	2007-09-09	-
3	Retroactive Monitoring period	2007-09-09 to 2009-09-08	-

2.3. Involved Parties and Project Participants

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

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Ghana	Mr. Ernest K Kyei / Mr. Suraj Wahab Toyola Energy Limited, Ghana

2.4. Project Location

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

Table 2-4: Project Location

No.	Project Location
Host Country	Ghana
Region:	Greater Accra Region & Eastern Region
District:	Accra
Project location address:	N/A

2.5. Technical Project Description

The project reduces greenhouse emissions by disseminating fuel-efficient charcoal stoves. The project is based on pilot work by Toyola Energy Limited (TEL), Ghana. It is owned and managed by highly educated and trained entrepreneurs. TEL was part of 50 informal metal artisans selected and trained by Enterprise Works Worldwide to fabricate the "GYAPA" charcoal efficient cook stoves. During this reporting period, TEL renamed their product to reflect a slightly different design and the different geographic market in which TEL operates, as well as to help avoid double counting with other carbon finance projects in Ghana. While the stove is very similar to the GYAPA, TEL's stove is marketed and sold under the name "Toyola Coalpot" to avoid confusion between these different products.

Four types of stoves are sold under the auspices of the project:

a. improved fuel-efficient household charcoal stoves (small)
b. improved fuel-efficient household charcoal stoves (medium)
c. improved fuel-efficient commercial charcoal stoves (small)
d. improved fuel-efficient commercial charcoal stoves (large)

The improved charcoal stove (Toyola Coalpot) reduces fuel consumption by introduction of a ceramic liner that increases combustion efficiency and retains heat. The Toyola Coalpot stove consists of hourglass shaped metal cladding with perforated interior ceramic liner that allows ash to fall to the collection chamber at the base. A thin layer of cement is placed between the cladding and the liner to bind the two. During use, a single pot rests at the top of the stove.

While these stoves significantly reduce greenhouse gas emissions, they simultaneously provide co-benefits to users and families in the form of relief from high fuel costs, reduced exposure to health-damaging airborne pollutants, faster cooking (resulting in time-savings), and increased cleanliness and convenience. Finally, they curb deforestation by decreasing demand for charcoal.

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

Table 2-5: Technical data of the Stove

Parameter	Unit	Value
Efficiency increase	%	33

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report /MR/ submitted by the client and additional supporting documents with the use of customised verification protocol /CPM/ according to the Validation and Verification Manual /VVM/,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

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

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2009-07-23
On-site visit	2009-10-21 to 2009-10-23
Draft reporting finalised	2009-11-27
Final reporting finalised	2010-03-03
Technical review finalised	2010-04-20

3.2. Contract review

To assure that

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

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

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 2 additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval was determined.

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

Table 3-1: Involved Personnel

	Name	Company	Function [1)]	Qualification Status [2)]	Scheme competence	Technical competence [4)]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Pankaj Mohan	TUV India Pvt. Ltd.	TL	A	X	-	-	X
☒ Mr. ☐ Ms.	Prakash Kumar Mishra	TUV India Pvt. Ltd.	TM	E	X	-	-	-
☒ Mr. ☐ Ms.	Emilio Martin	TUV NORD CERT GmbH	TM	E	X	E	-	-
☒ Mr. ☐ Ms.	Samir Beqqal	TÜV NORD CERT GmbH	TM	TE	-	-	X	-
☒ Mr. ☐ Ms.	Stefan Winter	TÜV NORD CERT GmbH	TM	E	X	E	-	-

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence	Technical competence [4]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Grzegorz Kochaniewicz	TÜV NORD SA	TR	TE	X	-	X	-
☒ Mr. ☐ Ms.	Rainer Winter	TÜV NORD CERT GmbH	FA	SA	X	-	-	X

[1] TL: Team Leader; TM: Team Member, TR: Technical review; FA: Final approval

[2] GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

[3] No team member

[4] As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

3.4. Publication of the Monitoring Report

In accordance with the GS guidelines the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated GS website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

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

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

Risk analysis and detailed audit testing planning

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

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

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurance.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation.* *The following measures were taken in order to minimize the corresponding risks.* *The following measures are implemented:*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations* - *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

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

Project specific periodic verification checklist

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

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

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

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

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

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

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

3.6. Desk review

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

- the last revision of the PDD including the monitoring plan/PDD/,
- the last revision of the validation report/VAL/,
- the monitoring report, including the claimed emission reductions for the project/MR/,
- the emission reduction calculation spreadsheet/XLS/.

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

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with

the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

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

Mr. Pankaj Mohan & Mr. Prakash Kumar Mishra from the verification team attended the site visit.

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

Representatives of Toyola Energy Limited and E+ Carbon (project consultant) including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel, Toyola Energy Limited 2. Consultant, Erick Wuster from E+ Co.	- General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - Remaining issues from validation - Calibration details of instruments used by Berkley air - 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 aspect

Interviewed Persons / Entities	Interview topics

3.8. Draft verification reporting

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

3.9. Resolution of CARs, CLs and FARs

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

Corrective Action Requests (CARs) are issued, if:

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

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

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

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

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

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

3.10. Final reporting

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

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

3.11. Technical review

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

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

3.12. Final approval

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

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

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

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

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

Verification topic	No. of CAR	No. of CL	No. of FAR
H - Project history	1	0	0
U - Update on Changes and Incidents	1	0	0
R - Monitoring Report – General	1	2	0
P - Monitoring Parameters	0	3	3
C - Emission Reduction Calculation	2	0	1
Q - Quality Management	0	1	1
SUM	5	6	5

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

	CAR H1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	No request for deviations / revisions of the registered monitoring plan / PDD has been made. MR mentions the deviation in section A.8 i.e. “Monitoring indicator for “Access to Energy Services” has been changed from “Extrapolated based on total sales and average household size” to “Extrapolated based on total sales and number of people cooked for“. Hence CAR H1 is raised.			

	CAR H1
Corrective Action #1	The PP has fixed the mistake so that Access to Energy Services is now based on 'average household size' instead of 'number of people cooked for'. As such, the deviation highlighted in section A.8 of the MR has been deleted. In addition, table B.2.7 has been edited accordingly. The indicator is now monitored based on average household size, as calculated by Berkeley Air Monitoring Group based on their surveying. The edited calculations are provided in table B.2.7 and in a footnote on the same page.
DOE Assessment #1	The justification provided was accepted as per the revised documentation provided. The revised documentation was checked and found to be satisfactory. Hence accepted by the verification team.
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements

	CAR U1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	As per interviews with the PPs monitoring of ERs, sustainability indicators as well as quarterly surveys of stoves is carried out by Berkley air of at least 30 of the Charcoal stoves installed by Toyola. Toyola is also conducting the Quality checks concerning proper operation of 100% of their stoves. A clear and unambiguous explanation on trouble shooting procedure is so far pending in the MR. Consequently, CAR U1 is raised.			
Corrective Action #1	Section C.4 has been updated with details regarding troubleshooting procedures.			
DOE Assessment #1	The revised MR was checked and found to be satisfactory. The justification provided was accepted by the verification team.			
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements			

	CAR R1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	A consolidated CAR was raised. • The project activity follows the project cycle from date of registration and was successfully registered in September 2009. As per the PDD the crediting period starts at 31st August 2007 and is therefore not equal to the starting date of the monitoring period as mentioned in MR 1. The end of the first monitoring period is determined to be the 8th September 2009. The verification team deems the stated monitoring period is not consistent with the registered PDD, GS requirements as well as supporting documents provided. • Formatting of Monitoring Report to be done for section B.1. The MR is giving references to Paragraph 53(a) and 53(d) in sections B.2.3 & B.2.6. Please provide justification for the same.			
Corrective Action #1	• The MR has been updated to reflect the full monitoring period on the title page, section A.4., A.6., and in tables where the monitoring period is referenced. • Subsections of section B.1. have been renumbered accordingly. • References to Paragraph 53 (a) & (b) were part of the original CDM monitoring report template used and referred to sections of UNFCCC regulations. They have been deleted.			
DOE Assessment #1	• The justifications provided was checked and found that the revised MR is also satisfactory. Hence closed. • Revised MR is satisfactory as checked by verification team. • The references mentioned in sections have been removed in revised MR but these are in accordance with GS guidelines. This was accepted by verification team. Hence closed.			

	CAR R1
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate action was not taken ☐ The project complies with the requirements

	CL R2			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None
Findings	References to evidences of the execution of quality checks made in the monitoring report have been reviewed and found to be imprecise. This is because the parameter air quality was not measured during quarterly surveys by third party Berkley air. Consequently it conveys the impression that data obtained in Quarterly surveys are used for calculating ERs, however its primary purpose is to qualitative check of the stoves. Clarification on that issue was requested via CL R2.			
Corrective Action #1	The issue of air quality assessment (qualitative vs quantitative) has been addressed in detail in CL R3. The DOE is correct in the conclusion that quarterly kitchen surveys, among other things, assess indoor air quality in a qualitative fashion, which is not used in calculating ERs. Section C.1.1. of the MR has been updated to more clearly reflect this point.			
DOE Assessment #1	The justification provided was checked by the verification team and found to be satisfactory. The revised MR was also checked and found to be OK. Hence closed.			
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate action was not taken ☐ The project complies with the requirements			

	CL R3			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None

	CL R3
Findings	The Monitoring report and Sustainability report are not transparent for following parameters. $EF_{ch,prod,co2}$, Airquality, Access to energy Services. Please provide the documentation for EF. Justify for not measuring the Airquality as mentioned in the Registered PDD. Also justify the Deviation as mentioned in MR.

	CL R3
Corrective Action #1	$EF_{ch,prod,co2}$ – The study referenced in the registered PDD as the source for the EF used for production of charcoal has been provided to the DOE in conjunction with this response. Air Quality - The issue, as the PP understands it, is whether air quality is to be assessed qualitatively via quarterly kitchen surveys, or quantitatively via randomized health trials that identify decreases in exposure to pollutants (measured in ppm) among households using improved stoves. These two approaches are introduced in the registered PDD. Specifically, on page 8 of the registered PDD, "Indoor air pollution is assessed qualitatively in the Kitchen Survey and may be monitored quantitatively during the project by measuring ambient carbon monoxide and particulate matter concentrations in households with improved and unimproved cookstoves." Table D.2.1.2. in the PDD also references monitoring indoor air quality. In the last column, the chart identifies the approach of monitoring, "Measured (m), calculated (c) or estimated (e)." In the air pollution row, this column reads "M, E". In this case, M refers to quantitative measurements, E refers to qualitative assessment. The question is, does the "," (the comma) mean "and" or "or." Given that page 8 of the PDD specifically states that quantitative measurements may, but will not necessarily be used, it is reasonable to assume that the PP has a choice of whether to use qualitative assessment or quantitative assessment, and that the comma on table D.2.1.2. means the word "or." It is important to note, too, that this monitored variable plays no role in calculating ERs, but is instead an input to the Gold Standard sustainability criteria. As such, the PP kindly suggests that assessing air quality qualitatively through the use of quarterly kitchen surveys is consistent with the registered PDD. Access to energy services – As highlighted in the response to CAR H1, the MR has been edited so that Access to Energy Services is now based on 'average household size' instead of 'number of people cooked for'. So there is no longer any deviation on this from the registered PDD.

	CL R3
DOE Assessment #1	The documentary evidences provided for the emission factor $EF_{ch,prod,co2}$ was checked and found to be satisfactory. The justification provided for Air quality was checked and found that the registered PDD page 8 mentions that the Indoor air pollution is assessed qualitatively in the Kitchen Survey and may be monitored quantitatively during the project by measuring ambient carbon monoxide and particulate matter concentrations in households with improved and unimproved cook-stoves. This was also verified during the site visit by interviewing the PP and stake holders. Hence accepted. Access to energy services is now as per registered PDD and consistent with MR and interview during site visit. Hence closed.
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements

	FAR P1			
Classification	☐ CAR	☒ FAR	☐ CL	☐ None
Findings	There is no inaccuracy in the parameter at present but this will be checked during next verification by DOE on the basis of next survey due in Jan 2010. Hence FAR P1 is raised.			
Corrective Action #1	The PP takes note that the next assessment of non-renewable biomass will need to be performed starting in early 2010, and the PP is currently in the planning process with Berkeley Air to assess this parameter. However, it is important to note that the last non-renewable biomass assessment was completed in August, 2008 (see PDD, annex 6, date on cover page of Berkeley Air study). So the PP aims to have the next study completed by August, 2010, as required by the methodology.			
DOE Assessment #1	This will be checked during next verification.			
Conclusion	☒ To be checked during next periodic verification ☐ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements			

	FAR P2			
Classification	☐ CAR	☒ FAR	☐ CL	☐ None
Findings	There is no leakage in the project activity at present. This was also checked from the quarterly surveys as well. This will also be checked in next verification as per Jan 2010 Berkley Survey report so FAR P2 is also raised.			
Corrective Action #1	The PP takes note to continue to monitor leakage, and will specify to Berkeley Air that this should be encompassed in their 2010 review.			
DOE Assessment #1	This will be checked during next verification.			
Conclusion	☒ To be checked during next periodic verification ☐ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements			

	CL P3			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None
Findings	Provide the Calibration certificate of Weigh Scale.			
Corrective Action #1	The calibration certificate for the Accu-Weigh T-50 made by the Yamato Corporation has been sent to the DOE in conjunction with this response. In addition, a PDF file with Yamato Corporation technical specifications is included to better understand the content of the calibration certificate.			
DOE Assessment #1	The calibration certificate and technical specification provided were checked and found to be in order. Hence accepted by verification team.			
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements			

	FAR P4			
Classification	☐ CAR	☒ FAR	☐ CL	☐ None

	FAR P4
Findings	There are no new stove models during this monitoring period. This was checked during the site visit. This will be checked during next verification as well hence FAR P4 is raised.
Corrective Action #1	The PP notes the need to test any new stoves to be incorporated into the project. At this point, we intend to incorporate at least one new stove next year, which will be tested by Berkeley Air in 2010.
DOE Assessment #1	This will be checked during next verification.
Conclusion	☒ To be checked during next periodic verification ☐ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements

	CL P5			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None
Findings	The Monitoring and Evaluation reports for Employment and Employment Quality of E+ Carbon as mentioned in MR and Registered PDD to be provided by PP.			
Corrective Action #1	The monitoring and evaluation reports requested have been sent to the DOE in conjunction with this response. Note that these are internal, E+Co documents not generally used for public consumption. As such there are many internal notes in the document that are not relevant to this carbon finance project, and our used only for E+Co internal purposes. Employment quantity and quality are outlined in section 11, where E+Carbon has requested the E+Co M&E Officer to monitor key indicators for this project.			
DOE Assessment #1	The "toyola M&E reports" provided were checked and found to be in order. The justification provided is also in order and hence accepted by verification team.			
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate action was not taken ☒ The project complies with the requirements			

	CL P6			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None

	CL P6
Findings	This parameter ”other pollutants” is mentioned as Periodic assessment of Conditions. It is not clear how the records will be maintained for this parameter. Please clarify and provide the evidence for the same.
Corrective Action #1	This periodic assessment of Other Pollutants is included in the responsibilities of internal E+Co staff during their regular inspections of Toyola facilities and is recorded and records kept in E+Co Monitoring and Evaluation Reports. Specifically, the outcomes of these inspections are highlighted in section 11 of the M&E reports. The PP has shared these reports with the DOE in conjunction with this response.
DOE Assessment #1	The “toyola M&E reports” provided were checked and found to be in order. The justification provided is also in order and hence accepted by verification team.
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements

	CAR C1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	The ER calculation provided in the MR is providing equivalent figures as the ER-calculation in xls-format. The formulas applied are traceable and the calculation can be reconstructed having the applied methodology as well as the PDD at hand. Nevertheless, the MR does not provide descriptions to the parameters used in the calculation and is therefore insufficient. Correspondingly CAR C1 is raised.			
Corrective Action #1	Section D.2. has been updated to outline in more detail how measurement uncertainties for parameters are handled. The parameter Ubio,fuel,yr has been further described so that its notation is consistent with the notation used in the excel calculator. Several new formulas were added in section D.1., and each parameter is described. Finally, each parameter is outlined in detail, as outlined in the PDD, annex 3, is at the end of section D.1.			

	CAR C1
DOE Assessment #1	The present justification is not OK and it is not clear "how the software works for calculating VERs" Please explain more in MR. Also section D2 to be filled with more transperancy. Hence Open
Corrective Action #2	A new section entitled "D.2. Description of how the formulas are applied in the excel carbon calculator" has been added to explain in detail how the software calculates VERs. Section D.3. (formerly section D.2. before the new section was added) has been updated to more transparently describe how errors are minimized and handled.
DOE Assessment #2	The revised monitoring report provided by project proponent was checked and found to be satisfactory . Hence closed.
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements

	CAR C2			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	All parameters as well as relevant formulas in ER-spreadsheet are not copied into the MR. In this regard inconsistency could be identified, except the addition of formulas and parameters for calculating the ERs without justification. Hence CAR C2 is raised.			
Corrective Action #1	Section D.1. of the MR has been updated with additional formulas and parameters that were previously missing from the report.			
DOE Assessment #1	The revised MR was checked for section D.1 and found to be satisfactory and hence CAR C2 is closed.			
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements			

	FAR C3			
Classification	☐ CAR	☒ FAR	☐ CL	☐ None

	FAR C3
Findings	Issue of double counting for the project activity needs to be checked during subsequent verifications. Hence FAR C3 is raised.
Corrective Action #1	The project continues to monitor any risks of double counting in this project, specifically determining whether any of the stoves sold as part of this project are counted in any other emission reduction projects. At this time, to the best of our knowledge there are no other greenhouse gas emission reduction projects in Ghana around stoves that have issued credits, and thus today no risk of double counting exists. However, the project developers continue to monitor whether any other projects exist. In such cases, the project developer will cross reference our total sales database and end user database with any other projects to ensure that there is no overlap. In addition, the project continues to use all legal documentation outlined in the PDD to ensure legal ownership over offsets, a step that further avoids double counting.
DOE Assessment #1	The revised MR Page 10 was checked for section B.2.8 and found to be satisfactory. Also during site visit at present there is no double counting as checked by the verification team. The stoves are properly labelled and the PP will continue to monitor that the ERs from this project are not used in other project. No VO project under the VCS could be identified by checking the registry. Also This will again be checked during next verifications.
Conclusion	☒ To be checked during next periodic verification ☐ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements

	CL Q1			
Classification	☐ CAR	☐ FAR	☒ CL	☐ None
Findings	Trainings for masons, supervisors and users have been conducted. Clear description of the institution providing the training is not included in the MR, yet.			
Corrective Action #1	Section C.1.2. has been updated with details about technician training performed by Toyola. User training is now detailed in section C.4. on troubleshooting.			

	CL Q1
DOE Assessment #1	The revised MR on the issue of training is found to be satisfactory as checked and accepted by verification team. Hence closed.
Conclusion	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ MR was corrected correspondingly ☐ Appropriate should be taken ☒ The project complies with the requirements

	FAR Q2			
Classification	☐ CAR	☒ FAR	☐ CL	☐ None
Findings	Basically, there may be room for data manipulation considering the huge amount of users as well as the fact that data is obtained by the 1st and 3rd party, i.e. the PP and Berkley Air companies. However, since original filled forms and data entries (print outs) are stored together it warrants cross checks of data. Nevertheless, FAR Q2 was raised in order to alleviate cross checks during next verification.			
Corrective Action #1	PP notes the potential for errors given the large amounts of data being compiled. Project will continue to keep detailed records and will be prepared for further scrutiny on this during next verification.			
DOE Assessment #1	This will be checked during next verification. So FAR Q2.			
Conclusion	☒ To be checked during next periodic verification ☐ Appropriate action was taken ☐ MR was corrected correspondingly ☐ Appropriate should be taken ☐ The project complies with the requirements			

5. SUMMARY OF VERIFICATION ASSESSMENTS

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

5.1. Implementation of the project

During the verification of the project a site visit was carried out by the verification team. On the basis of this site visit , interview and the reviewed project documentation it can be confirmed that the project implementation is w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD with GS secretariat. The monitoring and sustainable parameters are also monitored as per the registered PDD and GS guideline.

5.2. Project history

During the validation the validating DOE had not raised any issues that could not be closed or resolved during the validation stage. No such FAR was identified for this project. Furthermore as this is the retroactive verification no issues from former verifications are to be considered.

CAR H1 was raised for the deviation mentioned in MR section A.8. The project proponent corrected the mistake and revised the MR accordingly. The revised MR was checked and found to be satisfactory. This was also cross checked by interviewing the project proponent/IM01/ as well as Berkley air representative carrying out the three monthly i.e. quarterly surveys. Hence accepted by the verification team and CAR H1 was closed.

5.3. Special events

No special events with effect on the monitoring of the project have been observed during the monitoring period.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan. This was checked during the site visit by the verification team.

A CAR U1 was raised for the ambiguous explanation on the trouble shooting procedure in the monitoring report. The project proponent revised the Monitoring report and updated the details regarding trouble shooting procedures. The revised monitoring report was checked and found to be satisfactory. Hence CAR is closed.

5.5. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes, Version 1 and also in compliance with the registered PDD with GS secretariat..

5.6. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in the registered PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. Also the sustainable indicator parameters related to number of employment and quality of employment was checked during the verification site visit. The number of people employed by the project activity is 28. The quality of employment was assessed on the basis of monetary benefit (not less than 300 Ghana CD per month) they are getting and also from the policy which says “employment under 18 years of age is prohibited”. There was no recruitment under 18 as checked by verification team. During the site visit the persons employed told that they were trained by the Toyola Energy people to work on this and they are happy that now they are able to support there families which was not the case earlier. This was also cross verified from the ERM personnel who was also there to assess the sustainability parameters from the buyer side. These figures were also told by him during the interview/IM02/ by the verification team. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist

After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

Three FARs were raised for inaccuracy in the data due to survey by Berkley air, leakage checking as per Berkley air survey and if new models are launched then this will also be checked during next verification.

Three CLs were raised for Calibration certificate for weigh scale, Monitoring and evaluation reports for employment and employment quality and the parameter "other pollutants" is measured and records were maintained. The PP replied by providing the calibration certificate, providing the monitoring and evaluation reports. The PP also provided the M&E reports for measurement of other pollutants. The reports and documents provided were checked and found to be satisfactory. Hence the CL's were closed.

5.7. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

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

A corrective action request (CAR R1) was raised for the start date of crediting period and formatting of the report for the references provided were not found any where in the Monitoring Report. The project proponent replied by revising the MR for monitoring period, section B.1 and the references were removed. The revised MR was checked and found that the monitoring period is corrected and the references mentioned were also removed as they were in the template used by the project proponent but they were not required. Hence accepted by the verification team and CAR was closed.

Two clarifications were raised for not mentioning the measurement of air quality during quarterly surveys by third party Berkley air and the MR was not transparent for emission factor of charcoal production, air quality, and access to energy services. The PP replied by revising the MR and transparently mentioning the parameters and also provided the documentary evidences. These evidences and revised monitoring report were reviewed and found to be satisfactory. Hence CL's were closed.

5.8. ER Calculation

During the verification the ER calculation was checked and found to be satisfactory. The ER calculations were in xlsx format (Excel 2007) and the calculation got changed due to change in monitoring period as monitoring period got corrected as per registered PDD. Corresponding CARs were raised. A revised ER calculation was prepared by the PP and presented to the verification team. All raised issues were addressed appropriately so that all corresponding CARs could be closed out. Thus it

is confirmed that the ER calculation is overall correct and as per the registered PDD and GS guidelines.

A corrective action request was raised for the start date of crediting period. The project proponent replied by revising the MR for monitoring period and the ER calculation were also changed. The revised MR and ER calculation were checked and found that the monitoring period is corrected and the ER was also calculated correctly. Hence accepted by the verification team and CAR was closed.

Two CARs were raised for not mentioning the parameters used in the calculations and the formulas were not mentioned in the MR as used in the ER sheet. The PP provided the revised MR by mentioning the parameters used in the calculations and also mentioning the missing formulas in the MR from the ER sheet. These were checked and found to be satisfactory. Hence CARs were closed.

Based on above discussions it was concluded that the ER calculation is as per the registered PDD on GS secretariat and GS guideline.

5.9. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations there of have been observed during the verification.

One CL was raised for the clear description of institution providing the training. The PP replied that the Toyola energy limited is providing the training. This was checked during the site visit by interviewing the masons and supervisors by the verification team and found the justification in the revised MR satisfactory. Hence CL was closed.

One FAR was also raised for checking the manipulation of data obtained from first and third party during the next verification.

5.10. Overall Aspects of the Verification

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

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

The issue of double counting was also checked by TÜV NORD. The DOE did a random sampling of more than 40 stoves in end user house holds and found the stoves to be properly labelled and these are not being used for any other project emission reduction, so there was no double counting of ERs from these project stoves. Also, no VO project under the VCS could be identified by checking the registry. Hence the FAR raised by validating DOE was checked and closed for the

retroactive monitoring period by TÜV NORD and updated for the subsequent monitoring period as FAR C3 .

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

5.11. Hints for next periodic Verification

Three FARs were raised for inaccuracy in the data due to survey by Berkley air, leakage checking as per Berkley air survey and if new models are launched then this will be included in the survey, and will be checked during the next verification.

One FAR was raised for checking the manipulation of data obtained from first and third party during the next verification.

One FAR is raised for checking double counting issue for subsequent verifications as well. Potential overlaps with GS project GS407 shall be checked during subsequent verifications.

6. VERIFICATION OPINION

E+ carbon has commissioned the TÜV NORD JI/CDM Certification Program to carry out the Retroactive verification of the project: "Improved Household Charcoal Stoves in Ghana", with regard to the relevant requirements for GS VER project activity. The project reduces GHG emissions due to fuel-efficient charcoal stoves. This verification covers the period from 2007-09-09 to 2009-09-08 (including both days).

In the course of the verification 5 Corrective Action Requests (CAR) and 6 Clarification Requests (CR) were raised and successfully closed. Furthermore 5 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

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

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved GS methodology ,ie, Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes, Version 1
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the Retroactive verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **51230** t CO_{2e}

<Delhi>, 2010-04-20

PANKAJ MOHAN

TÜV NORD JI/CDM Certification Program

Verification Team Leader

Essen, 2010-04-20

RAINER WINTER

TÜV NORD JI/CDM Certification Program

Senior Assessor

7. REFERENCES

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

Reference	Document
/**CZ**/	Climate Zones in Ghana
/**MR-1**/	Monitoring Report version 1, as of October 2009
/**PDD**/	GS-VER-PDD, Improved Household Charcoal Stoves in Ghana, August 2009
/**PR**/	Progress Reports
/**QC**/	Quality control • Toyola Quality Control System • Toyola Quality Control Report • Training System • Example sampling quality control report • Filled quality control reports
/**SUR**/	Survey documents • Questionnaires Baseline • Questionnaires Project Activity
/**TD**/	Technical drawing
/**TEL**/	Toyola Energy Limited organization chart
/**TP**/	Technical Potential of Stoves in Ghana
/**VAL**/	Validation Report, Improved Household Charcoal Stoves in Ghana, dated 24th August 2009
/**XLS**/	Excel calculation sheet, October 2009

Table 7-2: Background investigation and assessment documents

Reference	Document
/**CPM**/	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
/**EB47-A27**/	EB 47 report, Annex 27, Draft General Guidelines on Sampling and Surveys

Reference	Document
/**GSDM**/	The Gold Standard Developers Manual, Version 5, dated May 2006
/**GSPDD**/	Gold Standard Project Design Document for Gold Standard Voluntary Offset Projects (GS-VER-PDD) with explanation to fulfilment.
/**GS-VVM**/	The Gold Standard Validation and Verification Manual for Voluntary Offset Projects, dated June 2007
/**IPCC-GP**/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/**IPCC**/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/**KP**/	Kyoto Protocol (1997)
/**MA**/	Decision 3/CMP. 1 (Marrakesh – Accords)
/**METH**/	Indicative programme, baseline, and monitoring methodology for Improved Cook – Stoves and Kitchen Regimes (Version 1)
/**PDD**/	Project Design Document for GS VCS project: "Improved Household Charcoal Stoves in Ghana" version 4.1, dated 2009-09-08
/**SMP**/	Simplified modalities and procedures for small–scale clean development mechanism project activities (Annex II to Decision 21/CP.18)
/**TA**/	Tool for the demonstration and assessment of additionality (Ver 5)
/**VAL**/	Validation Report for GS VCS project "Improved Household Charcoal Stoves in Ghana" version 3, dated 2009-08-24
/**VVM**/	UNFCCC Validation and Verification Manual (Version as per EB 44)

Table 7-3: Websites used

Reference	Link	Organisation
/**GS**/	www.cdmgoldstandard.org	The Gold Standard

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

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms.	Erik Wurster	E + Carbon / Manager Carbon Finance
/IM01/	V	☒ Mr. ☐ Ms.	Maridame Kombate	E+ Carbon / Investment Analyst
/IM01/	V	☒ Mr. ☐ Ms.	Suraj Wahab	Toyola Energy / CEO
/IM01/	V	☒ Mr. ☐ Ms.	Ernest Kyei	Toyola Energy / Director
/IM02/	V	☒ Mr. ☐ Ms.	Arne Gresing	ERM / Senior Consultant
/IM02/	V	☐ Mr. ☒ Ms.	Yvonne Azumah	Representative of Berkley Air
/IM03/	V	☐ Mr. ☒ Ms.	Marry	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Goku Avea	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Josephine	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Patience	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Vida	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Beatriice Asbea	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Aeykekor	Charcoal Stove User

Reference	MoI[1]		Name	Organisation / Function
/IM03/	V	☐ Mr. ☒ Ms.	Veronica Woobey	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Georgina	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Cynthia Adams	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Tawiah Millicent	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Lydia Odooi	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Avnina	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Rebecca Adjele	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Marcha Mensah	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Beatrice Mensah	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Elizabeth	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Charluthe Lomo	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Attamawe	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Lyda okai	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Cecilia	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Pattrecia Mensah	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Sarah Okpoti	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Linda Odoi	Charcoal Stove User

Reference	MoI[1]		Name	Organisation / Function
/IM03/	V	☐ Mr. ☒ Ms.	Diana Vandykke	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Cynthia Okine	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Roegina Addo	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Mabel	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Amma Love	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Abena Ohenawa	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Moroy Boateng	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Rutha Atto	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Emma Atopa	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Vida Badiako	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Gladys Aboa	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Nana Oye	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Gladys Afoakwoa	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Yaa Nyam	Charcoal Stove User
/IM03/	V	☐ Mr. ☒ Ms.	Roazina Boatema	Charcoal Stove User

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Verification Protocol

A2: Appointment / Authorisation statements

ANNEX 1: VERIFICATION PROTOCOL

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

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
1. Project history				
Open issues from GS validation *Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?*	/MR-1/ /IM01/ /PDD / /VAL/	The respective project documentation of this project activity was checked and no FAR or any other open issue could be identified.	OK	OK
Open issues from previous verification *Check in case of further periodic verifications whether there are any open issues indicated in previous verification (FAR)?*	/MR-1/ /IM01/ /PDD / /VAL/ /gs/	No open issues were identified in the course of this retro active verification. This conclusion is made by reviewing the validation report/VAL/ and the GS webpage/GS/.	OK	OK
Requests for Deviations / Revisions of MP *Check if there have been any requests for deviations from the registered CDM / GS monitoring plan or requests for revisions of the CDM / GS monitoring plan. If any, make sure that they are considered during verification?*	/IM01/ /MR-1/ /PDD/	No request for deviations / revisions of the registered monitoring plan / PDD has been made. MR mentions the deviation in section A.8 i.e. "Monitoring indicator for "Access to Energy Services" has been changed from "Extrapolated based on total sales and average household size" to "Extrapolated based on total sales and number of people cooked for". Hence CAR H1 is raised.	CAR H1	OK

[1] Provide means and results of assessment

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Initial project implementation *In case of first / retroactive GS verification: Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place?* *In case of further periodic verifications: Go to next chapter.*	/MR-1/ /IM01/ /IM02/ /IM02/ /PDD/	The project activity encompasses the installation of stoves in Ghana in Greater Accra Region and Eastern Region.. The verification team conducted spot checks in a sample size of these households and observed that the charcoal stoves are installed as described in the PDD. All physical features, such as stoves including ceramic liner were found in the visited households.	OK	OK
2. Update on Changes and Incidents (during the Monitoring Period)				
Technical equipment *Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period.* *Check whether any changes occurred that may have impact on the GS qualification of the project, in particular with reference to any potential changes in key parameters leading to an overall impact on the emission reductions or the project's contribution to sustainable development.* *Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report, the emission reduction calculation and/or the*	/IM01/ - /IM02/ /MR-1/ /PDD/	Any exchange of relevant technical equipment of the project activity has not been observed during the site visit. Since the technology is simple by nature those incidents are unlikely to occur in this project activity. No changes in the project activity's design concerning GS qualification have been observed in the course of verification.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
scoring of the sustainability indicators.				
Operation modes *Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.* *Check whether any changes occurred that may have impact on the GS qualification of the project, in particular with reference to any potential changes in key parameters leading to an overall impact on the emission reductions or the project's contribution to sustainable development.* *Consider e.g. interviews with operational personnel, operation log sheets, data management system records.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report, the emission reduction calculation and/or the scoring of the sustainability indicators.*	/IM01/ -/IM02/ /PDD/ /MR-1/	Changes in operation modes of the project activity have not been observed during the site visit. Since the technology is simple by nature those incidents are unlikely to occur in this project activity. Operation modes like feeding the charcoal into the stove in small pieces are prerequisite for proper operation and of the user's interest, considering the related benefits as described in the PDD.	OK	OK
Incidents *Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?* *Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.*	/MR-1/ /IM01/ -/IM02//IM02/ /PDD/ /GS-VVM/	No significant incidents impacting the occurred ERs or sustainability of the project were observed in the course of verification.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Personnel *Find out, if relevant personnel w.r.t. monitoring has been exchanged?* *In case of changes, assure that the implemented monitoring procedures have not been affected.*	/IM01/ - /IM03/ /BSP/ /MR-1/ /ASSR/	As per interviews with the PPs monitoring of ERs, sustainability indicators as well as quarterly surveys of stoves is carried out by Berkley air of at least 30 of the Charcoal stoves installed by Toyola. Toyola is also conducting the Quality checks concerning proper operation of 100% of their stoves. A clear and unambiguous explanation on trouble shooting procedure is so far pending in the MR. Consequently, CAR U1 is raised.	CAR U1	OK CAR closed
Legislation Find out whether relevant legislation with effect on the project activity in the host country has been changed.	/IM01/ /MR-1/ /PDD/	No changes in legislation with affect on the project activity could be identified.	OK	OK
3. Monitoring Report – General				
Monitoring period *Check if the monitoring period is in line with a) the crediting period and/or b) previous monitoring periods?*	/MR-1/ /PDD/ /VAL/ /gs/ /QC/	A consolidated CAR was raised. • The project activity was successfully registered in September 2009. As per the PDD the crediting period starts at 31st August 2007 and is therefore not equal to the starting date of the monitoring period as mentioned in MR 1. The end of the first monitoring period is determined to be the 8th September 2009. The verification team deems the stated monitoring period is not consistent with the registered PDD, GS requirements as well as supporting documents provided. • Formatting of Monitoring Report to be done for section B.1. • The MR is giving references to Paragraph 53(a) and 53(d) in sections B.2.3 & B.2.6. Please provide justification for the same.	CAR R1	OK CAR closed

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
		Hence CAR R1 is raised.		
References *Check if the carbon monitoring report and sustainability monitoring report provides the correct references.*	/IM01/ -/IM02/ /MR-01/	References to evidences of the execution of quality checks made in the monitoring report have been reviewed and found to be imprecise. This is because the parameter air quality was not measured during quarterly surveys by third party Berkley air. Consequently it conveys the impression that data obtained in Quarterly surveys are used for calculating ERs, however its primary purpose is to qualitative check of the stoves. Clarification on that issue was requested via CL R2.	CL R2	OK CL closed
Completeness *Assess if the carbon monitoring report and sustainability monitoring report are complete, i.e. have all relevant issues been addressed?*	/MR-1/ /IM01/ -/IM02/	Monitoring report mentions the roles and responsibilities for monitoring procedures, obtaining of data, data handling, processing and storage as well as responsibilities for the preparation of the monitoring report. The Trouble shooting procedure is missing in the Monitoring Report hence CARU1 was raised.	CAR U1	OK CAR closed
Transparency *Assess if the carbon monitoring report and sustainability monitoring report are transparent, i.e. clear and unequivocal in all respect?*	/MR-1/ /IM01/ /PDD/ /METH/ /GS-VVM/	The Monitoring report and Sustainability report are not transparent for following parameters. $EF_{ch,prod,co2}$, Airquality, Access to energy Services. Please provide the documentation for EF. Justify for not measuring the Airquality as mentioned in the Registered PDD. Also justify the Deviation as mentioned in MR..	CL R3	OK CL closed

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Misstatements on general issues *Assess whether the carbon monitoring report and sustainability monitoring report are free of material misstatements regarding issues other than the monitoring parameters.* *Discuss the monitoring parameters in detail in chapter "Monitoring Parameters".*	/MR-1/ /IM01/ - /IM02/	Refer section 3 ,CAR R1	CAR R1	OK CAR closed
Deviations from the validated monitoring plan and GS monitoring matrix *Assess whether the carbon monitoring report and sustainability monitoring report are in line with the validated monitoring plan and the GS monitoring matrix?*	/MR-1/ /PDD / /VAL/	There is no deviation from the validated monitoring plan and GS monitoring matrix.	OK	OK
Deviations from the approved methodology *Assess whether the MR is in line with the applied monitoring methodology?*	/MR-1/ /METH/ /PDD/	The MR mainly follows the methodology/METH/ considering data monitoring and processing. However, MR is not in line with registered PDD and Monitoring methodology	CL R3	OK CL closed
4. Monitoring Parameters *(List all parameters of the PDD chapter B.7.1 and the GS monitoring matrix; pl. copy the 6 lines below for each parameter)*				
GHG emission parameters				
4.1. Xnrb,bl,y (Non-renewability status of woody biomass fuel in year y in baseline scenario)				
Measurement / Determination method	/IM01/	The Parameter is monitored by Third Party i.e. Berkley air	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Describe how the monitoring parameter was measured / determined. *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM02/ /MR-1/ /PDD/ /METH/	Monitoring. This needs to be monitored once in two years as per registered PDD monitoring plan.		
Correctness *Determine whether the value given in the carbon monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The value mentioned in quarterly surveys are found to be correct and in line with Baseline survey report.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The QA/QC procedures are found to be OK. This was discussed during site visit and the IM01 and IM02 were interviewed for the same.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that appropriate discounts have been considered for ER calculation.*	/IM01/ /IM02/ /MR-1/ /PDD/	There is no inaccuracy in the parameter at present but this will be checked during next verification by DOE on the basis of next survey due in Jan 2010. Hence FAR P1 is raised.	FAR P1	OK Will be checked during

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
	/METH/			next verification
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The value was verified from Baseline survey. FAR P1	FAR P1	OK Will be checked during next verification
4.2. Xnrb,pj,y (Non-renewability of woody biomass fuel in year y in project scenario)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The Parameter is monitored by Third Party i.e. Berkley air Monitoring. This needs to be monitored once in two years as per registered PDD monitoring plan. Hence the value was also cross checked on the basis of Quarterly Qualitative surveys as well. This will again be monitored in Jan 2010 by Berkley air.	OK	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.*	/IM01/ /IM02/ /MR-1/	Please refer to checklist item above. This needs to be monitored once in two years as per registered PDD monitoring plan. Hence the value was also cross checked on the basis of Quarterly Qualitative surveys as well. This will again be monitored in Jan	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of mistakes pl. provide details and descriptions of the CARs raised.	/PDD/ /METH/	2010 by Berkley air.		
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Please refer to checklist item above. QA/QC procedures are followed as per the registered PDD with GS.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Please refer to checklist item above. The data is accurate as checked from the Quarterly Qualitative surveys as well. This will again be monitored in Jan 2010 by Berkley air.	OK	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Please refer to checklist item above. The data is accurate as checked from the Quarterly Qualitative surveys as well. This will again be monitored in Jan 2010 by Berkley air.	OK	OK
4.3. Xre,bl,y (Woody biomass combustion avoided due to renewable energy form in year y in baseline)				
Measurement / Determination method *Describe how the monitoring parameter was*	/IM01/ /IM02/	The Parameter is monitored by Third Party i.e. Berkley air Monitoring. This needs to be monitored once in two years as per registered PDD monitoring plan.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
measured / determined. *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/MR-1/ /PDD/ /METH/ /EB47-A27/			
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/ /EB47-A27/	The values mentioned in quarterly surveys are found to be correct and in line with Biannual Baseline survey report of 2008.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The QA/QC procedures are found to be OK. This was discussed during site visit and the IM01 and IM02 were interviewed for the same.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/	There is no inaccuracy in the parameter at present but this will be checked during next verification by DOE on the basis of next survey due in Jan 2010. Hence FAR P1 is raised.	FAR P1	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
	/PDD/ /METH/			
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/ /EB47-A27/	The value was verified from Baseline survey. Also see FAR P1	FAR P1	OK
4.4. Xre,pj,y (Woody biomass combustion avoided due to renewable energy form in year y in project)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/ /QC/	The Parameter is monitored by Third Party i.e. Berkley air Monitoring. This needs to be monitored once in two years as per registered PDD monitoring plan. Hence the value was also cross checked on the basis of Quarterly Qualitative surveys as well. This will again be monitored in Jan 2010 by Berkley air.	OK	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.*	/IM01/ /IM02/	Please refer to checklist item above.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of mistakes pl. provide details and descriptions of the CARs raised.	/MR-1/ /PDD/ /METH/ /QC/			
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ - /IM02//IM02/ /MR-1/ /PDD/ /QC/	Please refer to checklist item above.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /QC/	Please refer to checklist item above.	OK	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/ /QC/	Please refer to checklist item above.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
4.5. Leakage (Potential GHG emissions outside project boundary caused by project activity)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	There is no leakage in the project activity at present. This was also checked from the quarterly surveys as well. This will also be checked in next verification as per Jan 2010 Berkley Survey report so FAR P2 is also raised.	FAR P2	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	There is no leakage in the project activity at present. This was as per the interviews on site and physical check by the verifier. This was also checked from the quarterly surveys as well.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	See above	OK	OK
Accuracy	/IM01/ -	See above	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of measured (or estimated) values, check whether significant inaccuracies occur.	/IM02//IM 02/ /MR-1/ /PDD/ /METH/			
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /METH/	See above	OK	OK
4.6. Bbl,y (Mass of woody biomass combusted in the baseline in year y)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was from the baseline survey report of the third party Berkley Air. Provide the Calibration certificate of Weigh Scale.	CL P3	OK
Correctness	/IM01/	The correctness was checked by interviewing the IM01 during	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Determine whether the value or information given in the sustainability monitoring report is correct. *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM02/ /MR-1/ /PDD/ /METH/	the site visit. Also the baseline report was also checked and the Berkley person was interviewed about the same. Hence accepted.		
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The QA/QC procedures are followed.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ -/IM02//IM02/ /MR-1/ /PDD/ /METH/	The value utilized for calculations is accurate and as per third party (Berkley Air) Report. Hence accepted.	OK	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ -/IM02//IM02/ /MR-1/ /PDD/ /METH/	The verification was done on the basis of baseline report which was checked and the Berkley person was interviewed about the same. Hence accepted.	OK	OK
4.7. Bpj,,y (Mass of woody biomass combusted in the				

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
project in year y)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was from the baseline survey report of the third party Berkley Air. This was also checked from the Quarterly surveys of the Berkley Air. Provide the Calibration certificate of Weigh Scale. Hence CL P3 was raised.	CL P3	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The correctness was checked by interviewing the IM01 during the site visit. Also the baseline report was also checked and the Berkley person was interviewed about the same. Hence accepted.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The QA/QC procedures are followed.	OK	OK
Accuracy *In case of measured (or estimated) values, check*	/IM01/ - /IM02//IM02/	The value utilized for calculations is accurate and as per third party (Berkley Air) Report. Hence accepted.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
whether significant inaccuracies occur.	/MR-1/ /PDD/ /METH/			
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /METH/	The verification was done on the basis of baseline report which was checked and the Berkley person was interviewed about the same. Hence accepted.	OK	OK
4.8. Usage in year y				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The validity of the parameter was verified on the basis of the registered PDD. This was also checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence accepted by the Verifier.	OK	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.*	/IM01/ /IM02/ /MR-1/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence accepted by the Verifier.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of mistakes pl. provide details and descriptions of the CARs raised.	/PDD/ /METH/			
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	QA/QC procedures are in place as checked during the site visit.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence accepted by the Verifier.	OK	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence accepted by the Verifier.	OK	OK
4.9. Age				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged*	/IM01/ /IM02/ /MR-1/	The validity of the parameter was verified on the basis of the registered PDD. This was also checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/PDD/ /METH/	accepted by the Verifier.		
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. The average age of cook stoves was observed to be around 3 years. Hence accepted by the Verifier.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	QA/QC procedures are in place as checked during the site visit.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence accepted by the Verifier.	OK	OK
Verification *Describe how the value was verified. Consider the*	/IM01/ /IM02/	This was checked during the site visit by doing door to door visit for around 40 house holds by the verification Team. Hence	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.	/MR-1/ /PDD/ /METH/	accepted by the Verifier.		
4.10. New Stove (Adjustment to values of $B_{pj,,y}$ and $AF_{pj,i,y}$ for new stove models)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	There are no new stove models during this monitoring period. This was checked during the site visit. This will be checked during next verification as well hence FAR P4 is raised.	FAR P4	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The value is correct at present and for the present monitoring period. FAR P4	FAR P4	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been*	/IM01/ /IM02/ /MR-1/	QA / QC are in place.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
carried out by competent personnel (if applicable).	/PDD/ /METH/			
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The data is accurate for the present scenario. FAR P4.	FAR P4	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Cross checks of baseline survey sheets with the data obtained during the user interviews have been undertaken. Please refer to the check list items above.	OK	OK
4.11. Stove Sales (Number of stoves sold by project activity)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Sales registration / Monitoring was determined on the basis of software into which operation data of each stove are entered. This is done upon receipt of the report sent by the marketing personnel's. . Data handling and processing is undertaken by the E+ Carbon Inc. This is done on the basis of quarterly reports kept by Toyola Energy Limited.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
plan.				
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was checked on the basis of quarterly sales reports of the PP along with the daily reports of Sales by the marketing personnel.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	QA/QC procedure are in place by the PP and E+ carbon.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	No inaccuracies could be observed during the site visit and Desk review.	OK	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The verification took place on the basis of daily and quarterly sales reports.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
4.12. Eligibility of Project database for KPT sampling (KS)				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	The parameter is monitored on the basis of quarterly survey report. During this monitoring period there were no new KPT done and it was not required as per the results of quarterly kitchen surveys. This was checked by interviewing the HH and Berkley representative in Ghana during the site visit. Hence accepted by DOE.	OK	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This correctness was checked by interviewing the HH and Berkley representative in Ghana during the site visit. Hence accepted by DOE.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	QA/QC Procedures are in Place.	OK	OK
Accuracy	/IM01/	There was no inaccuracy during this monitoring period.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of measured (or estimated) values, check whether significant inaccuracies occur.	/IM02/ /MR-1/ /PDD/ /METH/			
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This verification was done by interviewing the HH and Berkley representative in Ghana during the site visit. Hence accepted by DOE.	OK	OK
4.13. Air Quality				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	This was monitored Qualitatively by the Quarterly surveys performed by Berkley Air. This was not measured during the monitoring period as mentioned in PDD. Hence CL R1 was raised above.	CL R1	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.*	/IM01/ /IM02/ /MR-1/	See comment above	CL R1	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
In case of mistakes pl. provide details and descriptions of the CARs raised.	/PDD/ /METH/			
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	See Comment above	CL R1	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	See Comment Above	CL R1	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ /IM02/ /MR-1/ /PDD/ /METH/	Please see comment above.	CL R1	OK
4.14. Livelihood of the Poor				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged*	/IM01/ - /IM02/ /MR-1/	This is monitored on the basis of fuel cost saving in the year. This is done by the quarterly surveys of Berkley Air.	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/PDD/ /BUS/			
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	Validity of data has been reviewed using the Quarterly survey of Berkley Air.	OK	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	It is deemed that the Quarterly survey of Berkley Air is a reliable document, internally reviewed before publishing.	OK	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	The Quarterly survey of Berkley Air is a reliable document, internally reviewed before publishing. This was checked by the verification team by interviewing the Berkley air representative /IM02/ during site visit.	OK	OK
Verification	/IM01/ -	The Quarterly survey of Berkley Air is a reliable document,	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.	/IM02/ /MR-1/ /PDD/ /BUS/	internally reviewed before publishing. This was checked by the verification team by interviewing the Berkley air representative/IM02/ during site visit. Hence accepted by verification team.		
4.15. Employment				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	The Monitoring and Evaluation reports of E+ Carbon as mentioned in MR and Registered PDD to be provided by PP. The PP provided the monitoring and evaluation reports which were checked by the verification team. E+ carbon personal was interviewed for this project. Internal QA/QC was also followed as checked by verification team. Hence CL P5 was closed.	CL P5	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comment above. The PP provided the monitoring and evaluation reports which were checked by the verification team. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC measures are followed by E+ carbon. Hence accepted by verification team.	CL P5	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and*	/IM01/ - /IM02//IM	See comment above. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC measures are	CL P5	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).	02/ /MR-1/ /PDD/ /BUS/	followed by E+ carbon. Hence accepted by verification team.		
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comment above. As QA/QC measures are followed hence accuracy of data is there. E+ carbon personal was interviewed during the site visit by the verification team for this.	CL P5	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comment above. The PP provided the monitoring and evaluation reports which were checked by the verification team. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC measures are followed by E+ carbon. Hence accepted by verification team.	CL P5	OK
4.16. Employment Quality				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/	The Monitoring and Evaluation reports of E+ Carbon as mentioned in MR and Registered PDD to be provided by PP . The PP provided the monitoring and evaluation reports which were checked by the verification team. In section 11 the employment quality was also mentioned. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC	CL P5	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
methods have been used. *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*		measures are followed by E+ carbon. Hence accepted by verification team. The number of people employed by the project activity is 28. The quality of employment was assessed on the basis of monetary benefit (not less than 300 Ghana CD per month) they are getting and also from the policy which says "employment under 18 years of age is prohibited". There was no recruitment under 18 as checked by verification team.		
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comments above. The PP provided the monitoring and evaluation reports which were checked by the verification team. In section 11 the employment quality was also mentioned. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC measures are followed by E+ carbon. Hence accepted by verification team.	CL P5	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comments above. The PP provided the monitoring and evaluation reports which were checked by the verification team. In section 11 the employment quality was also mentioned. E+ carbon personal was interviewed during the site visit by the verification team and found that the correctness of data is there and internal QA/QC measures are followed by E+ carbon. Hence accepted by verification team.	CL P5	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/	See comments above. The data accuracy was checked from the monitoring and evaluation reports. This was also verified by interviewing the E+ carbon personal (Erick Wurster). During the interview this was told that The monetary benefit (not less than 300 Ghana CD per month) they are getting and also from the policy which says "employment under 18 years of age is prohibited". There was no recruitment under 18 as checked by	CL P5	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
	/BUS/	verification team.		
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/ /BUS/	See comments above. The data accuracy was checked from the monitoring and evaluation reports. This was also verified by interviewing the E+ carbon personal /IM01/ (Erick Wurster). During the interview this was told that The monetary benefit (not less than 300 Ghana CD per month) they are getting more than that and also from the policy which says "employment under 18 years of age is prohibited". There was no recruitment under 18 as checked by verification team during the site visit.	CL P5	OK
4.17. Access to Energy Services				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*	/IM01/ - /IM02//IM 02/ /MR-1/ /PDD/	This parameter is mentioned as deviation in the MR section 1.8 Hence CL R2 was raised. This CL was closed as this was a mistake and this is monitored as per the registered PDD with GS. The MR was also revised and checked by the verification team. This was also discussed with E+ carbon representative /IM01/	CL R2	OK
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The correctness of data was verified by interviewing the Berkley air representative /IM02/ during the site visit.	CL R2	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The QA/QC procedures were followed as per the registered PDD with GS. This was also verified from the data taken during the quarterly surveys by Berkley air. The Berkley air representative was also interviewed /IM02/ during the site visit.	CL R2	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The accuracy of data was checked from the data taken during the quarterly surveys by Berkley air. The Berkley air representative was also interviewed /IM02/ during the site visit. Hence accepted by verification team.	CL R2	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comments above. The data was verified from the quarterly surveys by Berkley air. The Berkley air representative was also interviewed /IM02/ during the site visit. Hence accepted by verification team.	CL R2	OK
4.18. Other Pollutants				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination*	/IM01/ - /IM02/ /MR-1/ /PDD/	This parameter is mentioned as Periodic assessment of Conditions. It is not clear how the records will be maintained for this parameter. Please clarify and provide the evidence for the same. The "toyola Monitoring & Evaluation reports" provided were checked and found to be in order. This was again cross checked by interviewing the E+ Carbon representative during	CL P6	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
methods have been used. *Assess whether the measurement / determination method is in line with the registered GS monitoring plan.*		site visit. The justification provided was also in order and hence accepted by verification team.		
Correctness *Determine whether the value or information given in the sustainability monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The correctness was verified from the "Monitoring & Evaluation reports of toyola." This was again cross checked by interviewing the E+ Carbon representative during site visit. The justification provided was also in order and hence accepted by verification team.	CL P6	OK
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel (if applicable).*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The QA/QC procedures are followed as per registered PDD of GS. This was again cross checked by interviewing the E+ Carbon representative during site visit.	CL P6	OK
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur.*	/IM01/ - /IM02/ /MR-1/ /PDD/ /BUS/	Please see comment above. The accuracy of data was verified from the "Monitoring & Evaluation reports of toyola." This was again cross checked by interviewing the E+ Carbon representative during site visit. The justification provided was also in order and hence accepted by verification team.	CL P6	OK
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility*	/IM01/ - /IM02/ /MR-1/	Please see comments above. The data was verified from the "Monitoring & Evaluation reports of toyola." This was again cross checked by interviewing the E+ Carbon representative during site visit. The justification provided was also in order and hence	CL P6	OK

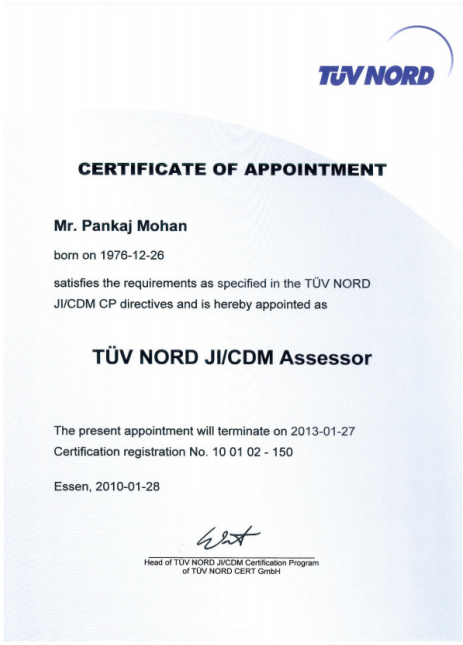
Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
checks as far as possible. Check if the applied value could be backed up by corresponding evidences.	/PDD/ /BUS/	accepted by verification team.		
5. ER Calculation				
Traceability *Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spread-sheet shall be used. All applied formulae must be visible.*	/XLS/ /MR-1/ /IM01/	The ER calculation provided in the MR is providing equivalent figures as the ER-calculation in xls-format. The formulas applied are traceable and the calculation can be reconstructed having the applied methodology as well as the PDD at hand. Nevertheless, the MR does not provide descriptions to the parameters used in the calculation and is therefore insufficient. Correspondingly CAR C1 is raised.	CAR C1	OK
Parameter consistency *Assess whether all internal and external parameters and data used for calculation are applied consistently in the carbon monitoring report and the calculation spreadsheet?* *Consider only the correct data exchange between the carbon monitoring report and the calculation spreadsheet (if any). The evaluation of the correctness of the parameter values itself should be discussed in the chapter "Monitoring Parameters".*	/XLS/ /MR-1/ /IM01/	All parameters as well as relevant formulas in ER-spreadsheet are not copied into the MR. In this regard inconsistencies could be identified, except the addition of formulas and parameters for calculating the ERs without justification. Hence CAR C2 is raised. FAR C3 is raised for the double counting issue. This needs to be checked if the ERs are double counted in other projects.	CAR C2 FAR C3	OK
Applied formulae *Check if the applied formulae are in accordance with the monitoring plan and / or the approved methodology.*	/MR-1/ /XLS/ /PDD/ /METH/	See comment above. The spreadsheet was reviewed and found that the xlsx i.e. MS excel 2007 was used and the data was found to be in accordance with the registered Monitoring Plan of GS PDD. The calculations and formulae are also mentioned in revised MR. These were matching with the data surveyed and checked during site visit.	CAR C1 & CAR C2	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Completeness of calculation *Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.* *Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.*	/MR-1/ /XLS/ /PDD/ /METH/	See comment above. The data was found to be in accordance with the registered Monitoring Plan of GS PDD. The calculations and formulae are also mentioned in revised MR. These were matching with the data surveyed and checked during site visit.	CAR C1 & CAR C2	OK
6. Quality Management; defined organisational structure, responsibilities and competencies Internal QA/QC and document control				
Management System *Check if the GHG data and sustainability monitoring system is embedded in a (certified) company quality management system, if so; check if all CDM and / or GS monitoring procedures have been fully integrated in the project participant's quality management system. If not check how the GHG management system has been implemented.*	/MR-1/	The GHG data and sustainability monitoring is embedded in performance monitoring of the Cook Stoves, and also in a company quality management system.	OK	OK
Roles and Positions *Check if all roles and positions of each person in the GHG data management and sustainability monitoring process are clearly defined and implemented, from raw data generation to submission of the final data.* *Check further if only duly qualified personnel is involved in the monitoring procedures.*	/MR-1/ /IM01/ - /IM03/	Roles and responsibilities are clearly defined in the MR	OK	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
Trainings *Check if initial trainings have been carried out, in case deemed necessary.*	/MR-1/ /IM01/ -/IM03/	Trainings for masons, supervisors and users have been conducted. Clear description of the institution providing the training is not included in the MR, yet.	CL Q1	OK
Troubleshooting procedures *Assess whether troubleshooting procedures have been implemented.*	/MR-1/ /IM01/ -/IM03/	Pending CL R1	CL R1	OK
Maintenance procedures Are appropriate maintenance procedures in place?	/MR-1/ /IM01/ -/IM03/	Repair and maintenance is going to take place upon request by the user or identification during monitoring.	OK	OK
Internal QA/QC *Assess whether there are any procedures in place on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented? (This might include spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.)*	/MR-1/ /IM01/ -/IM03/	Internal audit procedures are defined in MR and checked with the PP during site visit.	OK	OK
Data archive Check whether all records of monitoring parameters are archived according to the monitoring plan.	/MR-1/ /IM01/ -/IM03/	Data archiving is properly performed by the PP in soft and hardcopy.	OK	OK
Data protection Assess whether appropriate measures have been taken in order to avoid unintended or intended manipulation of the measured data.	/MR-1/ /IM01/ -/IM03/	Basically, there may be room for data manipulation considering the huge amount of users as well as the fact that data is obtained by the 1st and 3rd party, i.e. the PP and Berkley Air companies. However, since original filled forms and data entries (print outs) are stored together it warrants cross checks of data.	FAR Q2	OK

Checklist Item	Refe-rence	Verifiers Comments[1]	Draft Concl.	Final Concl.
		Nevertheless, FAR Q2 was raised in order to alleviate cross checks during next verification.		

ANNEX 2: APPOINTMENT / AUTHORISATION STATEMENTS



TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Pankaj Mohan

born on 1976-12-26

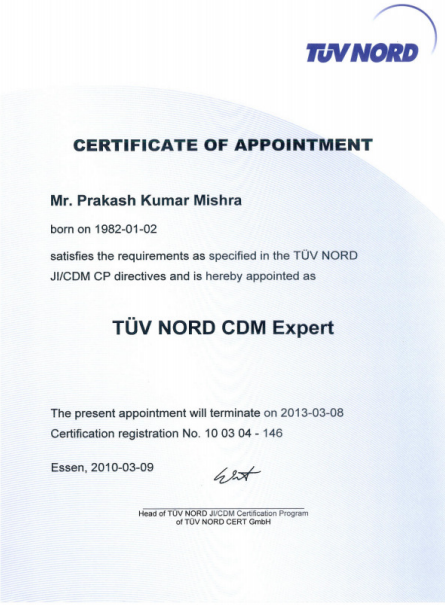
satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Assessor

The present appointment will terminate on 2013-01-27
Certification registration No. 10 01 02 - 150

Essen, 2010-01-28

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH



TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Prakash Kumar Mishra

born on 1982-01-02

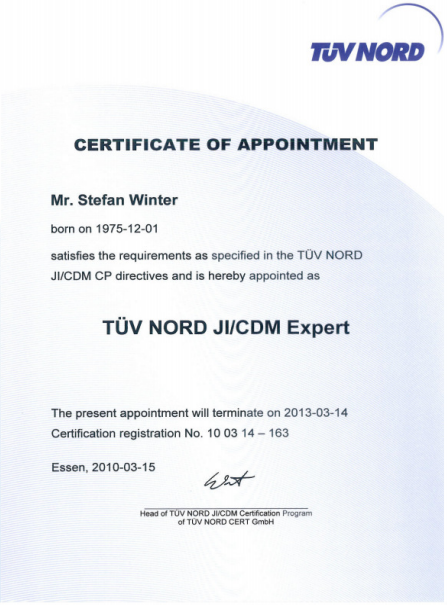
satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Expert

The present appointment will terminate on 2013-03-08
Certification registration No. 10 03 04 - 146

Essen, 2010-03-09

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH



TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Stefan Winter

born on 1975-12-01

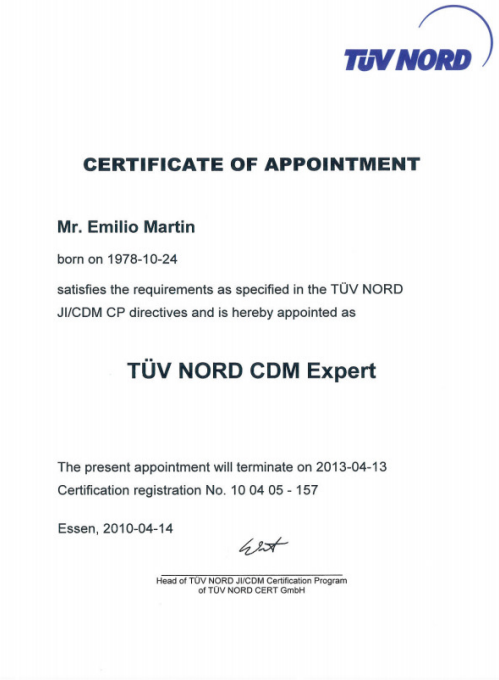
satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Expert

The present appointment will terminate on 2013-03-14
Certification registration No. 10 03 14 – 163

Essen, 2010-03-15

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH



TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Emilio Martin

born on 1978-10-24

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Expert

The present appointment will terminate on 2013-04-13
Certification registration No. 10 04 05 - 157

Essen, 2010-04-14

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH