WORK PLAN

for

Gold Standard Verification of Programme Activities: “Improved Cooking Stoves For Nigeria Programme Of Activities[1]”In Nigeria

Improved Cooking Stoves for Nigeria Programme of Activities CPA # 1 - GS1162

Improved Cooking Stoves for Nigeria Programme of Activities CPA # 2 - GS1352

Improved Cooking Stoves for Nigeria Programme of Activities CPA # 3 - GS1353

Improved Cooking Stoves for Nigeria Programme of Activities CPA # 4 – GS2437

CME: atmosfair gGmbH

Gold Stand ID Number: GS 834

Monitoring Period: MP3 - 01/07/2013 – 30/06/2014 (inclusive both dates)

MP 4 – 01/07/2014 – 30/06/2015 (inclusive both dates)

Applicable Gold Standard Requirements: Version 2.1

Approved CDM Methodology AMS II.G., version 3, “Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass”

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

[1] During this Monitoring period, only CPA#1, CPA#2, CPA#3 and CPA#4 are requesting issuances. Even though CPA#5 is registered on the 29th May 2013, but there are no request for issuance for the CPA.

Abbreviation

CCIPL	Carbon Check (India) Private Ltd
CPA	Component Project Activity
CPA DD	Component Project Activity Design Document
DOE	Designated Operational Entity
DVR	Draft Verification Report
ER	Emission Reduction
FVR	Final verification Report
GS	Gold Standard
GHG	Greenhouse gas(es)
MR	Monitoring Report
MP	Monitoring Plan
OSV	On Site Visit
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
QC/QA	Quality control/Quality assurance
TA	Technical Area
TR	Technical Review
CER	Certified Emission Reduction

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495

Dear Madam/Sir,

Please find below Gold Standard Verification Workplan prepared according to Gold Standard Requirements version 2.1 for atmosfair gGmbH's- "Improved Cooking Stoves for Nigeria Programme of Activities" in Nigeria, GS834 registered 13/03/2012.

Monitoring Period	01/07/2012 – 30/06/2013(inclusive both dates)
Project Name	Improved Cooking Stoves for Nigeria Programme of Activities CPAs: Improved Cooking Stoves for Nigeria Programme of Activities CPA # 1 Improved Cooking Stoves for Nigeria Programme of Activities CPA # 2 Improved Cooking Stoves for Nigeria Programme of Activities CPA # 3 Improved Cooking Stoves for Nigeria Programme of Activities CPA # 4
Project developer	atmosfair gGmbH
Country	Nigeria
GS project reference number	GS834
Gold Standard Project Registration Date	13/03/2012
CCL Reference No	CCL426/CDM-GS/PoA/VER/ICSNPOA/20160302
Registered under CDM	Yes (PoA 5067)
Methodology	Approved CDM Methodology AMS-II.G version 03 "Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass"
Version of Meth	Version 3
GHG reducing Measure/technology	Improved Cookstoves
Sectoral Scope	3
Applicable Gold Standard Requirements	Version 2.1

Yours sincerely,
Anubhav Dimri
Team Leader

Work Plan of Carbon Check (India) Private Ltd for GS verification of GS-CDM project "Improved Cooking Stoves for Nigeria Programme of Activities" in Nigeria.

The verification plan has been prepared specifically depicting the information in accordance with the GS requirements version 2.1.

Composition of Audit Team

According to the technical scopes and experiences in the sectoral or national business environment Carbon Check (India) Private Ltd., (herein after CCIPL) has composed a project team in accordance with the appointment rules of CCIPL. The team collectively has knowledge of the requirements of CDM and GS. Carbon Check confirms that the audit team has no conflict of interest and further more is fully independent from all other aspects of the project.

The verification team consists of the following personal:

Role/Qualification	Last Name	First Name	Country
Team Leader/ Technical Expert	Dimri	Anubhav	India
Local Expert	Bwala	Anjili Musa	Nigeria
Technical Reviewer	Singh	Vikash Kumar	India

Audit Team Experience:

The team composition is linked to the methodology, technical and local experience in the host country.

Anubhav Dimri: is an appointed Team Leader. He holds a Post Graduate Diploma in Industrial Safety and Environmental Management. He is a trained GHG Lead Auditor. He is participated and passed 5 days ISO 50001 Lead Auditor (UNIDO sponsored) training course. He has experience in the field of Carbon Offsets both in the regulatory and voluntary front, including project validation. He has participated in GS, VCS and CDM validations and validations. He has been involved in the GS Verification of "The Breathing Space Improved Cooking Stoves Programme, India" with GS reference number GS 916. He has also been involved in verification of other GS projects with reference numbers: GS 916, GS 1231, GS 1029, GS 1030, GS 1031, GS 1385, GS 411, GS 1162, GS1352, GS1353. He has been involved in more than 100 CDM projects/programme of activities submitted to UNFCCC for Request for Registration/Inclusion/Request for Issuance. He has also worked on a number of VCS projects. He has also attended Several Gold Standard DOE webinar training. He has also undergone training for ISO 9001, GHG verifier training, and technical area 1.2 training. He is qualified as technical expert for TA 1.1, 1.2, 3.1 and 13.1 under CDM SS/TA categorisation.

Anjili Musa Bwala: is local host country expert for this project. Anjili has continual career progression from College, University and working for the Government of Borno State in the Ministry of Economic Development as a Senior Planning Officer. Promotion to the Finance Department as Director of Budget. Responsible for analysing government estimates, budgets and expenditure for building and development projects within specified areas. Executive and administrative duties with control of planning / budget officers and clerical staff, with direct communication to senior officials and heads of departments from other government organizations.
Eight years (1996 to 2003) as UNDP Programme Monitoring Adviser for Borno State. Monitoring UNDPs rural development projects (health, micro credits, water and sanitation, women empowerment through dissemination of locally fabricated firewood efficient cooking stoves, general social

development etc.) across the state. Desk Officer for the National Economic Intelligence Committee (NEIC) for Borno State. Retired from State Government Borno State since 2010.

Gold Standard Verification Time Frame:

A time frame envisaged for this GS verification project is as follows:-

Milestone description	Time
Date of contract signing with the DOE	08/03/2016
Submission of GS Workplan	1st week (01/06/2016)
On-site Audit with Monitoring	5th week (25/06/2016 to 04/07/2016)
Submission of Monitoring Report	6th week
Document Review	6th week
Submission of Draft Verification Report (Issuance of CARs/CLs)	7h week
Response from the PP to DVR	8th week
Assessment of PP response to DVR	8th week
2nd Round of Assessment of PP response to DVR	8th week*
FVR Submission for Technical Review	9th week**
Quality Review of FVR before submission to client	10th week
Submission of Final Verification Report	10th week

*If issues not closed out then 2nd round will proceed.

**Provided all issues (Corrective action requests and Clarifications Requests) are closed.

Documents to Review

Explanation on the assessment of SD indicators/parameters

SD indicators parameters/indicators shall be assessed by means of document review and onsite visit. Following documents shall be reviewed as a part of this assessment:

- Survey records
- Sales Records
- Training Records
- Electronic Database
- CME's records

As the site visit would be undertaken along with the monitoring of the parameters in accordance with the clarification letter provided by CDM Executive Board dated 30/11/2015 Reference INQ-04074-EB. The assessment above shall be confirmed (cross-checked) during the OSV (both by means of physical verification as well as OSV interviews with the relevant stakeholders for e.g. Households, representatives of the CME atmosfair gGmbH.

Emission Reduction Monitoring Report (MR) along with additional documents like the Emission reduction spread sheet, PoA-DD, CPA-DD, GS passport (PoA/CPA), LSC Report and supporting documents shall be checked by the DOE. Further, the documents and sources referred in the MR have also been submitted. The required sets of documents to be submitted to DOE are as follows:

Sr. No.	Document
1	Monitoring Report (shall be checked after the site visit)
2	Baseline Study & Survey:

Sr. No.	Document
	1. Ex-ante Sampling Plan Description 2. Ex-ante Biomass Consumption In Nigeria: Kitchen Survey Report 3. Baseline Statistical Analysis 4. HH Kitchen survey data (Excel file)
3	Internal Audit Report (if any)
4	Registered GS –CPA-DD, Improved Cooking Stoves for Nigeria Programme of Activities CPA # 1 Registered GS –CPA-DD, Improved Cooking Stoves for Nigeria Programme of Activities CPA # 2 Registered GS –CPA-DD, Improved Cooking Stoves for Nigeria Programme of Activities CPA # 3 Registered GS –CPA-DD, Improved Cooking Stoves for Nigeria Programme of Activities CPA # 4 Registered GS –CPA-DD, Improved Cooking Stoves for Nigeria Programme of Activities CPA # 5
5	Gold Standard Passport Improved Cooking Stoves for Nigeria Programme of Activities (GS1162) Gold Standard Passport Improved Cooking Stoves for Nigeria Programme of Activities (GS1352) Gold Standard Passport Improved Cooking Stoves for Nigeria Programme of Activities (GS1353) Gold Standard Passport Improved Cooking Stoves for Nigeria Programme of Activities (GS2437)
6	Gold Standard Validation Report Improved Cooking Stoves for Nigeria Programme of Activities (GS1162) Gold Standard Validation Report Improved Cooking Stoves for Nigeria Programme of Activities (GS1352) Gold Standard Validation Report Improved Cooking Stoves for Nigeria Programme of Activities (GS1353) Gold Standard Validation Report Improved Cooking Stoves for Nigeria Programme of Activities (GS2437)
7	Carbon Baseline Assessment: 1. Sampling quality control report 2. Filled quality control reports
8	Training procedures and records of the personnel involved in GHG monitoring
9	Technical Drawings/specifications of Stoves (SAVE80 and Envirofit G3300)
10	Technical Potential of cook Stoves in Kenya
11	Samples sales records/warranty card from (2011-2015)

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495

Background documents:

Ref no.	Reference Document
/B01/	1. Validation and Verification Standard version 09
/B02/	Gold Standard specific rule/guidelines/standard: 1. Gold Standard tool kit (GSv2.1 Toolkit) 2. GSv2.1-Requirements 3. GS-annexes to toolkit
/B03/	AMS-II.G, Version 03
/B04/	1. Guideline: Completing the monitoring form 2. Template of MR available on UNFCCC website
/B05/	Registration documents: a) Gold Standard Passport b) Registered PoA-DD c) Registered CPA DD d) Validation Reports of PoA/CPA
/B06/	Standard for Sampling and surveys for CDM project activities and programmes of activities

The documents submitted would be reviewed to verify the correctness, credibility and interpretation of the presented information; furthermore a cross check between information provided and information from other sources will be done as initial step of the verification process.

Verification approach:

The verification approach consists of the following three phases:

1. A desk review of the MR, ER Sheet and supporting evidences.

2. On-site visit and follow-up interviews with relevant project stakeholders.

3. The resolution of outstanding issues and the issuance of the final verification report.

During the verification process, the audit team shall make reference to available information related to similar projects or technologies as the CDM/GS project activity. The documentation shall also be reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

The background documentation and data would be thoroughly analysed in order to check the emission reductions, sustainability development indicators and mitigation measures are in accordance with monitoring plan of registered PoA-DD/CPA-DD and GS monitoring plan guidelines.

Parameters to be Monitored

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495

Verification team shall assess the monitoring techniques and feasibility of the values and provide a short summary on the verification of every parameter listed in the monitoring plan and used for calculation of:

Brief descriptions of the monitored parameters are listed below:

(i) Average number of eaters per appliance ($N_{eaters, appliance}$):

Average number of eaters per appliance has been calculated from sample survey. Monitoring of the statistically adjusted average number of eaters involves two steps:

Step 1: Sample survey amongst appliances deployed

Step 2: Calculation of the average number of eaters at confidence level and precision as required by the methodology (AMS II.G. ver. 3) for the inspection frequency chosen, following the statistical standard approach for a homograde test of independent units that have a standard normal distribution.

The average number of eaters is determined through interviews performed by a dedicated monitoring team. This shall be done during the onsite visit.

Interviews are reported in a questionnaire. Interviews are conducted until the required precision for this parameter is achieved. All questionnaires and information gathered during the sampling by the monitoring team are handed over to the managing entity that takes care of entering the information to an electronic database and updating databases where appropriate.

(ii) Adjusted total number of appliances deployed until period y (N_y)

The parameter is calculated through sales receipts and sales records database. The monitoring and sales database of the project shall be checked by the verification team and compared against the sales receipts.

(iii) Statistically adjusted drop out from total population of appliances in period y (DO_y)

Monitoring of the statistically adjusted drop out involves two steps:

Step 1: Sample survey amongst appliances deployed

Step 2: Calculation of the adjusted drop-out rate at confidence level and precision as required by the methodology (AMS II.G. ver. 3) for the inspection frequency chosen, following the statistical standard approach for a homograde test of independent units that have a standard normal distribution.

The Drop outs are determined through interviews where it is checked if the appliances are still operational, performed by a dedicated monitoring team.

Interviews are reported in a questionnaire.

All questionnaires and information gathered during the sampling by the monitoring team are handed over to the managing entity that takes care of entering the information to an electronic database and updating databases where appropriate.

The sampled survey shall be verified at the time of site visit. The calculation of dropout rate shall be checked as part emission reduction calculation spreadsheet.

(iv) Adjusted average efficiency of the system being deployed (η_{new})

The parameter shall be measured by conducting water boiling tests for the sampled appliances. The water boiling test reports for the sampled stoves shall be checked by the validation team.

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495

Sustainability Parameters as per Gold Standard Passport

Verification team will check the field survey, kitchen performance test during onsite audit and interview the atmosfair gGmbH, HHs on sample basis where the survey is conducted and also the CME. Based on the records and information collected on each parameter by DOE during the OSV, it will be concluded whether the values determined and stated in the monitoring report for following parameters are appropriate and correct.

1. Air quality

The air quality parameter will be verified by checking the sales records and inspecting the sample interviews.

2. Quality of employment

The DOE will verify the the quality of employment by checking the recording time of assemblies. And DOE will also visit the selected distributors which implemented the ICS.

3. Access to affordable and clean energy services

This will be verified by checking the end user's invoices and the full cost of stove productions including the taxes and transportation costs

4. Human and institutional capacity

Will be verified by checking Recording number of cooking demonstrations.

5. Quantitative employment and income generation

DOE will verify the quantitative employment and income generation by checking the staff figures reported by the distributors. DOE will also verify the total number of jobs created by the PoA.

6. Technology transfer and technological self-reliance

This will be verified by interviewing the people who are working in the production of stoves. DOE will also check the reports about the status of shift of production steps

On site Audit Planning and schedule

CCIPL would conduct on site audit and physical site inspection to confirm relevant information and to resolve issues identified in the first document review. The site visit has been planned during the month of June and July 2016 starting from 25/06/2016 to 04/07/2016, the Team Leader, Technical Expert and Local Expert shall attend the site visit. The audit plan below has been communicated to the client (prior to the onsite visit). The plan is subject to change and times provided are estimates.

The audit schedule envisaged for this CDM-GS verification project is as follow:

Date	Time	Auditor	Location	Topic	Discussion agenda/Required Evidence
DAY 1: 25/06/2016					

Date	Time	Auditor	Location	Topic	Discussion agenda/Required Evidence
25/06/2016	08.00 - 09.00	AD	Travel to PP office (Abuja)		
25/06/2016	09.00 - 13.00	AD	Project site	Opening Meeting and brief project description by the PP.	Project geographical coverage and safety requirements. Internal audits, warranty records, cook stove distribution records.
25/06/2016	13.00-14.00	Lunch Break			
25/06/2016	14.00 – 17.00	AD	Project site	Sample Database	Sample stoves to be chosen for the monitoring of parameters by the PP.
DAY 2-9: 26/06/2016 – 03/07/2016					
26/06/2016 – 03/07/2016	09.00-17.00	AD	Project site	Physical site visit (to check project implementation and operation)	Photographs shall be taken of the project equipment (Stoves) and relevant monitoring equipment including interview with the end users.
DAY 10: 04/07/2016					
04/07/2016	09.00-12.00	AD	Project Site	Compliance of Monitoring plan with the applied methodology and registered monitoring plan and project implementation and operation as per the registered PDD.	
04/07/2016	12.00-13.00	Lunch Break			
04/07/2016	13.00-17.00	AD	Project Site	Discussion on Monitoring report and ER calculation spread sheets. Furthermore, monitoring plan discussion (to check compliance with the registered PDD/ GS	Compliances to the applicable guidelines of GS and CDM. Overall discussion on monitoring report and review of the following points: • Technical specification

Date	Time	Auditor	Location	Topic	Discussion agenda/Required Evidence
				Passport and applied methodology)	data • Document checks e.g. sales records etc. • Data management and reporting • Quality control • Records of cook stoves • Documented procedures related to GHG monitoring • Job descriptions for positions involved in GHG monitoring. • Records inspection and appropriateness of monitoring during the verification period
04/07/2016	17.00-17.30	AD	Project site/client office	Closing meeting.	

[AD= Anubhav Dimri]

The following set of documents would also be checked during the on-site audit:

Type	Title of Content
Technical	Technical Specifications of project equipment, calibration certificates
Legal	Consent and approvals from regulatory authorities
Organization	Organization chart, monitoring personnel.

Interaction with the project developer

The object of this phase of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified/corrective action done prior to final DOE's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a draft verification report is completed for the project activity. The draft verification report shows in transparent manner criteria (requirements), means of verification and resulting statements on actual project activity against identified criteria.

The draft verification report serves the following purposes:

- It organises in a table form, details and clarifies the requirements, which the project is expected to meet;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification.

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495

- It ensures that the issues are accurately identified, formulated, discussed and concluded in the final verification report.
- It ensures the determination of achieving credible emission reductions from the project activity.

Stakeholders Interviewed

During the site visit audit, relevant local stakeholders to be interviewed.

1. House-holds using project technology, i.e. efficient cook stoves.
2. Personnel of atmosfair gGmbH (Project Proponent)
   Other Local stake holders viz. Village head/Elders, Local school teachers/village level officials

Internal Quality Control

As a final step of verification, the final documentation will be prepared which will include verification report , suggestions for more / less frequent site visit and annexes. The complete documentation will have to undergo an internal quality and technical control by the Carbon Check, i.e. Final Verification Report has to be technically reviewed by independent competent technical reviewer and finally approved either by the Head of the DOE or provisional person. If the documents have been satisfactorily approved by the CCIPL QR and TR team, the FVR will be submitted to the PP for further upload to the GS Registry. Communication of final verification opinion to the Gold Standard will be carried out by the DOE via GS registry.

The decision whether the verification opinion will be submitted for approval to the GS or not solely rests with the DOE.

Carbon Check (India) Private Ltd.
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector – 3, NOIDA (Uttar Pradesh) – 201301

CIN: U74930DL2012PTC232495