



FINAL SUSTAINABILITY VERIFICATION REPORT for the GS-VER Project Activity

Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia

2nd Verification

Report No. 01 997 9105066507
Version 2.0, 11-11-2013

Designated Operational Entity (DOE)

TÜV Rheinland (China) Ltd

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I. Project data:

Project title:	Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia		Report No.: 01 997 9105066507
Registration No. / Date:	GS1020 / 08-08-2012		Current revision No.: 2.0
Monitoring period:	01-06-2012 – 30-04-2013		Date of current revision: 11-11-2013
Methodology:	Technologies and Practices to Displace Decentralized Thermal Energy Consumption		Date of first issue: 06-08-2013
Publication of MR:	The monitoring report (version 1, 24-04-2013) was uploaded to the Gold Standard Foundation website by the project participant, as per email confirmation dated 3-5-2013		
Average emission reductions:	Estimated : 20,076 tCO ₂ e from 01-06-2012 to 30-04-2013 including both days based on annual emission reductions as indicated in the registered PDD (version 6, dated 16-05-2012)	Verified: 72,972 tCO ₂ e from 01-06-2012 to 30-04-2013 including both days Adjusted under small scale cap during this monitoring period = 56,932 tCO₂e	
GHG reducing measure/technology:	An energy efficient improvement project that displaces fuel needed to boil water. The ceramic water purifier is introduced to filter drinking water to reduce demand for non-renewable biomass used in boiling water		

Party	Project participants	Party considered a project participant	Contract party
Cambodia (Host)	Hydrologic Social Enterprise Ltd	No	☒

II. Verification Team:

Verification Team			Role									
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Mr Azizan Zakaria	Malaysia	5.1, 11.1, 12.1, 13.1	☒									
Ms. Carol Ng Siew Theng	Malaysia	1.2, 15.1							☒			
Mr Heng Dang	Cambodia	N/A			☒							
Walter Tang	China	1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1								☒		

Verification Phases	Verification Status
☒ Desk Review ☐ Follow up interviews ☐ Resolution of outstanding issues ☐ Corrective Actions / Clarifications Requested	☒ Full Approval and Submission for Issuance ☐ Rejected

III. Verification Report:

Final approval	Released	Distribution
☒	By: Mr. Henri Phan	☐ No distribution without permission from the Client or responsible organizational unit
Date: 11-11-2013		☒ Unrestricted distribution

Abbreviations

BE _y	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM VVS	CDM Validation and Verification Standard
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS	Gold Standard
GSF	Gold Standard Foundation
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
MP	Monitoring Plan
MR	Monitoring Report
N ₂ O	Nitrous oxide
PDD	Project Design Document
PE _y	Project Emissions
SD	Sustainable Development
UNFCCC	United Nations Framework Convention on Climate Change
VER	Voluntary Emission Reduction

Verification opinion — summary

The verification team assigned by the DOE (TÜV Rheinland (China) Ltd ¹) – previously known as TÜV Rheinland Japan Ltd. concludes that the GS VER Project Activity “**Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia**”, as described in the registered PDD (Version 07, 10-09-2012) and monitoring report (Version 5.0, 25-09-2013), meets all relevant requirements of the UNFCCC for VER project activities, including the Gold Standard Requirements Version 2.1, July 2009 & Gold Standard Toolkit 2.1, June 2009 (with its Annexes)

The verification process has been performed as described in the Chapter 4 of Gold Standard Toolkit Version 2.1 in the following stages:

1. Desk review of registered PDD (GS1020, Version 07, 10-09-2012)
2. Registered validation report (Version 05, 20-09-2012)
3. Preliminary Monitoring Report (Version 1.0, 24-04-2013)
4. On-site visit & interview of stakeholders (07-05-2013 & 08-05-2013)
5. Issue of the draft validation protocol with corrective action requests (CARs) and clarification requests (CLs) (31-05-2013)
6. Resolving all of outstanding questions
7. Desk review of revised Monitoring Report (Version 5.0, 25-09-2013)
8. Issue of the final verification report & protocol

The project activity was correctly implemented according to selected monitoring methodology and monitoring plan. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed verifying the amount of achieved GHG emission reductions. The DOE therefore is obliged to issue a positive verification opinion expressed in the attached Certification statement.

¹ Starting from November 2011, the DOE operations has been transferred from TUV Rheinland Japan Ltd. to TUV Rheinland (China) Ltd. For further information, please see EB 53 report, article 50, <http://cdm.unfccc.int/DOE/list/DOE>

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1. Introduction

Nexus, Carbon for Development, has commissioned the DOE, TÜV Rheinland (China) Ltd. (previously known as TÜV Rheinland Japan Ltd.) to perform a verification of the GS VER Project Activity “**Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia**” (hereafter “project activity”). This report summarises the findings of the verification of the project, performed required for all registered CDM / GS project activities intending to confirm their achieved emission reductions and proceed with request for issuance of VERs.

1.1 Objective

Verification is the periodic independent review and ex post determination of both quantitative and qualitative information by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered project activity during a defined monitoring period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and GS VERs reported for the “**Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia**” for the period 01-06-2012 – 30-04-2013

The purpose of verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner.

In particular, monitoring plan, monitoring report and the project’s compliance with relevant UNFCCC / GS and host Party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented and also if the monitoring plan is in compliance with the registered PDD and approved monitoring methodology.

1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- Where sampling is involved, sampling guidelines are applied to ensure the adequate sampling and survey method is followed in reaching professional judgements.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

The verification comprises a review of the monitoring report over the monitoring period from 01-06-2012 – 30-04-2013. Based on the registered PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spread sheet, monitoring methodology/ies and all related evidence provided by project participant(s).

On-site visit and stakeholders interviews are also performed as part of the verification process.

2. Methodology

The verification consists of the following four phases:

1. Completeness check and webhost of the Monitoring report for GS public commenting;
2. Desk review of the monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents;
3. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary). The on-site assignment includes the following;
 - An assignment of implementation and operation of project activity with respect to registered PDD or approved revised PDD;
 - Review of information flows for generating, aggregating and reporting the monitoring parameters;
 - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the PDD;
 - Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
 - Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and PDD;
 - Review of assumptions made in calculating the emission reduction;
 - Implementation of QA/QC procedure in-line with the PDD and methodology requirement.
4. Resolution of outstanding issues and the issuance of the final Verification report and Certification statement.

The following sections outline each step in more detail.

2.1 Desk review

/1/	Preliminary monitoring report, Version 1.0, 24-04-2013
/2/	Final GS monitoring report, Version 5.0, 25-09-2013
/3/	Final Validation report, Version 05, 20-09-2012
/4/	Registered PDD, registration no. GS1020, Version 07, 10-09-2012
/5/	Emission reduction calculation spreadsheet, Hydrologic (2013) MP2 ER calculations 2013-09-18 Verification
/6/	Clean Development Mechanism Validation and Verification Standard, Version 02.0, EB 65, Annex 4
/7/	Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011
/8/	Glossary of CDM Terms, Version 07
/9/	Gold Standard website: GS registration number: 1020 http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000001910 (accessed 3 June 2013)
/10/	Gold Standard Requirements Version 2.1, July 2009 - Gold Standard Toolkit 2.1, June 2009 (with its Annexes)
/11/	Hydrologic - CWP Factory permit 2013-07-05 (Khmer and English)
/12/	Hydrologic - Cert Letter local factory registration MIME 2013-07-05
/13/	Hydrologic - Permission Certificate (English) 2013-07-05
/14/	Hydrologic (2013) MP2 Project Survey Report 2013-07-23
/15/	Hydrologic (2012) Annex I – WCFT, Water Consumption Field Test, September 2012 (Hydrologic (2012) Annex I - WCFT Report 2012-09-25)
/16/	Hydrologic (2013) MP2 Project Database 2013-07-12
/17/	Hydrologic (2013) MP2 Project Survey Data Analysis 2013-07-22
/18/	Hydrologic (2013) MP2 Sales Database - Summary 2013-06-18
/19/	Hydrologic (2013) MP2 Project Survey Questionnaire (English&Khmer) FINAL 2013-07-11
/20/	10 sample completed survey questionnaires

/21/	Hydrologic Field Survey Data (2013)
/22/	Hydrologic (2013) MP2 Community Complaint Survey Report 2013-04-22
/23/	Hydrologic (2012) Annex IV – Water Boiling Field Test, September 2012 (Hydrologic (2012) Annex IV - WBT, Boiling Test Results 2012-09-11)
/24/	Hydrologic (2013) MP2 Roles-Resp & Training Record 2013-07-05
/25/	Hydrologic (2013) MP2 Monitoring Information Flows 2013-07-05
/26/	Hydrologic (2013) MP2 CDM Organization Chart 2013-07-05
/27/	Hydrologic (2013) MP2 Fire wood Used at Factory 2013-07-05
/28/	Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 (Hydrologic (2012) Calibration & Inventory 2012-09-06)
/29/	Hydrologic (2012) Annex IV - WBT, Water Boiling Test Protocol 2012-06-08
/30/	Hydrologic (2012) ER calculations 2012-11-30 Verification
/31/	Hydrologic (2012) Annex II - WQT, CWP Performance Report
/32/	Hydrologic (2013) MP2 CWP Serial Numbers 2013-07-05
/33/	Hydrologic (2013) MP2 Price - Break Even Price 2013-03-06
/34/	Hydrologic (2012) Annex VII - DNH, Collective Bargaining & Freedom of Association English
/35/	Hydrologic (2012) Annex VII - DNH, Labour discrimination policy in English
/36/	Hydrologic (2012) Annex VII - DNH, Health and Safety Precaution
/37/	Hydrologic (2012) Annex VII - DNH, Anti-corruption policy in English
/38/	Hydrologic (2012) Annex VII - DNH, Code of ethics in English
/39/	Hydrologic (2013) MP2 Employment Record and Income Generation 2013-04-29
/40/	Hydrologic (2013) R&D School Survey Report for School-Adapted CWP 2013-04-30
/41/	Hydrologic (2013) MP2 Expense Summary Jun 2012 - Feb 2013, 2013-03-06
/42/	Hydrologic (2013) MP2 Price - Suggested Retailers Price 2013-04-30
/43/	Hydrologic (2013) Summary of Names of Retailers received the suggested retailer price 2013-04-30
/44/	Hydrologic (2013) Price of water filters 2013-05-01
/45/	Hydrologic - Baseline study report 16-02-2012
/46/	Hydrologic (2012) Annual Leave Policy Memo 2013-06-10
/47/	Hydrologic (2013) Annual Leave Change Memo Posted at Factory 2013-07-05
/48/	Hydrologic (2013) MP2 CWP Serial Numbers 2013-07-05
/49/	Hydrologic (2013) MP2 Employment Contract Received List 2013-07-05
/50/	Hydrologic (2012) Fire wood Receipt Example 2012-08-13
/51/	Hydrologic (2012) Warranty - Radio Broadcast Contract 2013-06-12
/52/	Hydrologic (2012) Warranty card 2012-06-28
/53/	Hydrologic (2013) MP2 Training CWE Presentation 2013-06-10
/54/	Hydrologic (2013) MP2 Warranty - Hotline Call Log 2013-04-30 (including English Translation)
/55/	Hydrologic MP2 Training CWE Feb 2013 Participants list 20130610 and training photo evidence
/56/	Hydrologic (2013) SOP Health Safety FAC014, dated 24-04-2013
/57/	Hydrologic (2013) SOP First Aid Kit Management, dated 07-02-2013
/58/	Hydrologic (2013) Employment Contract (4 workers) 2013-05-30
/59/	iLab iDE Cambodia (2013) MP2 Hydrologic Virus Research Results 2013-04-11

/60/	Campbell (2005) Study on Life Span of Ceramic Filter Colloidal Silver Pot Shaped (CSP) Model, Enrique Campbell Consultant
/61/	Lantagne, D (2001) Investigation of the Potters for Peace
/62/	Air Quality Improvement Plan, Version 1, 12 September 2012 ("Hydrologic (2012) Factory - Air Quality Improvement Plan 2012-09-12")
/63/	Hydrologic (2013) SOP Kiln Firing FAC007 2013-03-14
/64/	Waste management procedures, dated August 2012 (Hydrologic (2012) Waste Management Procedure 2012-08-24)
/65/	Laboratory Performance Tests, dated August 2012 (Hydrologic (2012) Annex II - WQT, CWP Performance Testing Report 2012-08-24)
/66/	Resume & evidence of qualification of personnel involved for Laboratory Performance Test Hydrologic (2012) Lab CV - Dr Mark D Sobsey 2012-08-22 Hydrologic (2012) Lab CV - Dr Mark Elliot 2012-08-22 Hydrologic (2012) Lab CV - Dr Joe Brown 2012-08-12 Hydrologic (2012) Lab CV - Mr Chai Ratana 2012-08-22
/67/	Attendance List for Research Assistant Training on CWP Hydrologic (2013) MP2 PS RA Training Participants List 2013-02-14
/68/	Training attendance list for silver nitrate and clay milling dated 30-05-2013
/69/	Training for Clean Water Expert (CWE) dated 10-06-2013
/70/	Gold Standard Passport dated 20 August 2012
/71/	Email communication between GS and PP regarding the increased amount of ER dated 9 Sep 2013
/72/	Direct Sales Strategy for Clean Water Experts dated 30 Nov 2012
/73/	New GM resume, Mr Hem Meas

2.2 On-site visit and follow-up interviews with project stake holder

Identified personnel who have been interviewed and/or provided additional information to the presented documentation.

	Date	Name	Organization	Topic
/i/	07-05-13	Paulo Lopes	NEXUS	Monitoring Report Discussion: - Data sources and assumptions - GHG emission reductions calculation - Monitoring data compilation - Online data storage system maintenance & control - Reporting & data integrity check - Cross checking management & operation system maintenance in relation to monitoring plan - Document Check: - Manuals, procedures, records, certificates, calibration reports, and other relevant documents - Follow-up FARS identified in validation, if any
		Thomas Blackburn	NEXUS	
		Rachel Pringle	Hydrologic Social Enterprise Ltd	
		Ros Kimsan	Hydrologic Social Enterprise Ltd	
		Suk Sovannara	Hydrologic Social Enterprise Ltd	
		Chantrea Luy	Hydrologic Social Enterprise Ltd	
		Hem Meas	Hydrologic Social Enterprise Ltd	
/ii/	08-05-13	Thomas Blackburn	NEXUS	Monitoring parameters demonstrations - Project implementation status cross checking - Project facilities and equipment check - Project design and technology used
		Rachel Pringle	Hydrologic Social Enterprise Ltd	
		Suk Sovannara	Hydrologic Social Enterprise Ltd	
		Chantrea Luy	Hydrologic Social Enterprise Ltd	
		Hem Meas	Hydrologic Social Enterprise Ltd	
		Ros Chan Thann	SdauKanleng, Dey Ith, KeanSvay, Kandal Province	
		Ros Chantha	SdauKanleng, Dey Ith, KeanSvay, Kandal Province	
		Doung Vanna	SdauKanleng, Dey Ith, KeanSvay, Kandal Province	
		On PheaRan	Tumnup, Tuaot, Bati, Takeo province	
		Khout Chantha	Tumnup, Tuaot, Bati, Takeo Province	
		Khen Thouch	Tumnup, Tuaot, Bati, Takeo Province	
		Sok Bunsean	Provincial Supervisor of Takeo	
		Heng Pich	Clean Water Expert (CWE)	
/iii/	09-05-13	Thomas Blackburn	NEXUS	Project implementation - Information flow for monitoring presentation - CDM monitoring procedures - Data collection procedures - QA/QC procedures
		Elisabeth Gish	NEXUS	
		Ouk Sarath	Hydrologic Social Enterprise Ltd	
		Rachel Pringle	Hydrologic Social Enterprise Ltd	
		Suk Sovannara	Hydrologic Social Enterprise Ltd	
		Hem Meas	Hydrologic Social Enterprise Ltd	

		Luy Chantrea	Hydrologic Social Enterprise Ltd	Monitoring Report Discussion: - Original data check and data trail till the reported values Plant Tour - Project implementation status cross checking - Project facilities and equipment check - Project design and technology used
		Dou Chin	Hydrologic Factory employee – Mixer	Factory employee's interview
		Chroy Pheak	Hydrologic Factory employee – Clay	
		OI Sopheara	Hydrologic Factory employee – Dryer	
		Oun Sarith	Hydrologic Factory employee – Rice husk	
		Lun Samol	Hydrologic Factory employee – Kiln furnace	
		Pon Sophorn	Hydrologic Factory employee – Kiln furnace	
		Keo Pisit	Hydrologic Factory employee – Kiln furnace	

2.3 Resolution of outstanding issues

The objective 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 prior to final DOE's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.

The verification protocol serves the following purposes:

- It organises in a table form, details and clarifies the requirements, which GS project is expected to meet GS requirements;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The verification protocol consists of three tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 and preliminary and final opinion of the DOE on every particular requirement. Table 3 reflects the carry forward actions initiated by the verification team if the monitoring and reporting require attention and/or adjustment for the next verification period. The completed verification protocol for this project is enclosed in Appendix A to this report.

Findings during the verification can be interpreted as a non-compliance with GS criteria or a risk to the compliance. Corrective action requests (CARs) are raised, in case:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

- (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- (d) Issues identified in a FAR during validation/previous verification(s) that are not been resolved by the project participant(s) to be verified during current verification.

Requests for clarification (CLs) are raised, if information is insufficient or not clear enough to determine whether the applicable GS requirements have been met.

A forward action request (FAR) is raised during verification to highlight issues related to project implementation/monitoring that require review during the subsequent verification of the project activity. FARs shall not relate to the GS requirements for issuance.

2.4 Internal quality control

The final verification report has passed a technical review before being submitted to the project participant. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for GS validation and verification.

2.5 Verification Team

Before the assessment begins, members of the verification team are ensured to cover the technical area(s), sectoral scope(s) and relevant host country experience including local language ability for evaluating the GS verification activity. The qualification of the team is as per the criteria defined by the EB / GS guidelines for qualification.

Verification Team			Type of Involvement						
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Mr Azizan Zakaria	Malaysia	5.1, 11.1, 12.1, 13.1	X	X	X	X			
Ms. Carol Ng Siew Theng	Malaysia	1.2, 15.1		X	X	X			
Mr Heng Dang	Cambodia	N/A					X		
Walter Tang	China	1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1							X

3. Verification findings

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of validation are documented in detail in the verification protocol in Appendix A.

3.1 Project implementation

3.1.1 The implementation of the project activity

The verification team has performed on site visit assessment on 07-05-2013 until 09-05-2013 to assess that all physical features of the proposed GS project activity proposed in the registered PDD are in place and the project participants has operated the proposed GS project activity as per the registered PDD

The followings are the means of verification & the conclusion of the assessment conducted by the verification team:

No.	Project Activity Implementation Features	Verification Opinion
1	Project participants	In the registered PDD, only 1 project participants are indicated i.e. Hydrologic (Cambodia)
2	Project location	During on site visit, the verification team was able to confirm that the project is still located at Hydrologic's Office: House 38b, Street 494, Phsar Deum Thkov, Chamkamon, Phnom Penh,, Cambodia Hydrologic's factory: Trapeang Samrong Village, Sub-district of Longveak, District of Kompong Tralach, Province of Kompong Chnang

3	Project activity physical features	- Technology The project activity is to introduce Ceramic Water Purifiers (CWPs) into Cambodia as a way to filter safe drinking water for Cambodian households. These units will treat contaminated drinking water, and reduce the demand for conventional water treatment through boiling water with non-renewable biomass. - Project equipment The project activity equipment is actually only referring to the machineries in the Hydrologic factory used to manufacture the CWPs. As for the CWPs physically, no project activity equipment is applicable The verification team has conducted desk review of the registered PDD & cross checked the actual physical features implemented at the project site during on site visit The following are the summary of the observed implemented physical features as proposed in the registered PDD during the on-site visit: The verification team was able to observe the actual physical CWPs manufacturing process in the factory & also the process how would the CWPs be distributed according to the channels defined in the PDD Records of sales & distributions are checked & confirmed its traceability to the factory manufacturing records At the villages visited i.e. Sdaukanleng & Tumnup village, the verification team was able to interview households and observe the usage of the CWPs and cross checking the impact of the CWPs usage versus conventional method i.e. using stoves (using wood etc.). The effect of before & after use of the CWPs were also cross checked through interviews of households during the site visit in these 2 villages - Monitoring & metering equipment All planned monitoring equipment as indicated in the registered PDD /4/ have been used, as observed during on site visit.												
4	Starting date of crediting period of the project & the monitoring period for the 2 nd periodic verification	The verification team cross checked the registered PDD /4/ & Monitoring Report /2/ & the summary of the review are as follows: <table border="1"> <thead> <tr> <th>No.</th><th>Document</th><th>Crediting Period</th></tr> </thead> <tbody> <tr> <td>1</td><td>Registered PDD /4/</td><td>Section C.2.1.1 indicated the starting date of the 1st crediting period as 01-12-2010</td></tr> <tr> <td>2</td><td>GS website /14/</td><td>The project was registered on 08-08-2012 & the 1st crediting period is from Dec 2010 to Dec 2017</td></tr> <tr> <td>3</td><td>Monitoring Report /2/</td><td>The monitoring report Section 1.4 has indicated the 2nd monitoring period as 01-06-2012 to 30-04-2013</td></tr> </tbody> </table>	No.	Document	Crediting Period	1	Registered PDD /4/	Section C.2.1.1 indicated the starting date of the 1 st crediting period as 01-12-2010	2	GS website /14/	The project was registered on 08-08-2012 & the 1 st crediting period is from Dec 2010 to Dec 2017	3	Monitoring Report /2/	The monitoring report Section 1.4 has indicated the 2 nd monitoring period as 01-06-2012 to 30-04-2013
No.	Document	Crediting Period												
1	Registered PDD /4/	Section C.2.1.1 indicated the starting date of the 1 st crediting period as 01-12-2010												
2	GS website /14/	The project was registered on 08-08-2012 & the 1 st crediting period is from Dec 2010 to Dec 2017												
3	Monitoring Report /2/	The monitoring report Section 1.4 has indicated the 2 nd monitoring period as 01-06-2012 to 30-04-2013												
5	Consistency with PDD & Diversions from original plan	Post Registration Changes evaluation: 1) Temporary deviations from the registered monitoring plan and / or monitoring methodology: Not applicable 2) Correction: Not applicable 3) Changes to the start date of the crediting period: Not applicable 4) Permanent changes from the registered monitoring plan or monitoring methodology 5) Changes to the project design of a registered project activity: Not applicable												

Herewith, the Verification Team summarizes major changes between webhosted Monitoring Report and final version of Monitoring Report for submission as follows:

Subject	Webhosted Monitoring Report (MR)	Correction to webhosted MR in the final MR submission for issuance with DOE assessment and reason of acceptance.
Consistency		
MR (project title / participants involved/ project location / reference numbers / report date and version etc.)	Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia	Remains unchanged
Methodologies (title and version numbers) PDD and its version	Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011	Remains unchanged
GS VERscalculation (formula applied/ amount of emission reduction)	73,533 tCO ₂ e	72,972 tCO ₂ e from 01-06-2012 to 30-04-2013 including both days Small scale cap during this monitoring period = 56,932 tCO₂e Due to the GS VERs is above the limit of small scale, the amount of thermal energy saved per unit, and how much energy has been saved by the project over the monitoring period has been calculated. This amount is an excess of 180 GWh thermal of energy. Therefore, the PP has capped the number of GS VERs claimed as GS guidance via email /71/
Registration date, consistent/logical sign - off dates	08-08-2012	Remains unchanged
Monitoring (period dates / parameters / frequency)	01-06-2012 – 30-04-2013	Remains unchanged
Crediting period (type / start date)	Renewable, start date = 01-12-2010	Remains unchanged
Please refer to Appendix A of this report for details of each change between webhosted MR and the final MR for submission. The Verification Team has carried out the verification process based on the Webhosted MR and raised CARs/CLs against the project by issuing the verification protocol. With the updated information and corrections done on final MR, the PP has addressed all the CARs /CLs that were raised by the Verification Team. It is concluded that the Verification Team has reviewed the project and all the evidence, corrections, justifications and updating done on the final MR with respect to CARs /CLs raised are accepted and closed by the Verification Team, issuing the positive verification opinion for project registration. FAR were further issued to the DOE verification team to check the implementation and operational completeness during the periodic verification.		

TÜV Rheinland verification team considers the project description of the project contained in the registered PDD to be complete and accurate. The PDD complies with the relevant methodology, tools, forms and guidance at the time of PDD submission for registration.

3.1.2 The actual operation of the GS VER project activity

The followings are the means of verification & the conclusion of the assessment conducted by the verification team:

No.	Project Activity Actual Operation	Verification Opinion
1	Project activity operation starting date	▪ The verification team confirmed that the project activity has been operated in accordance with the project scenario as described in the registered PDD & relevant guidance ▪ The project operational starting date of 01-12-2010 as stated in the monitoring report has been cross checked with the Hydrologic (2013) MP2 Sales Database - Summary 2013-06-18 /18/ & Hydrologic (2013) MP2 Project Database 2013-07-12 /16/ & confirmed to be valid
2	Achieved project activity parameters	▪ All of the monitoring parameters as listed in the registered PDD /4/ & Monitoring Report /2/ have been measured & monitored according to the defined measurement frequency & sampling plan / point, using the correct monitoring & measuring equipment & recorded according to the defined documented QA / QC procedures (monitoring procedures). ▪ The monitoring & measuring equipments have been also calibrated according to the defined procedure mentioned in the registered PDD /4/ & Monitoring Report /2/ ▪ During on site visit at the factory, the verification team was able to observe in full the whole CWPs manufacturing process & cross checking all records related to the monitoring parameters ▪ The verification team also able to witness & cross check the usage of CWPs during site visit at 2 villages in Cambodia i.e. Sdaukanleng & Tumnap village
3	Clear audit trail of all GHG data monitored and collected during the monitoring period and all necessary evidence transparently presented	▪ The verification team was able to verify all of the GHG data monitored & collected during the monitoring period to be traceable from the emission reduction calculation spread sheet /5/ to the intermediate reports which summarizes the data collected prepared by the project participants till the raw data reference sources ▪ The information flow of the data collection till data aggregation has been summarized by the PP in the Hydrologic (2013) MP2 Monitoring Info Flows 2013-07-05 /25/ ▪ See details in Section 3.3
4	Maintenance procedures implementation	▪ Maintenance procedures may not be really applicable to the CWPs since warranty claim procedure is available ▪ With respect to equipment maintenance for the factory where the CWPs are manufactured, these are in place & implemented by the Factory Manager
5	Calibration of monitoring & measuring equipment implementation	▪ The monitoring equipment for project emission related parameters are calibrated in accordance with the defined QA/QC procedures described in the monitoring plan. ▪ The verification team was able to verify all of the equipment calibration certificates, letter / equipment manuals / standard operating procedures which specified the calibration interval requirements as prescribed by the equipment manufacturer ▪ During the onsite visit & interview with the project participant, currently there are internal calibrations of equipment conducted. Standard operating procedures have been defined for each internal calibration / verification /28/ ▪ See details in Section 3.3.3 for equipment calibration / verification results
6	Compliance to applicable legal requirements status (environmental)	▪ During on site visit at the factory, the verification team observed the waste disposal control & also air emission control from the factory manufacturing activity which was improved from previous visit. During last verification, the following standard operation procedures i.e. 1) Air Quality Improvement Plan, Version 1, 12 September 2012 /62/

		2) Kiln Firing Standard Operating Procedure, dated 20 August 2012 /63/ 3) Waste management procedures, dated August 2012 /64/ were developed to address control process for air emission to the environment & minimization exposure to the firing furnace employees and also to ensure proper waste disposal control process are in place & implemented. During this verification it was confirmed that the procedures are implemented at the factory.
7	Resources management for monitoring process (training, availability of man powers, infrastructure etc.)	The verification team was able to verify that sufficient trainings have been provided in order to ensure effective task execution according to the defined monitoring plan. The following evidences (individual training record) have been verified by the verification team during desk review discussion: 1. Attendance List for Research Assistant Training on CWP Hydrologic (2013) MP2 PS RA Training Participants List 2013-02-14 /67/ 2. Training for silver nitrate and clay milling dated 30-05-2013 /68/ 3. Training for Clean Water Expert (CWE) dated 10-06-2013 /69/ 4. Training CWE Presentation 2013-06-10 /53/ The verification team could conclude that adequate trainings have been provided to the monitoring personnel for the project activity.
8	Status of monitoring procedures implementation	The management & operation system has been established & operated in accordance with the monitoring plan The verification team has verified the Information Flows for Monitoring Parameters /25/ established by the project participant. This document has clearly defined the monitoring procedures & based on the onsite interview with the Carbon Project Officer, Data Management Officer & also Research Assistant; the verification team was able to verify the actual implementation of the management & operation system. It was found to be consistent with the defined procedures
9	Any Project Design Change been sought and approved by EB for the project?	☐ Yes ☒ No
10	Any Revision in Monitoring plan is sought and approved by EB for the project?	☐ Yes ☒ No
11	Does the monitoring report provide line diagram showing all relevant monitoring points?	☐ Yes ☒ No

Information (data and variables) provided in the monitoring report that is different from that stated in the registered PDD

No	Key Parameters	As per registered PDD /4/ & Validation Report /3/	Actual operation for the reported monitoring period	Verification Opinion
1	Total emission reductions	21,941 tCO ₂ e per year Pro-rated to 334 days = 20,076 tCO ₂ e	72,972 tCO ₂ e (for 334 days) i.e. 01-06-2012 to 30-04-2013 first and last days	The claimed emission reduction is higher than the estimated amount in the PDD for the same period of monitoring This has been justified in the monitoring report Table 3 – this is due to higher ER per unit Due to the VER during this 2nd monitoring

			included Small scale cap during this monitoring period = 56,932 tCO₂e	period is more than the limit of small scale project, the PP with GS guidance to stay in small scale project has performed an assessment by calculating the amount of thermal energy saved per unit, and how much energy has been saved by the project over this 2nd monitoring period for which has excess of 180 GWh thermal energy. The project emission reduction has been calculated with a maximum of 66,201 units of CWPs per month during this 2nd monitoring period in order to keep within the small scale limit with reduction of 56,932 tCO₂e. The additionality has not been affected by the increase of CWPs sales since the project has demonstrated barrier due to prevailing practice in the registered PDD /4/. The verification team has verified below evidences to demonstrate that the project is still comply to the small scale: 1. GS966 – The project has similar case with the VER is over than the limit of small scale threshold during 2nd verification and confirmed by the GS via email to the PP dated 9 Sep 2013 /71/. Hence, same method also been applied to this particular project to keep them in small scale project with 3 options proposed and confirmed to be correct by the GS /71/ 2. The quantity of CWPs sold is higher than anticipated in registered PDD /4/ with actual recorded as high as 7,000 units per month /5/. 3. The Direct Sales Strategy for Clean Water Expert dated 30 Nov 2012 /72/ has been contributed to the increase of CWPs sold. 4. The sales force has been growth to 32 direct and retail agent with benefits and new incentive introduction to maintain the workforce /39/ 5. New management has been funded from carbon revenue with appointment of Mr Hem Meas as new General Manager /73/ As the VER per unit was estimated based on literature review input parameters versus the actual results which were calculated based on the actual results obtained from the Annex I – WCFT, Water Consumption Field Test, September 2012 /15/ & Annex IV – Water Boiling Field Test, September 2012 /23/. The WCFT and WBFT are higher than the expected of emission reductions but still valid during this
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				monitoring period based from the procedure in the methodology which to be updated every two years.
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The verification team concludes that the project activity has been implemented and operated as per registered PDD /4/ and that all physical features as explained above of the project are in place

3.2 Compliance of the monitoring plan with the monitoring methodology

The verification team determined against all the information provided in MR, whether in-line with the applied monitoring methodology.

Determination Requirements	Criteria fulfilled	Determination and reporting by the verification team
Any Deviation been sought and approved by EB for the project.	☐ Yes ☒ No	Not applicable
Is complete set of data for the specified monitoring period is available	☒ Yes ☐ No	Yes, complete set of data is available during the monitoring period 01-06-2012 to 30-04-2013
Is the required information provided in the monitoring report has been cross-checked with other sources (ex – plant logbooks, inventories, purchase records, laboratory analysis)	☒ Yes ☐ No	Refer to Section 3.3.1 of this report for further details In conclusion: The verification team has cross checked all records as stated in the Information Flows for Monitoring Parameters /25/ i.e. verifying the information flow interfaced with each corresponding monitoring parameters & confirmed all in the right order
Is the calculation of baseline emissions and project activity emissions and leakage been in accordance with the formulae and methods described in monitoring plan and the applied methodology?	☒ Yes ☐ No	Yes, it is calculated correctly according to the outlined formulae in the methodology /7/
Is all assumptions used for emission calculation have been justified	☒ Yes ☐ No	Yes, this has been justified clearly in the monitoring report /2/ Section 3.3 & accepted by the verification team
Is appropriate emission factors, IPCC default values and other reference values have been correctly applied	☒ Yes ☐ No	Yes, this has been applied correctly

The DOE verification team is able to confirm that the monitoring plan contained in the registered PDD /4/ is in accordance with the approved methodology applied by the project activity, i.e. Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/.

3.3 Compliance of Actual monitoring with monitoring plan in the PDD and GS Passport

Monitoring of reductions in GHG emissions to result from the project activity had been implemented in accordance with the monitoring plan contained in the registered PDD /4/ & the monitoring plan. The verification team had cross checked the details of the monitoring plan described in the monitoring report /1/ & registered PDD /4/ versus the actual compliance of the monitoring plan during on site visit observation, interviews of monitoring personnel, review of monitoring records & the calculated values in the ER spread sheet /5/. The details of the compliance status of the monitoring with PDD & monitoring plan are described in Section 3.3.1 below

Besides the monitoring parameter, the verification team also verified the list of parameters not monitored by comparing the lists in the monitoring report Section 3 /2/ versus registered PDD /4/ Section B.6.2. The verification team confirmed they are consistent & reflected clearly in the ER calculation spread sheet /5/

3.3.1 Monitored parameters

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	$Q_{p,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	Litres per person per day	☒ Yes ☐ No ☐ Remarks
Description:	Quantity of safe water supplied in the project scenario p during the year y, using CWP	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	1.45885 The value reported had been cross checked for its accuracy via review of the Water Consumption Field Test (WCFT) report /15/, ER spreadsheet /5/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	Water Consumption Field Test (WCFT) report /15/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emission calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	a) 20 liter buckets (Each of the 13 research teams worked at 4 households each week requiring 3 buckets for every household or $13 \times 4 \times 3 = 156$ buckets) b) Measuring Tape (Each of the 13 research teams required 1 measuring tape. Field Supervisors (3) carried 1 spare scale each. Total 16 measuring tapes) Since the registered PDD does not specify the type of monitoring equipment, the verification team considered the type of monitoring equipment used as acceptable since it is used in the WCFT The verification team considers the requirements for monitoring equipment are fulfilled & valid	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Cross checked the numbers allotted for each equipment used for WCFT as listed in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test,	☒ Yes ☐ No

	dated 21 August 2012 /28/ & confirmed to be consistent with the actual units	☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	The registered PDD /4/ does not specify the calibration frequency The calibration frequency is being specified in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ According to this document, the calibration frequency is defined as: <i>The calibration should be completed every two years before the Water Consumption Field is conducted and before a new Water Boiling Test</i> The verification team accepted the calibration frequency stated above since the frequency of the WCFT test is to be conducted every 2 years, as stated in the registered PDD /4/ Section B.7.1 for the same monitoring parameter	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	The verification team had cross check the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & consider the calibration dates to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	This is done internally as internal verification activity, valid internal reference point has been used for the verification of the buckets & tape measure, as stated in the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Based on the review of Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/, the buckets & tape measure used for the WCFT test is valid during the monitoring period	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before first verification and every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The calculations are completed by the statistician team using the software SPSS, as explained in "Hydrologic (2012) Annex I - WCFT Report 2012-09-25" which includes protocol applied. The verification team had cross checked the WCFT report /15/ & confirmed the calculation is done correctly & traceable to the information provided by the qualified statistician	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	Besides implementing procedures for calibration of the monitoring equipment, the QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined	☒ Yes ☐ No ☐ Remarks

	process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $Q_{p,y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	$Q_{p,rawboil,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	Litres per person per day	☒ Yes ☐ No ☐ Remarks
Description:	The raw or unsafe water that is still boiled after installation of the CWP	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured/Calculated	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	1.45269	☒ Yes ☐ No

	The value reported had been cross checked for its accuracy via review of the Water Consumption Field Test (WCFT) report /15/, ER spreadsheet /5/ & the verification team confirmed the data reported are consistent & correct	☐ Remarks
Source of data:	Water Consumption Field Test (WCFT) report /15/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emission calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	a) 20 liter buckets (Each of the 13 research teams worked at 4 households each week requiring 3 buckets for every household or $13 \times 4 \times 3 = 156$ buckets) b) Measuring Tape (Each of the 13 research teams required 1 measuring tape. Field Supervisors (3) carried 1 spare scale each. Total 16 measuring tapes) Since the registered PDD does not specify the type of monitoring equipment, the verification team considered the type of monitoring equipment used as acceptable since it is used in the WCFT The verification team considers the requirements for monitoring equipment are fulfilled & valid	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Cross checked the numbers allotted for each equipment used for WCFT as listed in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & confirmed to be consistent with the actual units	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	The registered PDD /4/ does not specify the calibration frequency The calibration frequency is being specified in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ According to this document, the calibration frequency is defined as: <i>The calibration should be completed every two years before the Water Consumption Field is conducted and before a new Water Boiling Test</i> The verification team accepted the calibration frequency stated above since the frequency of the WCFT test is to be conducted every 2 years, as stated in the registered PDD /4/ Section B.7.1 for the same monitoring parameter	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	The verification team had cross check the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & consider the calibration dates to be valid	☒ Yes ☐ No ☐ Remarks

Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	This is done internally as internal verification activity, valid internal reference point has been used for the verification of the buckets & tape measure, as stated in the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ The verification team considered this to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Based on the review of Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/, the buckets & tape measure used for the WCFT test is valid during the monitoring period	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before first verification and every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The calculations are completed by the statistician team using the software SPSS, as explained in "Hydrologic (2012) Annex I - WCFT Report 2012-09-25"/15/ which includes protocol applied. The verification team had cross checked the WCFT report /15/ & confirmed the calculation is done correctly & traceable to the information provided by the qualified statistician	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	Besides implementing procedures for calibration of the monitoring equipment, the QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $Q_{p,rawboil,y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are	Not applicable	☐ Yes

available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?		☐ No ☒ Remarks
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Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	$Q_{p, \text{cleanboil}, y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	Litres per person per day	☒ Yes ☐ No ☐ Remarks
Description:	Quantity of safe water (treated or from safe supply) boiled in the project scenario p, after installation of the CWP	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured/Calculated	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	0.01178 The value reported had been cross checked for its accuracy via review of the Water Consumption Field Test (WCFT) report /15/, ER spreadsheet /5/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	Water Consumption Field Test (WCFT) report /15/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emission calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	a) 20 liter buckets (Each of the 13 research teams worked at 4 households each week requiring 3 buckets for every household or $13 \times 4 \times 3 = 156$ buckets) b) Measuring Tape (Each of the 13 research teams required 1 measuring tape. Field Supervisors (3) carried 1 spare scale each. Total 16 measuring tapes) Since the registered PDD does not specify the type of monitoring equipment, the verification team considered the type of monitoring equipment used as acceptable since it is used in the WCFT The verification team considers the requirements for monitoring equipment are fulfilled & valid	☐ Yes ☐ No ☒ Remarks

Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Cross checked the numbers allotted for each equipment used for WCFT as listed in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & confirmed to be consistent with the actual units	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	The registered PDD /4/ does not specify the calibration frequency The calibration frequency is being specified in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ According to this document, the calibration frequency is defined as: <i>The calibration should be completed every two years before the Water Consumption Field is conducted and before a new Water Boiling Test</i> The verification team accepted the calibration frequency stated above since the frequency of the WCFT test is to be conducted every 2 years, as stated in the registered PDD /4/ Section B.7.1 for the same monitoring parameter	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	The verification team had cross check the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & consider the calibration dates to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	This is done internally as internal verification activity, valid internal reference point has been used for the verification of the buckets & tape measure, as stated in the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ The verification team considered this to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Based on the review of Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/, the buckets & tape measure used for the WCFT test is valid during the monitoring period	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before first verification and every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The calculations are completed by the statistician team using the software SPSS, as explained in "Hydrologic (2012) Annex I - WCFT Report 2012-09-25" /15/ which includes protocol applied. The verification team had cross checked the WCFT report /15/ & confirmed the calculation is done correctly & traceable to the information provided by the qualified statistician	☐ Yes ☐ No ☐ Remarks

QA/QC procedures applied:	Besides implementing procedures for calibration of the monitoring equipment, the QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $Q_{p, cleanboil, y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	Quality of the water treated	☒ Yes ☐ No ☐ Remarks
Data unit:	As appropriate in alignment with QA/QC procedures	☒ Yes ☐ No ☐ Remarks
Description:	Performance of the CWP	☒ Yes ☐ No ☐ Remarks

Measured / Calculated / Default:	Measured	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	N/A	☒ Yes ☐ No ☐ Remarks
Source of data:	Lab test /65/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Sustainable Development Indicator (Water Quality)	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	No monitoring equipment needed as the analysis is completed in a third party laboratory. The verification team reviewed the Laboratory Performance Tests, dated August 2012 /65/ & found that the laboratory used for the test is WaterSHED laboratory. The verification team reviewed email document dated 16 August 2012 which confirmed that the laboratory is not accredited, The personnel who conducted the lab performance test had been trained by expertise comes from the University of North Carolina at Chapel Hill. Copies of the qualification evidences & training for the personnel & experts have been provided to the verification team review /66/ The verification team concluded that the personnel involved are trained & competent based on the qualification & experiences acquired	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	Not applicable	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards &	Not applicable	☒ Yes ☐ No

reference points or IEC standards?		☐ Remarks
Monitoring equipment - Validity	Not applicable	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before first verification and every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The verification team had cross checked the Laboratory Performance Tests, dated August 2012 report /65/ & confirmed the calculation is done correctly	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	The QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of Quality of the water treated The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
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Data / Parameter:	$U_{p,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	Percentage	☒ Yes ☐ No ☐ Remarks
Description:	Usage rate in project scenario p during year y	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	100%	☒ Yes ☐ No ☐ Remarks
Source of data:	Annual usage survey – Hydrologic (2013) MP2 Project Survey Report /14/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emission calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	None	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	Not applicable	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards &	Not applicable	☒ Yes ☐ No ☐ Remarks

reference points or IEC standards?		
Monitoring equipment - Validity	Not applicable	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Annually	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The verification team had reviewed the Hydrologic (2013) MP2 Project Survey Report 2013-07-23 /14/ & confirmed the calculation is done correctly & traceable to the information provided by the qualified statistician	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	The QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA/QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $U_{p,y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring	Verification Opinion	Compliance with PDD &
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parameters		Monitoring Plan
Data / Parameter:	$N_{j,y}/N_{p,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	Person.days	☒ Yes ☐ No ☐ Remarks
Description:	Number of persons consuming water supplied by project scenario p through year y	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured/Calculated	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	2,197.45 (per water filter per year) The value reported had been cross checked for its accuracy via review of the Water Consumption Field Test (WCFT) report /15/, ER spreadsheet /5/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	Water Consumption Field Test (WCFT) report /15/	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emission calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	a) 20 liter buckets (Each of the 13 research teams worked at 4 households each week requiring 3 buckets for every household or $13 \times 4 \times 3 = 156$ buckets) b) Measuring Tape (Each of the 13 research teams required 1 measuring tape. Field Supervisors (3) carried 1 spare scale each. Total 16 measuring tapes) Since the registered PDD does not specify the type of monitoring equipment, the verification team considered the type of monitoring equipment used as acceptable since it is used in the WCFT The verification team considers the requirements for monitoring equipment are fulfilled & valid	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Cross checked the numbers allotted for each equipment used for WCFT as listed in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & confirmed to be consistent with the actual units	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan	The registered PDD /4/ does not specify the calibration frequency The calibration frequency is being specified in Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/	☐ Yes ☐ No ☒ Remarks

of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	According to this document, the calibration frequency is defined as: <i>The calibration should be completed every two years before the Water Consumption Field is conducted and before a new Water Boiling Test</i> The verification team accepted the calibration frequency stated above since the frequency of the WCFT test is to be conducted every 2 years, as stated in the registered PDD /4/ Section B.7.1 for the same monitoring parameter	
Monitoring equipment - Date of last calibration	The verification team had cross check the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ & consider the calibration dates to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	This is done internally as internal verification activity, valid internal reference point has been used for the verification of the buckets & tape measure, as stated in the Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/ The verification team considered this to be valid	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Based on the review of Hydrologic - Inventory of Tools for Water Boiling Test and Water Consumption Field Test, dated 21 August 2012 /28/, the buckets & tape measure used for the WCFT test is valid during the monitoring period	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before first verification and every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The calculations are completed by the statistician team using the software SPSS, as explained in "Hydrologic (2012) Annex I - WCFT Report 2012-09-25"/15/ which includes protocol applied. The verification team had cross checked the WCFT report /15/ & confirmed the calculation is done correctly & traceable to the information provided by the qualified statistician	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	Besides implementing procedures for calibration of the monitoring equipment, the QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews	☒ Yes

recording, calculation and reporting)	with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $N_{j,y}/N_{p,y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	$LE_{p,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	tCO ₂ e per year	☒ Yes ☐ No ☐ Remarks
Description:	Leakage in project scenario p during year y	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Calculated	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	0.017 tCO ₂ e (per water filter per year) The value reported had been cross checked for its accuracy via review of the ER spreadsheet /5/, Hydrologic (2013) MP2 Fire wood Used at Factory 2013-07-05 /27/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	Receipts of Wood Purchased for Kilns	☒ Yes

	The verification team was able to verify the receipts of wood purchase during the desk review discussion & confirmed this is also consistent with the information flow process as described in Information Flows for Monitoring Parameters /25/ The verification team checked the flow as follows: Factory Manager purchases wood / collects receipts and issue Stock Delivery Notes when wood is burned in kilns. This evident via wood receipts which are seen during desk review at the factory. The receipts information are in turn being input into Hydrologic (2013) MP2 Fire wood Used at Factory /27/ which is the aggregated summary results, managed by the Carbon Project Manager. The final data are then being aggregated & input into the ER spreadsheet /5/ where $LE_{p,y}$ is being calculated	☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Leakage emissions calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	None	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	Not applicable	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Not applicable	☒ Yes ☐ No

		☐ Remarks
Measuring / Reading / Recording frequency:	Every two years	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	ER spreadsheet /5/, Hydrologic (2013) MP2 Fire wood Used at Factory /27/ & the verification team confirmed the calculation is done correctly	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	The QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of $LE_{p,y}$ The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	Units sold	☒ Yes ☐ No ☐ Remarks
Data unit:	CWPs	☒ Yes

		☐ No ☐ Remarks
Description:	Number of units sold during project activity	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	45,194 units sold The value reported had been cross checked for its accuracy via review of the ER spreadsheet /5/, Hydrologic (2013) – Sales Database - Summary /18/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	Sales Records	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emissions calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	None	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?	Not applicable	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Date of last calibration	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks

Monitoring equipment - Validity	Not applicable	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	Before each verification	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	Sales Receipts	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	The QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records (delivery notes as seen during desk review by the verification team) & observation of the information flow process applicable for determination of Units sold Data comes from 3 sales channels: direct, retail, and NGO sales. In summary, the verification team cross checked the information flow as follows: Input information which are contained in the Hydrologic (2013) - Sales Database – Summary /18/ are cross checked by the verification team through review of the records available during the desk review such as weekly sales summary, delivery notes & invoices etc. The verification team was able to verify that the unique ID for each CWP's sold are recorded clearly & traceable in the Hydrologic (2013) - Sales Database – Summary /18/. This is also being cross checked during factory visit where the verification team checked the process to assign unique ID to each CWP's packed at the packaging process & is traceable to the factory production records. The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered	Not applicable	☐ Yes ☐ No ☒ Remarks

monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?		
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Particulars of the monitoring parameters	Verification Opinion	Compliance with PDD & Monitoring Plan
Data / Parameter:	$\int_{NRB,y}$	☒ Yes ☐ No ☐ Remarks
Data unit:	%	☒ Yes ☐ No ☐ Remarks
Description:	Non-renewable biomass ratio	☒ Yes ☐ No ☐ Remarks
Measured / Calculated / Default:	Measured/Calculated	☒ Yes ☐ No ☐ Remarks
Value(s) of monitored parameter:	73.28% The value reported had been cross checked for its accuracy via review of the ER spreadsheet /5/ versus documented methodology "Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011" /7/ & the verification team confirmed the data reported are consistent & correct	☒ Yes ☐ No ☐ Remarks
Source of data:	NRB assessment in PDD	☒ Yes ☐ No ☐ Remarks
Indicate what the data are used for (Baseline / Project / Leakage emission calculations)	Baseline/Project emissions calculations	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Type	None	☐ Yes ☐ No ☒ Remarks
Monitoring equipment - Accuracy class	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Serial number	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibration frequency i.e. Is the calibration interval in	Not applicable	☐ Yes ☐ No ☒ Remarks

line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practice?		
Monitoring equipment - Date of last calibration	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Certified to national or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Calibrated according to the national standards & reference points or IEC standards?	Not applicable	☒ Yes ☐ No ☐ Remarks
Monitoring equipment - Validity	Not applicable	☒ Yes ☐ No ☐ Remarks
Measuring / Reading / Recording frequency:	The NRB will be updated when new values are available.	☒ Yes ☐ No ☐ Remarks
Calculation method (if applicable):	The calculation presented in the ER spreadsheet is in line with Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	☐ Yes ☐ No ☐ Remarks
QA/QC procedures applied:	The QA/QC procedures applied has been verified by the verification team during on site visit & interviews with the monitoring personnel. The QA / QC procedures implemented is in accordance with the defined process in the Information Flows for Monitoring Parameters /25/ See details in Appendix A, Section 3.6	☒ Yes ☐ No ☐ Remarks
Information flow (from data generation, aggregation, to recording, calculation and reporting)	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of Units sold The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/	☒ Yes ☐ No ☐ Remarks
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC	Yes, this is ensured & confirmed according to the defined process in the Information Flows for Monitoring Parameters /25/ The verification team checked this process during the desk review process	☒ Yes ☐ No ☐ Remarks

processes in place?		
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable	☐ Yes ☐ No ☒ Remarks

Conclusion:

Based on the detailed assessment for each monitoring parameters used to estimate the baseline & project emissions, the verification team concludes that the monitoring has been carried out in accordance with the monitoring plan

Compliance of the monitoring with Sustainability Monitoring Plan

GS Toolkit Section 4.5 & 4.6:

According to the Gold Standard Requirements Version 2.1, July 2009 /21/ Section VII.d.2, which states that *“The monitoring of Sustainable Development Indicators shall be verified for each verification period, as well as during each mandatory Verification site-visit”*; and also in Section VIII.g. Monitoring and Verification of project activities, which states that *“VIII.g.1. Monitoring. Once a project has been successfully registered, Project Proponents are required to monitor project activity emission reductions, sustainable development indicators and mitigation measures in accordance with their Gold Standard Emission Reduction Monitoring Plan and Gold Standard Sustainability Monitoring Plan, and the guidelines provided in Annex I of the Toolkit”*

The verification team concluded that these requirements have been met & the results of the verification are listed as follows for each parameter:

Description of	Monitoring
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Sustainability Matrix																															
Water Quality and quantity: Surveys and records of number of HHs / People served with the CWP units	Justifications in Monitoring Report /2/ Hydrologic, sold 45,194 CWP's over the monitoring period, equating to 45,194 households with access to safe water. This is the equivalent of 272,067 more people served during the monitoring period. The CWP removes at least 99.99% of bacteria as shown Hydrologic (2012) "Ceramic Water Purifier Laboratory Performance Tests" /65/. Verification opinion: <u>Reference source</u> The verification team reviewed the Hydrologic (2013) MP2 Project Survey Report, dated May 2013 /10/ & found the information to be consistent with the latest monitoring report /2/ Section 4.2. Not new water quality tests were done as stated in the Gold Standard passport that water quality tests will the done every 2 years. The last water quality lab tests results were as per the the Sustainability Matrix & Laboratory Performance Tests, dated August 2012 (Hydrologic (2012) Annex II /65/ <u>Information flow</u> During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable for determination of water quality & quantity. The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/ Verification conclusion: The verification team concluded that the sustainability indicator are being monitored according to the ways of monitoring as defined in the Gold Standard Passport dated 20 August 2012 /70/ and achieved the future target for parameter which states that <i>"An estimated between 168,000 and 315,000 households will have improved water quality as a result of clean water from CWP units"</i>																														
Livelihood of the Poor: Project Survey and relevant academic reports or literature; fuel savings from kitchen performance tests multiplied by current market price for lpg, charcoal and wood (if purchased). The Field Survey will ask how people are using the time saved, this will be reported in the monitoring report	Justifications in Monitoring Report /2/ 1) As per 'Hydrologic (2013) MP2 Project Survey Report", the data collected shows the following the fuel saving and money savings extrapolation as per the table below: <table><tr><th>Collect</th><th>Purchase</th><th>% Households</th><th>Annual saving if fuel purchased is wood (\$)</th><th>Annual saving if fuel purchased is charcoal (\$)</th></tr><tr><td>0%</td><td>100%</td><td>9.0%</td><td>32</td><td>89</td></tr><tr><td>25%</td><td>75%</td><td>10.0%</td><td>24</td><td>67</td></tr><tr><td>50%</td><td>50%</td><td>2.0%</td><td>16</td><td>45</td></tr><tr><td>75%</td><td>25%</td><td>11.0%</td><td>8</td><td>22</td></tr><tr><td>100%</td><td>0%</td><td>66.0%</td><td>N/A</td><td>N/A</td></tr></table> In addition, 93% of respondents reported spending less time collecting fuel after purchasing the CWP, and the time is spent: - Working around home (93%) - Time with the family (68%) - Relaxing (67%) - Working a new job (45%)	Collect	Purchase	% Households	Annual saving if fuel purchased is wood (\$)	Annual saving if fuel purchased is charcoal (\$)	0%	100%	9.0%	32	89	25%	75%	10.0%	24	67	50%	50%	2.0%	16	45	75%	25%	11.0%	8	22	100%	0%	66.0%	N/A	N/A
Collect	Purchase	% Households	Annual saving if fuel purchased is wood (\$)	Annual saving if fuel purchased is charcoal (\$)																											
0%	100%	9.0%	32	89																											
25%	75%	10.0%	24	67																											
50%	50%	2.0%	16	45																											
75%	25%	11.0%	8	22																											
100%	0%	66.0%	N/A	N/A																											

	- Studying (9%) - Other (2%) 2) The PP uses different approaches to monitor the price of CWP's for its 3 different sales channels (Direct sales, NGO sales and Retailers): a. Direct sales (when PP sells directly to the public): PP has full control of the price it is sold and receipts are kept for all sales. The selling price figures can be found in the report "Hydrologic (2013) Price of water filters" /44/ b. NGO sales (when PP sells to NGOs): NGOs will resale the CWP's at a symbolic price for the end users as they are reaching the poorest parts of the populations. NGOs price figures can be found in "Hydrologic (2013) Price of water filters" /44/ c. Retailers (when PP sells to retailers): PP provides a "suggested retailer's price" for the retailers. This allows retailers to know at what price they should sell the CWP's. The English and Khmer version can be found here ("Hydrologic (2013) Suggested Retailer's Price English", "Hydrologic (2013) Suggested Retailer's Price Khmer")/42/." Finally, PP keeps track of the break-even price of CWP's to ensure that end users are buying a subsidized CWP compared to the real costs of the CWP as shown in the document "Hydrologic (2013) MP2 Break Even Price /33/". <u>Verification opinion:</u> <u>Reference source</u> The verification team reviewed the the Hydrologic (2013) MP2 Project Survey Report /10/, Hydrologic (2013) - Sales Database – Summary /18/ & found the information to be consistent with the latest monitoring report /2/ Section 4.2 Sustainability Matrix <u>Information flow</u> 1. During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/ 2. Data comes from 3 sales channels: direct, retail, and NGO sales. In summary, the verification team cross checked the information flow as follows: Input information which are contained in the Hydrologic (2013) - Sales Database – Summary /18/ are cross checked by the verification team through review of the records available during the desk review such as weekly sales summary, delivery notes & invoices etc. The verification team was able to verify that the unique ID for each CWP's sold are recorded clearly & traceable in the Hydrologic (2013) - Sales Database – Summary /18/. This is also being cross checked during factory visit where the verification team checked the process to assign unique ID to each CWP's packed at the packaging process & is traceable to the factory production records. The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/ <u>Verification conclusion:</u>
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	The verification team concluded that the sustainability indicator are being monitored according to the ways of monitoring as defined in the Gold Standard Passport dated 20 August 2012 /70/ and achieved the future target for parameter which states that <i>"Decreased firewood and charcoal consumption for cooking (or boiling water) will save time and money for end users"</i>
Quantitative employment and income generation: employment record	<u>Justifications in Monitoring Report /2/</u> Hydrologic employs 39 staff at the factory of which 16 are female and the main office employs another 27 staff of which 5 are female. In addition, Hydrologic has sales agents who work on commission + monthly income for fuel and other expenses <u>Verification opinion:</u> <u>Reference source</u> The verification team reviewed the factory recruitment records, conducted site interview at the factory and confirmed that the information related to the employment & income generation is consistent & valid <u>Information flow</u> During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records & observation of the information flow process applicable The verification team concluded that the information flow implemented by the monitoring personnel is in line with the defined process in the Information Flows for Monitoring Parameters /25/ <u>Verification conclusion:</u> The verification team concluded that the sustainability indicator are being monitored according to the ways of monitoring as defined in the Gold Standard Passport dated 20 August 2012 /70/ and achieved the future target for parameter which states that <i>"The project will generate jobs during the project distribution, monitoring and replacement phases"</i>

Compliance of the monitoring for Stakeholder Consultation comments

GS Toolkit Section 4.5 & 4.6:

Description of Sustainability Matrix	Verification Opinion
R&D expenditure (research needs to include a feasibility assessment to improve the quality of the water filters to remove viruses or chemicals)	The verification team reviewed the following supporting reference documents to substantiate the R & D expenditure efforts: a) School water filter assessment: Hydrologic (2013) R&D School Survey Report for School-Adapted CWP 2013-04-30 /40/ - for school water filter assessment b) Improve water quality by removing viruses: iLab iDE Cambodia (2013) MP2 Hydrologic Virus Research Results /65/ <u>Conclusion:</u> The R&D efforts to improve quality of water filters are achieved & substantiated by the evidences as listed above, including cross checking during on site interview with the project participants
Research will take part to assess the feasibility to improve the quality of the water filters to remove more viruses and chemicals	The verification team reviewed the research and Development to improve the performance of Ceramic Water Purifiers in removing viruses, (iLab iDE Cambodia (2013) MP2 Hydrologic Virus Research Results) /59/ supporting reference & found this is

	achieved
PP will also report on the break even price of the water filters sales price + 10% mark up price if there is no finance	The break even price + 10% mark up price has been reported in Hydrologic (2013) MP2 Break Even Price /33/ and Hydrologic (2013) Expense Summary June 2012 – Feb 2013 /41/ & accepted by the validation team
The retailers will be re-informed on water filter sales price + Hydrologic will remind periodically to the retailer the Manufacturer's Suggestion Retailer Price	The verification team substantiated this via review of Suggested Retailer's Price English /42/ and Summary of Names of Retailers received the suggested retailer price /43/ & Price of water filters /44/ & was able to confirm that this is fully communicated
Field Surveys will ask how much are people paying for the water filters and assess that the prices are not unreasonable. If the prices are unreasonable, PP shall investigate the reason and take appropriate action. PP believes that the risk is low because there are so many sales people that competition will keep prices low	Price of water filters /44/ & Hydrologic (2013) MP2 Project Survey Report /14/ has been reviewed by the verification team & found out that the prices paid are still reasonable. This is also confirmed by the verification team during actual interview with the households.

Compliance of the monitoring for Do No Harm Assessment

GS Toolkit Section 4.5 & 4.6:

Description of DNH	Monitoring
Human rights	<u>Justifications in Monitoring Report /2/</u> As there are no risk of human rights issues, no action has been included to monitor this activity according to 'Hydrologic (2012) Passport' /70/ <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/
Involuntary settlements	<u>Justifications in Monitoring Report /2/</u> As there are no risk involuntary settlements caused by the project activity, no action to monitor this activity has been included in the document 'Hydrologic (2012) Passport' /70/ <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/
Cultural heritage	<u>Justifications in Monitoring Report /2/</u> As there is no risk of harm towards cultural heritage, no action to monitor this activity has been identified according to 'Hydrologic (2012) Passport' /70/ <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/
Labor – collective bargaining and freedom	<u>Justifications in Monitoring Report /2/</u>

of association. Has the project demonstrated that it will not limit freedom of association and right to collective bargaining more than required by law?	All staff signed a document titled “Right to Collective Bargaining and Freedom of Association” acknowledging they understand this right. <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ In fact, the verification team also reviewed the “Right to Collective Bargaining and Freedom of Association” /34/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met
Forced labor - Are employees free to quit their services without the menace of penalty? Are all employees offering their services on a voluntary basis?	<u>Justifications in Monitoring Report /2/</u> All staff signed a document titled “Right to Collective Bargaining and Freedom of Association” acknowledging they understand this right. <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ In fact, the verification team also reviewed the “Right to Collective Bargaining and Freedom of Association” policy /34/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met
Child Labor - Does the project employ or intend to employ children below the age of 15 in regular work or hazardous work? Does the project employ or intend to employ children below the age of 18 in hazardous work?	<u>Justifications in Monitoring Report /2/</u> Hydrologic does not employ anybody under 18 years old, therefore there is no risk of child labor working in hazardous conditions. All staff signed a document titled “Right to Collective Bargaining and Freedom of Association” acknowledging they understand this issue. <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ In fact, the verification team also reviewed the “Right to Collective Bargaining and Freedom of Association” policy /34/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met
Labor discrimination - Does the project’s employment policy discriminate, exclude or prefer people based on race, colour, gender, religion, sexual orientation, political opinion, national extraction, social origin or physical or mental disability?	<u>Justifications in Monitoring Report /2/</u> PP does not discriminate in any form. All staff signed a document titled “Anti-Labor Discrimination and Harassment Policy” acknowledging they understand that discrimination has no place at Hydrologic. <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/

	In fact, the verification team also reviewed the labor discrimination policy /35/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met
Labor safety - Has there been a credible and sufficient investigation to identify potential hazards for workers? Are workers exposed to hazardous chemicals or other material? Are workers involved in processes which are potentially dangerous? Have other hazardous been identified? Has the risk of sexual harassment and abuse of women been considered sufficiently? Is there an emergency action plan in the case of accidents for every site? Is there an insurance or pension system for workers in place in case of health impacts?	<u>Justifications in Monitoring Report /2/</u> All potential hazards for workers have been assessed and measures have been put in place to reduce the risks. Trainings and close monitoring are in place to ensure safety measures are in place and used by all staff as per the document "Health and Safety Precaution". <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ In fact, the verification team also reviewed the DNH, Health and Safety Precaution policy /37/ plus cross check during on site interview with the factory workers. All necessary actions have been taken and confirmed during 1st verification. In fact, an additional SOP for first aid, dated 07-02-2013 /57/ has been developed to ensure the continuity of safety. Besides that, Standard Operating Procedure i.e. Hydrologic (2013) SOP Health Safety FAC014, dated 24-04-2013 /56/ has been established & implemented, as cross checked by the verification team during physical site visit at the factory where the CWP's are being manufactured The verification team confirmed this requirement has been met
Environmental harm	<u>Justifications in Monitoring Report /2/</u> No risk of environmental harm has been identified and therefore no monitoring is required according to 'Hydrologic (2012) Passport' <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ During on site visit at the factory, the verification team observed the waste disposal control & also air emission control from the factory manufacturing activity. Consequently, standard operation procedures i.e. 1) Air Quality Improvement Plan, Version 1, 12 September 2012 /62/ 2) Hydrologic (2013) SOP Kiln Firing FAC0007, dated 14 Mar 2013 /63/ 3) Waste management procedures, dated August 2012 /64/ have been developed to address control process for air emission to the environment & minimization exposure to the firing furnace employees and also to ensure proper waste disposal control process are in place & implemented
Degradation of habitats	<u>Justifications in Monitoring Report /2/</u> No risk of degradation of habitats has been identified and therefore monitoring is not required according to 'Hydrologic (2012) Passport'

	<u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/
Corruption Is the project known to employ practiced where entrusted power is abused for private gain?	<u>Justifications in Monitoring Report /2/</u> All staff signed a document titled “Anti-Corruption Policy” acknowledging they understand that corruption has no place at Hydrologic. <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ In fact, the verification team also reviewed the “Anti-Corruption Policy” /37/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met
Human Resources There should be a facility where employees can raise issues directly to their supervisors or to a dedicated HR person (outside the factory)	<u>Justifications in Monitoring Report /2/</u> The contact details of the Human Resource department are provided to all staff in case they want to talk to somebody else other than their manager to discuss sensitive issues or complaint. This is available in the document titled “Code of Ethics.” <u>Verification opinion</u> According to the registered GS Passport /70/, risk was rated as low & no monitoring or further mitigation are defined in the registered GS Passport /70/. Hence the verification team accepted the justifications as stated in the monitoring report /2/ However the verification team also reviewed the “Code of Ethics” /38/ plus cross check during on site interview with the factory workers. The verification team confirmed this requirement has been met

3.3.2 Monitoring responsibility

See details in Appendix A, Section 3.6

3.3.3 Accuracy of equipment

See details for each monitoring parameters described in Section 3.3.1 above, which includes verification opinion for accuracy of equipment

3.3.4 Deviation from and Revision of the registered monitoring plan in the registered PDD and sustainable development monitoring plan in the registered GS passport

Request for Deviation: N/A

Request for Revision of Monitoring Plan: N/A

3.4 Assessment of data and calculation of greenhouse gas emission reductions

Leakage emissions

Leakage emission has been considered in the calculation in the ER calculation spreadsheet /5/

According to the Leakage requirements of "Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011" /7/ page 11 to 12 – the assumptions as stated in the registered PDD Section B.6.1 /4/ still remains unchanged. However, the following have been considered during the 2nd monitoring period:

"Other sources of leakage:

The project activity will need firewood to fuel the kilns to fire the ceramic pots. PP is accounting for the emissions coming from those activities by measuring the quantity of wood purchased during the project activities and measuring the GHG emissions arising from burning the wood. The calculations are available in the excel spread sheet and original receipts are available at DOE's request"

The verification team had verified the calculation in the VER calculation spread sheet versus input data for calculation such as receipts of wood purchased for kilns (sighted during site visit) & confirmed the calculation are valid & correct.

Baseline emissions & Project emissions

For the emission reduction determination, this has been provided in detail in the PDD Section B.6.1, as summarized as follows:

$$\begin{aligned}
 BE_{b,y,wood} &= B_{b,y,wood} * ((f_{NRB,b,y} * EF_{b,wood,CO_2}) + EF_{b,wood,nonCO_2}) * NCV_{b,wood} \\
 PE_{p,y,wood} &= B_{p,y,wood} * ((f_{NRB,p,y} * EF_{p,wood,CO_2}) + EF_{p,wood,nonCO_2}) * NCV_{p,wood} \\
 BE_{b,y,charcoal} &= B_{b,y,charcoal} * ((f_{NRB,b,y} * EF_{b,charcoal,CO_2}) + EF_{b,charcoal,nonCO_2}) * NCV_{b,charcoal} \\
 PE_{p,y,charcoal} &= B_{p,y,charcoal} * ((f_{NRB,p,y} * EF_{p,charcoal,CO_2}) + EF_{p,charcoal,nonCO_2}) * NCV_{p,charcoal}
 \end{aligned}$$

This has been determined as the sum of emissions from quantity of fuel consumed, CO₂ emission factor of the fuel to be displaced and also net calorific value of the fuel to be displaced.

The overall GHG reductions per unit are calculated as follows:

$$\begin{aligned}
 ER_y &= (\sum BE_{b,y} - \sum PE_{p,y}) * U_{p,y} - \sum LE_{p,y} \\
 &= (1.92 - 0.97) * 100\% - 0.017 \\
 &= \underline{0.94 \text{ tCO}_2 \text{ per unit}}
 \end{aligned}$$

Year	Estimation of project activity emissions (tCO ₂ e)	Estimation of baseline emissions (tCO ₂ e)	Estimation of leakage (tCO ₂ e)	Estimation of overall emission reductions (tCO ₂ e)	Adjusted Emission Reductions under Small Scale Limit
1st June 2012 - Dec 2012	44,805	89,077	787	43,485	36,230
Jan 2013 – 30th Apr 2013	30,382	60,402	534	29,487	20,703
Total emissions reduction	75,186	149,480	1,321	72,972	56,932

For the assessment of "A complete set of data for the specified monitoring period is available. If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall either raise a CAR for the project participants to comply with the requirements of appendix 1 of the Project standard or submit a request for deviation prior to submitting the request for issuance, if appropriate;", for this 2nd monitoring period: this is not applicable since complete set of data is available

The verification team had verified each monitoring parameter values reported in the VER spread sheet /5/ versus all available raw data record obtained by the project participants and also from the factory. The details of the cross checking outcome has been reported in Section 3.3.1 of this report.

The verification team cross checked the calculation in the VER spread sheet /5/ & found to be correctly calculated using the applicable formulae according to Approved Baseline & Monitoring Methodology:

Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/ in order to determine the baseline & project emissions.

The verification team also cross checked each of the data & parameters, determined at registration and not monitored during the monitoring period, including default values and factors as listed in the monitoring report Section 3 /2/ & found all are in line with the registered PDD /4/

3.5 Issues remaining from the previous verification period

There is no issue remaining from the 1st periodic verification for the project activity.

Appendix A

GS-VER Verification Protocol For Gold Standard Project

Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia

2nd Verification

Report No. 01 997 9105066507

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Implementation					
1.1 Have all physical features proposed in the registered PDD been implemented at the project site?	PDD	DR, I OSV	Yes, the verification team has conducted desk review of the registered PDD & cross checked the actual physical features implemented at the project site during on site visit	OK	OK
1.2 Has the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance?	PDD	DR, I OSV	Yes, the verification team confirmed that the project activity has been operated in accordance with the project scenario as described in the registered PDD & relevant guidance	OK	OK
1.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site?	PDD	DR, I OSV	Yes, it has been described in the MR that the monitoring period is from 1 June 2012 to 30 Apr 2013.	OK	OK
1.4 Is the start date of monitoring period consistent?	PDD	DR, I OSV	Yes, the start date of the monitoring period is 1 June 2012.	OK	OK
1.5 Is the monitoring report consistently filled with respect to all sections as required by its guideline of filling the monitoring report?	PDD	DR, I OSV	Yes, since there is no specific requirement prescribed by GS, the monitoring report has been prepared mainly according to the guideline published by UNFCCC for monitoring report	OK	OK
1.6 Does the CER's obtained for the monitoring period within the limit of estimate in the registered PDD? Is the claimed CER's justifiable?	PDD	DR, I OSV	Yes, the justifications have been provided & explained by the CERs actual during the monitoring period is higher than the estimated value in the PDD	OK	OK
1.7 Is the monitoring system provided in line diagrams showing all relevant monitoring points?	PDD	DR, I OSV	Not applicable	OK	OK
2. Monitoring plan and methodology					

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
2.1 Is the monitoring plan established in accordance with the monitoring methodology?	Meth	DR, I OSV	Yes, the monitoring plan stated in the monitoring report is in line with the monitoring methodology Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011	OK	OK
2.2 In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB?	Meth	DR, I OSV	Not applicable	OK	OK
2.2.1 Have the above changes to the monitoring plan been approved by the CDM EB?	Meth	DR, I OSV	Not applicable	OK	OK
3. Monitoring and the monitoring plan					
3.1 Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the EB)?	PDD Meth	DR, I OSV	Yes, the monitoring plan in the monitoring report is in line with the registered PDD	OK	OK
3.2 Are all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant EB decisions?	PDD Meth	DR, I OSV	Yes, baseline emission parameters are in line with the monitoring plan & monitoring methodology	OK	OK
3.2.1 Was the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for baseline emission parameters are controlled & monitoring results are recorded according to the approved frequency	OK	OK
3.2.2 Was the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for baseline emission parameters are calibrated in accordance with QA & QC procedures as described in the registered monitoring plan	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.3 Are all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant EB decisions?	PDD Meth	DR, I OSV	Yes, project emission parameters are in line with the monitoring plan & monitoring methodology	OK	OK
3.3.1 Was the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for project emission parameters are controlled & monitoring results are recorded according to the approved frequency	OK	OK
3.3.2 Was the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for project emission parameters are calibrated in accordance with QA & QC procedures as described in the registered monitoring plan	OK	OK
3.4 Are all leakage emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant EB decisions?	PDD Meth	DR, I OSV	Yes, leakage emission parameters are in line with the monitoring plan & monitoring methodology	OK	OK
3.4.1 Was the monitoring equipment for leakage emission parameters controlled and monitoring results recorded as per approved frequency?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for leakage emission parameters are controlled & monitoring results are recorded according to the approved frequency	OK	OK
3.4.2 Was the monitoring equipment for leakage emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	PDD Meth	DR, I OSV	Yes, the monitoring equipment for leakage emission parameters are calibrated in accordance with QA & QC procedures as described in the registered monitoring plan	OK	OK
3.5 Were all monitoring parameters available and verifiable through the whole monitoring period?	PDD Meth	DR, I OSV	Yes, the monitoring parameters are all available & verifiable throughout the monitoring period from 01-06-2012 to 30-04-2013	OK	OK
3.5.1 In case, only partial monitoring data is available and PP(s) provide estimations or assumptions for the rest of data, was it possible to verify those estimations and assumptions?	PDD Meth	DR, I OSV	Not applicable	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.6 Was management and operation system established and operated in accordance with the monitoring plan?	PDD Meth	DR, I OSV	Yes, management and operation system established and operated in accordance with the monitoring plan	OK	OK
3.7 Was it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	PDD Meth	DR, I OSV	Yes, the involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals, confirmed by the verification team during on-site interview with the personal	OK	OK
3.8 Does the monitoring system provide organizational structure, role and responsibilities, emergency procedures?	PDD Meth	DR, I OSV	Yes, the monitoring system provide organizational structure, role and responsibilities, emergency procedures	OK	OK
3.9 Does any uncertainties identified and addressed?	PDD Meth	DR, I OSV	Yes, this is being addressed & identified	OK	OK
4. Parameters					
4.1 Monitored parameter Title: $Q_{p,y}$ Indication: Quantity of safe water supplied in the project scenario p during the year y, using CWP Units: Litres per person per day Estimated value (ex-ante): 1.35 Measured value (ex-post): 1.45885	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.2 Monitored parameter Title: $Q_{p,rawboil,y}$ Indication: The raw or unsafe water that is still boiled after installation of the CWP Units: Litres per person per day	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK

Checklist question		Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
Estimated value (ex-ante): 0 Measured value (ex-post): 1.45269						
4.3	Monitored parameter Title: $Q_{p, \text{cleanboil}, y}$ Indication: Quantity of safe water (treated or from safe supply) boiled in the project scenario p, after installation of the CWP Units: Litres per person per day Estimated value (ex-ante): 0 Measured value (ex-post): 0.01178	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.4	Monitored parameter Title: Quality of the water treated Indication: Performance of the CWP Units: As appropriate in alignment with QA/QC procedures Estimated value (ex-ante): N/A Measured value (ex-post): N/A	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.5	Monitored parameter Title: $U_{p, y}$ Indication: Usage rate in project scenario p during year y Units: Percentage Estimated value (ex-ante): 100% Measured value (ex-post): 100%	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.6	Monitored parameter	MR	DR, I	See detailed report in the verification	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
Title: $N_{j,y}/N_{p,y}$ Indication: Number of persons consuming water supplied by project scenario p through year y Units: Person.days Estimated value (ex-ante): 1,997 Measured value (ex-post): 2,197.45 (per water filter per year)		OSV	report Section 3.3.1		
4.7 Monitored parameter Title: $LE_{p,y}$ Indication: Leakage in project scenario p during year y Units: tCO₂e per year Estimated value (ex-ante): 0.01 Measured value (ex-post): 0.017 tCO₂e (per water filter per year)	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.8 Monitored parameter Title: Units sold Indication: Number of units sold during project activity Units: CWP Estimated value (ex-ante): 32,940 Measured value (ex-post): 45,194 units sold	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK
4.9 Monitored parameter Title: $\int_{NRB,y}$	MR	DR, I OSV	See detailed report in the verification report Section 3.3.1	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
Indication: Non-renewable biomass ratio Units: % Estimated value (ex-ante): 73.28% Measured value (ex-post): 73.28%					
4.10 Default parameter Title: $X_{nrb,bl,y}$ Indication: Non-renewability of woody biomass fuel in year y in baseline scenario Units: Fraction Default/Used value: 0.7328	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.11 Default parameter Title: C_j Indication: Portion of users of the project technology j who in the baseline were already consuming safe water without boiling it Units: Fraction Default/Used value: 2.60%	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.12 Default parameter Title: $Q_{p,y}$ Indication: Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day Units: Litres per day per person Default/Used value: 1.35	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.13 Default parameter	MR	DR, I	The applied default value is in line with the registered	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
use Title: $EF_{b,wood,CO_2}$ / $EF_{p,wood,CO_2}$ Indication: CO₂ emission factor arising from of fuels in baseline/project scenario Units: tCO₂/TJ Default/Used value: 112.00		OSV	PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/		
4.14 Default parameter Title: $EF_{b,wood,nonCO_2}$ / $EF_{p,wood,nonCO_2}$ Indication: Non-CO₂ emission factor arising from use of fuels in baseline/project scenario Units: tCO₂e/TJ Default/Used value: 7.54	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.15 Default parameter Title: $EF_{b,charcoal,CO_2}$ / $EF_{p,charcoal,CO_2}$ Indication: CO₂ emission factor arising from use of fuels in baseline scenario Units: tCO₂/TJ Default/Used value: 112.00	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.16 Default parameter Title: $EF_{b,charcoal,non-CO_2}$ / $EF_{p,charcoal,non-CO_2}$ Indication: Non-CO₂ emission factor arising from use of fuels in baseline scenario Units: tCO₂e/TJ Default/Used value: 4.51	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.17 Default parameter Title: $NCV_{b,wood}$ / $NCV_{p,wood}$ Indication: Net calorific value of the fuels used in baseline/ project scenario Units: TJ/ton Default/Used value: 0.015	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.18 Default parameter Title: $NCV_{b,charcoal}$ / $NCV_{p,charcoal}$ Indication: Net calorific value of the fuels used in baseline/ project scenario Units: TJ/ton Default/Used value: 0.0295	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.19 Default parameter Title: $W_{b,y,wood}$ Indication: Amount of wood required to boil 1 litre of water in baseline scenario Units: Tonnes Default/Used value: 0.000218	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.20 Default parameter Title: $W_{b,y,charcoal}$ Indication: Amount of charcoal required to boil 1 litre of water in baseline scenario Units: Tonnes Default/Used value: 0.000006	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK

Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.21 Default parameter Title: $W_{p,y,wood}$ Indication: Amount of wood required to boil 1 litre of water in project scenario Units: Tonnes Default/Used value: 0.000218	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
4.22 Default parameter Title: $W_{p,y,charcoal}$ Indication: Amount of charcoal required to boil 1 litre of water in project scenario Units: Tonnes Default/Used value: 0.000006	MR	DR, I OSV	The applied default value is in line with the registered PDD /4/ & Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011 /7/	OK	OK
5. Calculations					
5.1 Have all the calculations related to the baseline emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	Spread sheet	DR, I OSV	Yes, the calculations related to the baseline emissions has been carried according to the formulae and methods described in the registered PDD and applied methodology	OK	OK
5.2 Have all the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	Spread sheet	DR, I OSV	Yes, the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology	OK	OK
5.3 Have all the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	Spread sheet	DR, I OSV	Yes, the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology	OK	OK

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)

No.	Type of request	Observation	Reference	Summary of project owner response	Verification team conclusion
1.	CAR 01	Cover page of monitoring period - the specific monitoring period date 31/04/2013 is incorrect - The estimated amount of GHG emission reductions for this monitoring period in the registered PDD i.e. 20,076 was not clearly substantiated. The verification team cannot confirm the value estimated - The date of the report stated as 24 April 2013 is incorrect	MR Cover page	<u>Response 1:</u> The PP has updated the date on the cover page of the monitoring report with the correct dates of the monitoring period. The PP calculated the estimated amount of GHG emission reductions for this monitoring period in the registered PDD i.e. 20,076 as described in footnote 10 for Table 3 of Section 3.3 (page 20) of the monitoring report. The PP has also provided a copy of the PDD "Hydrologic - PDD 2012-09-10_final" that substantiates the estimated GHG emissions reduction figures. The PP has updated the date of the monitoring report to reflect the most recent update to the monitoring report. <u>Response 2:</u> The PP has updated footnote 10 and 7 and reviewed all other footnotes in the MR. (Note: When footnotes are deleted while tracking changes in a Word document, the number stays until the changes are accepted, even in "final view". If the DOE views the clean version, all footnotes will be available and in proper order.) The PP has provided all reasonable documentation requests from the pre-site visit document list.	<u>Review Response 1:</u> The date of monitoring report has been updated correctly as version 02, 14 June 2013 on the cover page and in the entire of the MR. Footnote 10 is unavailable in the MR. Footnote 7 is inaccessible. Kindly confirm again all footnotes in the MR as some numbers are missing and not matching. Please provide all documents as per the document list sent before the site visit. Most of the documents requested are from the MR and it is for report preparation. <u>Review Response 2:</u> OK, footnote 7 and 10 is now been updated accordingly. All footnotes are now in order once all changes made in the MR are accepted. -CLOSED-
2.	CAR 02	Section 1.3 Short description of the project activity The statement "...97,481 units in use as of April 2013". The date is not clearly stated	MR Sec 1.3	<u>Response 1:</u> The PP has updated the monitoring report in Section 1.3 Short description of the project activity to clearly state the date.	<u>Review Response 1:</u> The date is now clearly stated as 30 April 2013. -CLOSED-

3.	CAR 03	Section 2. Key Monitoring activities according to the monitoring plan Units sold value(s) stated as 45,806 were inconsistent as in Section 1.3	MR Sec 2	<u>Response 1:</u> The PP has updated the monitoring report in Section 2 Key Monitoring activities according to the monitoring plan to ensure the values stated are consistent with Section 1.3.	<u>Review Response 1:</u> Section 2 of key monitoring activities is now consistent as in Section 1.3 of the MR. -CLOSED-
4.	CAR 04	Section 5 Timeline for dissemination of units Units sold checked from Jan 2013 to Apr 2013 during desk review are inconsistent as sighted from the <i>"Hydrologic (2013) MP2 Sales Database - Summary 2013-05-06.xlsx"</i>	MR Sec 5	<u>Response 1:</u> The PP has updated the values in Section 5 of the monitoring report to be consistent with "Hydrologic (2013) MP2 Sales Database - Summary"	<u>Review Response 1:</u> Section 5 of MR is now consistent as in the "Hydrologic (2013) MP2 Sales Database - Summary" -CLOSED-
5.	CAR 05	<u>Hydrologic (2013) MP2 Project Database 2013-05-06.xlsx</u> General: No single value is allowed in the spreadsheet. The value is not traceable or link to the sheets. There must be a source or formula which derived the value. The verification team cannot trace or verify the unit sold based on the sheets provided. <u>5.1 "Sale Summary" sheet</u> - Cell B31: The value is inconsistent as in the <i>"Hydrologic (2013) MP2 Sales Database - Summary 2013-05-06.xlsx"</i> - April 2013 data is not yet updated - "Total" and "Grand Total" cells are empty - The unit sale is for "Original	Spread sheet	<u>Response 1:</u> General: The PP has updated the file "Hydrologic (2013) MP2 Project Database". No single values are now in the spreadsheet without a reference. NOTE: The Project Database is used for tracking end users for survey sampling and is not used to track sales. 5.1 'Sale Summary' sheet: The PP has updated the document "Hydrologic (2013) MP2 Project Database": - The PP has updated the data in the 'Sale Summary' sheet to be consistent with "Hydrologic (2013) MP2 Sales Database – Summary" - The PP has updated the 'Sale Summary' sheet with data for April 2013. - The PP has updated the 'Sale Summary' sheet to show a "Total" cell. - The unit sale is for 'Original Tunsai' and 'Super Tunsai.'	<u>Review Response 1:</u> General: The "Hydrologic (2013) MP2 Project Database" is now updated with reference sources a. Sale Summary and MP2 Sales Database are now consistent with April 2013 is now been updated accordingly Only "Total" cell is used with unit sale is for both "Original" and "Super Tunsai" -CLOSED-

		<i>Tunsaï</i> or “ <i>Super Tunsaï</i> ”?			
6.		5.2 “Direct sale” sheet (June 2012) - Date of sale in some of the rows is empty. - Type of purchase: What is MFI, it is not clearly described - Why there are rows highlighted in red? No remark on this - Why CWP serial # is left empty? - Why some of the date of sale recorded as May and July 2012? The record is specifically for the month of June 2012		<u>Response 1:</u> NOTE: “Hydrologic (2013) MP2 Project Database” is used to draw samples for project surveys and field tests, and is not used for tracking sales of CWPs. <u>The PP has updated the “Direct Sale” sheet (June 2012) of “Hydrologic (2013) MP2 Project Database”:</u> - The PP uses the data in the warranty card to record end user information. The date of sale in some of the rows is empty because this information was blank on the warranty card. The PP enters these end users in the month the warranty card is received. - The PP has updated the “Direct Sale” sheet to state “Microfinance” in the column headings. MFI means the end user purchased using microfinance (MFI) through VisionFund. - The PP has removed the highlights from the document. - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. - The PP has updated Hydrologic (2013) MP2 Project Database” so that the records are listed under the month of the date of sale. <u>Response 2:</u> - The PP tracks sales through the accounting system, and are summarized in the document “Hydrologic (2013) MP2 Sales	<u>Review Response 1:</u> - OK, but how to ensure for that particular unit of CWP sold was on that month? Other document to track the sales of CWP e.g. Monthly sales record etc - OK, MFI is now understood as “Microfinance” - The highlights are now removed from the row - The CWP manufacturing is identified through the serial # for traceability and this does not meet the purpose. Kindly clarify whether the PP has other document to record the serial # for traceability and warranty purpose. If issue rise, how or what kind of method is applied if the serial # is untraceable - The project database is now been updated

				Database – Summary” - The PP also tracks the serial numbers of all filters produced at the factory (see “Hydrologic (2013) MP2 CWP Serial Numbers”) which can be cross-referenced. If a serial number is not readable, representatives of Hydrologic go to visually inspect the filter to determine if it is a Hydrologic filter, which is easily recognizable from its unique design. As shown in “Hydrologic (2013) MP2 Project Database” filters are being replaced, even without a warranty card.	<u>Review Response 2:</u> - OK, the sales are track from accounting and transferred into “Hydrologic (2013) MP2 sales Database – Summary” - The serial number is recorded into “Hydrologic (2013) MP2 CWP Serial Numbers”. -CLOSED-
7.		5.3 “Direct sale” sheet (July 2012) - Why records of sale in July 2011 are included?		<u>Response 1:</u> The PP has updated the “Direct Sale” sheet (July 2012) of “Hydrologic (2013) MP2 Project Database”: - The PP has updated Hydrologic (2013) MP2 Project Database” so that the records are listed under the month of the date of sale.	<u>Review Response 1:</u> OK, it is now been updated -CLOSED-
8.		5.4 “Direct sale” sheet (Aug 2012) - Why records of sale in June, July, Sept and Oct 2012 are included? - Why there are rows highlighted in red and yellow? No remarks on this - Why some of CWP serial # is left empty? - What is cell MZ1094? No details are provided		<u>Response 1:</u> The PP has updated the “Direct Sale” sheet (Aug 2012) of “Hydrologic (2013) MP2 Project Database”: - The PP has updated Hydrologic (2013) MP2 Project Database” so that the records are listed under the month of the date of sale. - The PP has removed the highlights from the document. - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. - The PP has removed cell MZ1094. <u>Response 2:</u> Please see CAR 5.2 above.	<u>Review Response 1:</u> - Project database is now been updated - The highlights are now removed from the row - See 5.2 - OK, the cell is now been removed

					<u>Review Response 2:</u> See CAR 5.2 -CLOSED-
9.		5.5 <u>"Direct sale" sheet (Sept 2012)</u> - Why records of sale in Aug and Oct 2012 are included? - Why there are rows highlighted in red and yellow? No remarks on this - Why some of CWP serial # is left empty?		<u>Response 1:</u> The PP has updated the "Direct Sale" sheet (Sept 2012) of "Hydrologic (2013) MP2 Project Database": - The PP has updated Hydrologic (2013) MP2 Project Database" so that the records are listed under the month of the date of sale. - The PP has removed the highlights from the document. - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. <u>Response 2:</u> Please see CAR 5.2 above.	<u>Review Response 1:</u> - Project database is now been updated - The highlights are now removed from the row - See 5.2 <u>Review Response 2:</u> See CAR 5.2 -CLOSED-
10.		5.5 <u>"Direct sale" sheet (Oct 2012)</u> - Why records of sale in Aug and Sept 2012 are included? - Why there are rows highlighted in red and yellow? No remarks on this - Why some of CWP serial # is left empty? - What are cell OI888 and OJ889?		<u>Response 1:</u> The PP has updated the "Direct Sale" sheet (Oct 2012) of "Hydrologic (2013) MP2 Project Database": - The PP has updated Hydrologic (2013) MP2 Project Database" so that the records are listed under the month of the date of sale. - The PP has removed the highlights from the document. - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. - The PP has removed cell OI888 and OJ889.	<u>Review Response 1:</u> - Project database is now been updated - The highlights are now removed from the row - See 5.2

				Response 2: Please see CAR 5.2 above.	- OK, the cell is now been removed <u>Review Response 2:</u> See Car 5.2 -CLOSED-
11.		<u>5.6 "Direct sale" sheet (Nov 2012)</u> - Why records of sale in Oct and Dec 2012 are included? - Why there are rows highlighted in red? No remarks on this - What is cell PB1080?		<u>Response 1:</u> <u>The PP has updated the "Direct Sale" sheet (Nov 2012) of "Hydrologic (2013) MP2 Project Database":</u> - The PP has updated Hydrologic (2013) MP2 Project Database" so that the records are listed under the month of the date of sale. - The PP has removed the highlights from the document. - The PP has removed the cell PB1080.	<u>Review Response 1:</u> - Project database is now been updated - The highlights are now removed from the row - OK, the cell is now been removed -CLOSED-
12.		<u>5.7 "Direct sale" sheet (Dec 2012)</u> - Why records of sale in Oct and Nov and Jan 2013 are included? - What is cell PT790? No details are provided		<u>Response 1:</u> <u>The PP has updated the "Direct Sale" sheet (Dec 2012) of "Hydrologic (2013) MP2 Project Database":</u> - The PP has updated Hydrologic (2013) MP2 Project Database" so that the records are listed under the month of the date of sale. - The PP has removed cell PT790.	<u>Review Response 1:</u> - Project database is now been updated - OK, the cell is now been removed -CLOSED-
13.		<u>5.7 "Direct sale" sheet (Jan 2013)</u> - Why records of sale in Dec 2012 are included?		<u>Response 1:</u> <u>The PP has updated the "Direct Sale" sheet (Jan 2013) of "Hydrologic (2013) MP2 Project Database":</u> - The PP has updated Hydrologic (2013) MP2	<u>Review Response 1:</u>

		- What is cell QK311 and QL310?		Project Database” so that the records are listed under the month of the date of sale. - The PP has removed cell QK311 and QL310.	- Project database is now been updated - OK, the cell is now been removed -CLOSED-
14.		<u>5.7 “Direct sale” sheet (Feb 2013)</u> - Why some of CWP serial # is left empty?		<u>Response 1:</u> - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. <u>Response 2:</u> Please see CAR 5.2 above.	<u>Review Response 1:</u> - See 5.2 <u>Review Response 2:</u> See CAR 5.2 -CLOSED-
15.		<u>5.7 “Direct sale” sheet (Mar 2013)</u> - Why some of CWP serial # is left empty?		<u>Response 1:</u> - The PP inserts the information as written in the warranty card. If some serial # is left blank, the warranty card does not have this information completed. <u>Response 2:</u> Please see CAR 5.2 above.	<u>Review Response 1:</u> - See 5.2 <u>Review Response 2:</u> See CAR 5.2 -CLOSED-
16.		<u>5.7 “Direct sale” sheet (Apr 2013)</u> - The data are not yet updated		<u>Response 1:</u> The PP has updated the “Direct Sale” sheet (Apr 2013) of “Hydrologic (2013) MP2 Project Database”: - The PP closed the “Hydrologic (2013) MP2 Project Database” document to draw the sample for the project survey in December. The addition of end users beyond this date is illustrative, but not required for this verification.	<u>Review Response 1:</u> The data has been updated until April 2013 in project database -CLOSED-

17.		<u>5.8 “NGO sale” sheet (Jan – Apr 2013)</u> - No purchase of CWP from Jan 2013 onwards?		<u>Response 1:</u> - The PP closed the “Hydrologic (2013) MP2 Project Database” document to draw the sample for the project survey in December. The addition of end users beyond this date is illustrative, but not required for this verification. <u>Response 2:</u> - The PP has updated “Hydrologic (2013) MP2 Project Database” with end user information through 30 April 2013, the end of the monitoring period.	<u>Review Response 1:</u> It doesn't meet the purpose of having the document if it is not updated and monitored accordingly. In fact, the monitoring period is until April 2013 <u>Review Response 2:</u> OK, updated accordingly -CLOSED-
18.		<u>5.9 “End Users from Sale Agent” sheet</u> - Some rows are highlighted in red. Any specific reason? - The unit quantity are not traceable and found in the sheet		<u>Response 1:</u> The PP has updated the “End Users from Sale Agent” sheet of “Hydrologic (2013) MP2 Project Database”. - The PP has removed the highlighting from the spreadsheet. - The PP does not use “Hydrologic (2013) Project Database” to track sales, but to populate samples for project surveys and tests. The unit quantity is not tracked here. Each unit comes with a warranty card, and each row represents one purchase, or warranty card, or one CWP unit.	<u>Review Response 1:</u> - The highlights are now removed from the row - OK, it is accepted -CLOSED-
19.		<u>5.10 “Filter Replaced” sheet</u> Kindly translate the Khmer language		<u>Response 1:</u> PP has provided English language translation in the ‘Filter Replaced’ sheet of “Hydrologic (2013) MP2 Project Database”.	<u>Review Response 1:</u> OK, the sheet is now been translated to English -CLOSED-
20.	CAR 06	<u>Hydrologic (2013) MP2 Sales Database - Summary 2013-05-06.xlsx</u> “Summary” and “Apr” sheet - April 2013 data is not updated		<u>Response 1:</u> The PP has updated the document “Hydrologic (2013) MP2 Sales Database – Summary”. The ‘Summary’ and ‘April’ sheets now have April 2013 data.	<u>Review Response 1:</u> The sales database is now been updated accordingly -CLOSED-
21.	CAR 07	ER Calculations sheet –	ER	<u>Response 1:</u>	<u>Review Response 1:</u>

		'Summary' worksheet: Date in row 29 contains single input values with no reference source. Please state the reference source for these values in the sheet	calculation	The PP has updated the 'Summary' worksheet of the ER Calculations sheet with a comment on Row 29 explaining that the source of the data comes from "Hydrologic (2012) ER calculations 2012-11-30 Verification" as the emission reductions for 2011 were verified in Monitoring Period 1. The updated "Hydrologic (2013) MP2 ER Calculations" and the source document have been made available to the DOE. <u>Response 2:</u> 1) The PP has removed all external links to the ER Calculations sheet. 2) The PP has updated the stated monitoring period in row 11 of the NBO sheet of the ER Calculations.	OK, response is accepted. However, please see the following i) The updated ER Calculations sheet has a message stating "The workbook contains links to other sources". External links are not permissible in the ER calculation sheet. Please locate the link and remove from the sheet. ii) In NBO sheet, the monitoring period stated in row 11 is incorrect. <u>Review Response 2:</u> i) <u>Ok, all external links have been removed.</u> ii) <u>Ok, monitoring period on NBO sheet was corrected (closed)</u> -CLOSED-
22.	CAR 08	ER Calculations sheet – 'Leakage' worksheet: 1) Table on quantity of firewood used is not up to date with the actual amount of firewood used up until the end of this monitoring period (31 April 2013) 2) Cells F115 to F120 are all single input values which are not acceptable. Please link to reference or show formulas in cells	ER calculation	<u>Response 1:</u> The PP has updated the 'Leakage' worksheet of the ER Calculations sheet. 1) The PP has updated the table with the quantity of firewood used up to the end of this monitoring period. 2) Cells F115 and F120 now have the same source reference as the entire chart.	<u>TUV Review Response 1:</u> 1) OK, Firewood quantity table has been updated with data until 30 April 2013, and data is verified to be correct from the Item Costing Report sheet for the monitoring period 2) Single input cells have been removed -CLOSED-
23.	CAR 09	Please provide an English translation of the MP2 Survey Questionnaires	Survey Questionnaires	<u>Response 1:</u> PP has provided an English language version of the MP2 Survey Questionnaire - "Hydrologic (2013) MP2 Project Survey Questionnaire (English&Khmer)	<u>TUV Review Response 1:</u> There are some inconsistencies between the English and Khmer translation, particularly in Sections 3.4.3, 6.6, 6.11,

				FINAL". Please reference the English tab. <u>Response 2:</u> The PP has reviewed "Hydrologic (2013) MP2 Project Survey Questionnaire (English&Khmer) FINAL" and updated the English translation to reflect what is written in Khmer.	6.12, 6.13 and 6.14. Please provide the accurate translation <u>TUV Review Response 2:</u> Ok, English translation was updated and is consistent with the Khmer version. -CLOSED-
24.	CAR 10	It is stated in sample working contracts for four factory workers that no. of days of Annual Leave is 12 days (stated in Cambodian language), not 18 days as per legal requirements.	Contract	<u>Response 1:</u> PP has provided a copy of the memorandum "Hydrologic (2012) Annual Leave Policy Memo 2013-06-10" which was circulated to all employees in January 2012 advising of a change in Annual Leave entitlement from 12 days to 18 days, as per legal requirements. Contracts made before this date were not retroactively altered. <u>Response 2:</u> The PP did brief employees at the time, however, the PP has no documentation of this meeting. To ensure workers are aware, the PP held a meeting to provide each worker with a contract and remind them on their annual leave (see "Hydrologic (2013) MP2 Employment Contract Received List"). The PP has also posted the policy memo at the factory. (See "Hydrologic (2013) Annual Leave Change Memo Posted at Factory").	<u>TUV Review Response 1:</u> The annual leave policy was sighted. However, please clarify why some workers interviewed on-site were still not aware of this change to the number of days of annual leave. Was any briefing done in addition to the circulation of the memorandum? <u>TUV Review Response 2:</u> Ok, explanation accepted. - CLOSED -
25.	CAR 11	Is it not clear how the final data in tables shown in Section 2.1 to 5.3 of the Project Survey Report was derived from the raw data sighted in the Hydrologic Field Survey Data (2013) excel sheet. Please provide any additional excel sheets used to determine the table data from the raw data.	Survey Report	<u>Response 1:</u> The PP has updated "Hydrologic (2013) MP2 Project Survey Data Analysis" to clarify how the final data was derived and copied the exact tables from the Data Analysis spreadsheet into "Hydrologic (2013) MP2 Project Survey Report" to clearly show how the data comes from the spreadsheet. <u>Response 2:</u> i) The PP has red removed the highlights in Sheet 1 and Tech Used Sheet. ii) The PP has removed theingle input	<u>TUV Review Response 1:</u> The revised excel sheet "Hydrologic (2013) MP2 Project Survey Data Analysis" was sighted. Please clarify on the following: i) Why are some respondent feedback rows highlighted in red in some sheets, e.g. sheet 1 and Tech Used Section 2.1 row 54, 122, 148 and 150? ii) Tech Used Section 2.1 sheet: Cells AD4 to AD6 are single input values,

				values and the analysis includes respondents that selected a primary stove. iii) The discrepancies mainly reflect the number of respondents who reported for a particular question, not the total number of households asked the question. For example, 45 respondents did not list a primary stove, so in the Cross Tabulation, the PP can only draw conclusions on the 102 answers received. The PP has updated the "Hydrologic (2013) MP2 Project Survey Data Analysis" and the "Hydrologic (2013) MP2 Project Survey Report" to be consistent. iv) The PP has updated "Hydrologic (2013) MP2 Project Survey Data Analysis" and the "Hydrologic (2013) MP2 Project Survey Report". The Project Survey Data Analysis sheet now uses a weighted average in 2012 and 2013 for the cost of charcoal. In the "Fuel Cost" sheet, cells C69 and F69 are not included in the calculation because the values have been considered as outliers as explained in a comment in cell N10 in the same sheet. v) The PP has removed the single input values in the 'Fuel Cost Section 2.3' sheet. vi) The PP has updated the calculations in 'Fuel Cost Section 2.3' sheet to include the data from columns A and D. vii) The PP has updated the calculations in 'Fuel Cost Section 2.3' sheet to be clearer how the values are derived from the data. viii) The PP has updated the reference source. The values can be found in	and it is not clear how were these derived iii) In the Project Survey Report Section 2.2, there are discrepancies between the no. of respondents stated for the second and third table, as well as the Project Survey Data Analysis sheet from which the data was derived, as follows: - In table 'Cross tabulation for fuel type/primary stove used since purchasing a Hydrologic Water Filter', title stated 136 respondents. This is less than sample size of 147 stated on page 4. In the table itself, total stated is 134 respondents. In the excel sheet, 'Fuel Stove Mix Section 2.2' from which the table data is derived, sample size used for columns AA to AI is 141 respondents (data from row 4 to 144). - For third table, stated 'Out of 132 respondents that reported using wood as fuel...' But from the 2nd table, total no. of respondents that stated using wood is 114, and using wood & charcoal is 14, which equals 128, not 132 respondents. In addition, this table was derived from "Collect % Section 2.3' sheet, where row 3, the percentage is calculated based on 139 respondents. But actual no. of samples in row 4 to 150 is 147 respondents. Please clarify on the discrepancies in respondent numbers iv) Average cost of charcoal in 'Table for
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				"Hydrologic (2012) ER calculations 2012-11-30 Verification" on the Calculations Tab in cells I27 and I34". ix) The PP has updated the 'Wood Collection Section 3.2' sheet of "Hydrologic (2013) MP2 Project Survey Data Analysis" and the "Hydrologic (2013) MP2 Project Survey Report" to be consistent. x) The PP has updated the 'Kitchen Practice Section 3.3' sheet of the "Hydrologic (2013) MP2 Project Survey Data Analysis" to show number of respondents that did not respond to the question. xi) The PP has updated the 'Health Impact - Section 5.3' sheet of the "Hydrologic (2013) MP2 Project Survey Data Analysis" to show number of respondents that did not respond to the question.	Report' cell I42 was derived from 'Fuel Cost Section 2.3' sheet. In this sheet, cell Q8, average charcoal price was calculated from non-zero values in column C. Please clarify why data in column F (charcoal price in year 2013) was not considered? Also, please clarify in the sheet why data in cell C69 is not considered in this average? v) 'Fuel Cost Section 2.3' sheet: Single input values in cells O8 and P8 are not acceptable vi) 'Fuel Cost Section 2.3' sheet: For cells K4-K17, please clarify why only data from column D listed here but not column A? vii) For 'Fuel Cost Section 2.3' sheet: For cell L4-L23, it is not shown clearly how these values were calculated/ derived from the raw data. viii) 'Tables for Report' sheet: Values of cell J42 and J43 were not sighted in the stated reference source "Hydrologic (2012) Annex IV - WBT, Boiling Test Results 2012-09-11" ix) 'Wood Collection Section 3.2' sheet: Data in cell K3 is different from bottom table on page 8 of the project survey report. This table was also repeated on page 9 of the Project Survey Report. x) 'Kitchen Practice Section 3.3' sheet: In cells A3 to D3, percentage calculated over 137 respondents only, and for cells E3 to H3, percentage is calculated is over 140 respondents, but total respondents from row 4 to 150 is 147. Please clarify why no. of respondents used
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					in calculations is different from the actual sample size xi) 'Health Impact - Section 5.3' sheet: For cells L2 to W2, please clarify why some of the values calculated are using less than 147 respondents <u>TUV Review Response 2:</u> i) Ok, all red highlights have been removed from the worksheet ii) Tech Used Section 2.1 has been revised to exclude data on additional selected stove 2 and no more single input values are sighted iii) Ok, data on number of respondents in the Project Survey Data Analysis sheet is explained clearly and consistent with the Project Survey Report. iv) Ok, the cost of charcoal is now demonstrated clearly using data from both year 2012 and 2013 v) Ok, no more single input values sighted in 'Fuel Cost Section 2.3' vi) Ok, all data for wood purchase price (riel/kg) in year 2012 and year 2013 were used in the 'Fuel Cost Section 2.3' sheet vii) The calculation of non-zero Wood price (Riel) values given (per kg when price quoted is m³) is now clearly demonstrated in the 'Fuel Cost Section 2.3' sheet viii) Ok, calculation of amount of fuel (wood or charcoal) used to boil 1 litre of water was shown clearly in the 'Tables for Reports' sheet. ix) Ok, data on wood collection and deforestation is now consistent between the Project Survey Report
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					and Project Survey Data Analysis. x) Ok, data in 'Kitchen Practice Section 3.3' has been updated to show total no. of participants as 147 for all calculations xi) Ok, data in 'Health Impact - Section 5.3' has been updated to show total no. of participants as 147 for all calculations -CLOSED-
26.	CAR 12	Price of wood stated on page 6 of the Project Survey Report is 250 riel/kg, but sighted in cell P4 of the 'Fuel Cost Info' sheet of the Hydrologic Field Survey Data (2013) excel sheet that average wood price was calculated as 870 Riel/kg. Kindly clarify the reason for the difference. There is also a comment on cell O4 that wood price above 5000 riel is excluded as outliers. What is the justification for this exclusion?	Survey Report	<u>Response 1:</u> The PP has updated Section 2.3 of "Hydrologic (2013) MP2 Project Survey Report" with a comprehensive description of the method used to calculate a conservative estimate of the fuel cost savings based on the data collected in the Project Survey. <u>Response 2:</u> i) Please see 11(vii) above. ii) The PP updated the version number of the Project Survey Report. iii) The PP has updated the tables in the Monitoring Report (as the Project Survey Report does not have 32 pages) to be consistent with the Project Survey Report.	<u>Review Response 1:</u> The assigned value of 172.58 riel/kg based on price of firewood purchased by Hydrologic is accepted as conservative based on the feedback from the survey respondents. However, please see the following: i) Clarification is still required for price of wood quoted in m3, as stated in CAR 11(vii) above. ii) The version number of the revised Project Survey Report was not updated on the cover sheet. iii) Page 32 of the revised Project Survey report shows an empty table. Some data in Table 8 is also not exactly consistent with the table in Section 2.2 of the Project Survey Report. <u>Review Response 2:</u> i) Closed as explained in CAR 11(vii) above ii) OK, version number of report was updated iii) Earlier statement was supposed to refer to the Monitoring Report not Project Survey Report. The revised

					Monitoring Report no longer has the empty table. -CLOSED-
27.	CL 01	Footnote 2 is not accessible	MR	<u>Response 1:</u> The PP has updated the link in the monitoring report.	<u>Review Response 1:</u> OK, the link is now can be accessed -CLOSED-
28.	CL 02	Please submit the training plan / training records for the clean water expert as below: 1. Chress Sam Ath 2. Mo Phornn 3. Chheng Khnar	Training	<u>Response 1:</u> The PP has submitted "Hydrologic (2013) MP2 Training CWE Presentation" which is the powerpoint used for training for all new CWEs. The PP has also submitted "Hydrologic (2013) MP2 Training CWE Feb 2013 Participants list" which shows a record of attendance for Mo Phornn and Chheng Khnar (highlighted). Chress Sam Ath started work with Hydrologic in December 2010, and the participant list for his training has not been located. However, the PP does have "Hydrologic (2013) MP2 Training CWE Chres Sam Ath Photo", which is a photo of him receiving his CWE training certificate.	<u>Review Response 1:</u> OK, all evidences are accepted -CLOSED-
29.	CL03	ER Calculations sheet – 'Summary' worksheet: Please provide justification in the relevant section of the monitoring report why the estimated number of units sold for future monitoring periods (May 2013 onwards) has been revised from 2000 units to 3800 units.	ER calculation	<u>Response 1:</u> The PP has added a justification to the ER Calculations sheet – 'Units per Month' worksheet Cell D17, with a justification of why the estimated number of units sold for future monitoring periods (May 2013 onwards) has been revised from 2000 units to 3800 units.	<u>Review Response 1:</u> Justification is accepted and verified from calculation of average of actual sales so far that the average sales per month is approximately 3800. -CLOSED-
30.	CL04	Under section 2: Key monitoring activities according to the monitoring plan, there are a number of parameters supposed to be monitored as stated in the PDD which were not listed in this section, and no explanation why these parameters were removed	MR	<u>Response 1:</u> The PP has updated Section 2 of the monitoring report with all parameters supposed to be monitored as stated in the PDD. The PP has also updated Table 3 of Section 3.3 in the monitoring report to include the comparison of these values with the PDD. The PP originally did not list certain parameters under Section 2 in the monitoring report as they did not	<u>Review Response 1:</u> OK, confirmed that the monitoring report Section 2 has been revised to add in all the parameters to be monitored as per the PDD, and Table 3 of Section 3.3 has also been updated and revisions are appropriate.

				change from the 1 st Monitoring Period, and, according to the monitoring plan in the PDD, were not required to be monitored during the 2 nd Monitoring Period.	-CLOSED-
31.	CL05	During stakeholder interviews, the following issues were raised: 1) Some filters provided to schools are found to be not working properly after long school holidays (3 months) 2) One female buyer complained that her Tunsai filters water faster than usual and there is sediment in her water container. She called the company to ask for a replacement and representatives came but did not replace her filter. Please clarify if there is any plan or action taken to resolve the issues above	Stakeholder interview	<u>Response 1:</u> 1) The PP has implemented a telephone hotline for customers to call if they are having problems with their water filter. (See “Hydrologic (2013) MP2 Warranty - Hotline Call Log” and the translation of a part of this document: “Hydrologic (2013) MP2 Warranty - Hotline log English”). The hotline has been publicised in radio advertisements in areas of operation (see “Hydrologic (2012) Warranty - Radio Broadcast Contract”) and Hydrologic’s CQCs follow up with queries and if necessary provide free replacement filters. All customers, including schools, receive a warranty card (see “Hydrologic (2012) Warranty card”) with their filter that clearly states the telephone number to call if they have a problem with their water filter. This system does function as evidenced by the call log (reference above) and the list of replaced pots in the “Hydrologic (2013) MP2 Project Database”. 2) The PP follows-up with customers to ensure filters are working correctly and does replace filters as shown in “Hydrologic (2013) MP2 Project Database.” In this instance Hydrologic judged that the filter was functioning properly, and did not require replacement. Hydrologic reserves the right to replace the filter or not. <u>Response 2:</u> 1) In most instances when a pot is reported to not have a serial number, when Hydrologic representatives go to examine the pot, there is in	<u>Review Response 1:</u> OK, response accepted as evidence that the company is making adequate efforts to ensure any issues raised by users relating to the filters are resolved. However, there was one comment raised in ‘Hydrologic (2013) MP2 Warranty - Hotline log English 2013-04-30’ row 6 from a villager who wanted to change a pot, but no serial number. Please clarify why a user’s pot has no serial number and how it is ensured the pot is traceable in this case. See also CAR 5.2. In addition, in the Project Survey Report page 12, please provide explanation how the formula applied to determine the average lifespan of the filters (area U) was derived. <u>Review Response 2:</u> Ok, explanation regarding the missing serial number and formula applied to determine the average lifespan of the filters (area U) is accepted. -CLOSED-

				fact a serial number or partial number on the pot. In rare cases, the serial number can become unreadable over time as a result of vigorous cleaning by the end user over several years. The PP has taken steps to mitigate this, including: a. Making the serial number impression deeper, and b. Stamping the serial number on the pot in two locations. In the very rare case where the serial number is unreadable, the PP will check the design of the pot to ensure it is a Hydrologic pot and replace the pot. 2) As stated in "Hydrologic (2013) MP2 Project Survey Report" the area under the usage graph represents the total number of months pots are in use by customers over the lifespan of the filter. The average lifespan is calculated by equating this area to find the number of months filters are in use by 100% of customers. "Hydrologic (2013) MP2 Project Survey Report" has been updated to explain this more fully,	
32.	CL06	During interviews of workers at the factory, some workers interviewed stated that they were not provided with copies of their working contracts, although some workers stated they received it. Kindly clarify why copies of working contracts are not provided to all workers.	Stakeholder interview	<u>Response 1:</u> Due to high rates of illiteracy among the factory staff, the PP reads contracts and all employee information aloud to each employee to ensure they understand his/her rights. The PP only provides copies of contracts to workers when they request to keep a copy. <u>Response 2:</u> The PP has provided copies of contracts to all workers as evidenced in "Hydrologic (2013) MP2 Employment Contract Received List."	<u>Review Response 1:</u> According to the local expert, there is Cambodian Labor law, published in 1998 says it is compulsory for workers to have a copy of their working contract with their employer. Kindly clarify <u>Review Response 2:</u> Ok, 'Employment Contract Received' document was sighted and accepted. -CLOSED-
33.	CL07	1) Please specify the number of samples/respondents for the Project Survey Report for MR2, under 'Background and Methodology' Page 2.	Project Survey	<u>Response 1:</u> 1) The PP updated "Hydrologic (2013) MP2 Project Survey Report" with the specific number of samples/ respondents, under 'Background and Methodology'.	<u>Review Response 1:</u> 1) The revised Project Survey report states "Hydrologic's sample size was 150, with 147 valid respondents" Please clarify further in the report

		2) In the 'Background and Methodology' Section of the Project Survey Report, please clarify further how the sampling method used complies with the sampling requirements as stated on page 13 of the applied methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" 3) Based on Hydrologic Field Survey Data, there were 147 samples taken, however based on Project Survey Sample excel sheet from the statistician (Stuart), 'sample summary' sheet stated 150 samples to be taken. Please clarify why total actual samples taken does not match the sample number recommended by the statistician?		2) The sampling method used for the Project Survey does not comply with page 13 of the applied methodology, as it is not a field test, but rather a project (monitoring) and usage survey, as distinguished on page 5 of the methodology, and therefore governed by the sampling requirements outlined on pages 23 and 24. The PP has updated the 'Background and Methodology' Section of "Hydrologic (2013) MP2 Project Survey Report to clarify how it complies with these requirements. 3) The statistician stated 150 samples to be taken and specified these households. He also selected six alternative households to sample in the event that the primary selected participant could not participate in the Project Survey (for example if they were not home when the survey teams visited). There were three cases in which neither the primary sample nor the alternatives were available to participate in the Project Survey, which resulted in 147 valid responses to the survey. This number is still above the minimum sample size of 100 required by the applied methodology on pages 23-24. <u>Response 2:</u> 1) The PP has updated "Hydrologic (2013) MP2 Project Survey Report" to say "Hydrologic's sample size was 150. The interviewers identified and surveyed 147 respondents out of the project survey sample." "Valid" was not the correct term to use. Three households out of the 150 in the sample were not interviewed due to non-response.	why 3 respondents were considered invalid 2) Confirmed that the Project Survey Report has been updated with further explanation on sampling method in accordance with page 23 -25 of the applied methodology. However, paragraph 4 on page 24 of the methodology states that "The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited. The majority of interviews in a usage survey must be conducted in person and include expert observation by the interviewer within the kitchen in question, while the remainder may be conducted via telephone by the same interviewers ..." Please clarify further on whether the sample includes at least 30 samples for project technologies of each age being credited. Also please clarify if the majority of interviews were conducted in person or by telephone. 3) Explanation accepted, but please provide this explanation in the Project Survey Report as requested in point 1 above. <u>Review Response 2:</u> 1) Ok, further explanation on the number of respondents was provided in the Project Survey Report 2) Ok, the Project Survey Report now explains clearly the number of samples taken from each age being
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				2) The PP has updated "Hydrologic (2013) MP2 Project Survey Report" to clarify that the survey does include more than 30 samples from each age being credited. The interviews were conducted in person, as stated on page 5 of the Project Survey Report. 3) See CL 07, Response 2, Answer 1 above.	credited and sample sizes for each group are well above 30. 3) Ok, explanation accepted. - CLOSED -
34.	CL08	Sighted in sample working contracts for four factory workers under Part 5: Termination, it is stated in Cambodian that during the probation period, the two parties shall inform each other one week in advance, but English translation stated two weeks. Please clarify why there is a discrepancy in the English translation.	Contract	<u>Response 1:</u> The PP made an error in English the translation. The Khmer is correct, which states one week.	<u>Review Response 1:</u> Explanation accepted -CLOSED -

Appendix B

Certification statement

Verification Report 01 997 9105066507

Certification statement

TUV Rheinland (China) Ltd., the DOE, has performed the verification of the registered GS VER project activity “GS1020”, “*Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia*”. The project activity is an energy efficient improvement project that displaces fuel needed to boil water. The ceramic water purifier is introduced to filter drinking water to reduce demand for non-renewable biomass used in boiling water

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project. It is DOE’s responsibility to express an independent verification statement on the reported GHG emission reductions from the project. The DOE does not express any opinion on the selected baseline scenario or on the validated and registered PDD. The verification is carried out in-line with the VVS requirements.

The verification was performed to identify the compliance of the project activity with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information on-site that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

The verification is based on:

- PDD version 7, registered with the GS Foundation on 08-08-2012 and its monitoring plan;
- Approved monitoring methodology “*Approved Baseline & Monitoring Methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 01, 11 April 2011*”
- Approved validation report, version 01 dated 20-05-2013;
- Monitoring report version 5.0, dated 25-09-2013

This statement covers verification period of 334 days between 01-06-2012 and 30-04-2013.

The DOE has raised 8 clarification and 12 corrective action requests, all of which have been successfully resolved by PPs. No forward action requests have been raised during the 2nd verification.

The DOE considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan / revised approved monitoring plan contained in the registered PDD/revised approved PDD are fairly stated.

The DOE, hereby certifies that the project activity, achieved emission reductions after adjusted under Small Scale by sources of GHG equal to 56,932 tCO₂ equivalent and all monitoring requirements have been fulfilled.

Date: 11-11-2013



Mr. Henri Phan
DOE Manager
TUV Rheinland (China) Ltd.

Date: 11-11-2013



Mr. Walter Tang
Technical Reviewer
TUV Rheinland
(China) Ltd.

Date: 11-11-2013



Mr. Azizan Zakaria
Team Leader
TUV Rheinland
Malaysia Sdn. Bhd.

Appendix C

CERTIFICATES OF COMPETENCE

Qualification

Zakaria, Azizan /

Emission Trading**United Nations Framework Convention on Climate Change**Auditor No.:
(AuditorenRegNr)Appointed:
(Zugelassen)☒ jaQualification Level:
(Qualifikationsstufe)

Lead Auditor

External:
(Externer)☐ jaAdd. reviewer:
(Zusätzlicher Prüfer)☐ yesEAC Scopes:
(EAC Branchen)CDM 05 - Chemical industry
CDM 11 - Fugitive emissions from production and consumption of
halocarbons and sulphur hexafluoride
CDM 12 - Solvents use
CDM 13 - Waste handling and disposalAdd. qualification:
(zus. Qualifikation)First Appointment:
(Erstberufung)

25/09/2011

Valid to:
(Gültig bis)

24/09/2014

Remarks:

Valid for TA 5.1/11.1/12.1
TA 13.1

Languages:

Experience Exchange

Date

Location

Remarks

Accreditation(s)

MonitoringLatest Monitoring:
(letzte Beurteilung)Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2012-03-29
Change: EAC CDM added
By: Praveen Urs
Reason:

Date: 2011-09-26
Change: EAC CDM, CDM, CDM added
By: Manfred Brinkmann
Reason: Valid for TA 5.1/11.1/12.1

History

Created:	24/08/2011 11:42:34 AM	Azizan bin Zakaria/MY/TUV
Modified:	29/03/2012 07:50:57 PM	Praveen Urs/Chn/TUV
	26/09/2011 11:50:36 AM ZE9	Manfred Brinkmann/Jpn/TUV
	24/08/2011 11:42:54 AM	Azizan bin Zakaria/MY/TUV

Qualification

Ng, Siew Theng /

Emission Trading**United Nations Framework Convention on Climate Change**Auditor No.:
(AuditorenRegNr)Appointed:
(Zugelassen)☒ jaQualification Level:
(Qualifikationsstufe)

Auditor

External:
(Externer)☐ jaAdd. reviewer:
(Zusätzlicher Prüfer)☐ yesEAC Scopes:
(EAC Branchen)

CDM 15 - Agriculture

Add. qualification:
(zus. Qualifikation)First Appointment:
(Erstberufung)

11/01/2011

Valid to:
(Gültig bis)

31/10/2014

Remarks:

TA 15.1

Languages:

English
malay
Indonesian**Experience Exchange**

Date

Location

Remarks

Accreditation(s)

MonitoringLatest Monitoring:
(letzte Beurteilung)Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)**History of scope allocation**Date: 2012-09-04
Change: EAC CDM added
By: Praveen Urs
Reason:

History

Created:	27/08/2012 04:55:55 PM	Carol Ng/MY/TUV
Modified:	04/09/2012 12:28:26 AM	Praveen Urs/Chn/TUV
	27/08/2012 04:56:06 PM	Carol Ng/MY/TUV

Export to ICMS

Last Export:

Qualification

Tang, Walter /

Emission Trading**United Nations Framework Convention on Climate Change**

Auditor No.:

(AuditorenRegNr)

Appointed:
(Zugelassen)☒ jaQualification Level:
(Qualifikationsstufe)

Lead Auditor

External:
(Externer)☐ jaAdd. reviewer:
(Zusätzlicher Prüfer)☐ yesEAC Scopes:
(EAC Branchen)CDM 01 - Energy industries (renewable - / non-renewable sources)
CDM 02 - Energy distribution
CDM 03 - Energy demand
CDM 13 - Waste handling and disposal
CDM 04 - Manufacturing industriesAdd. qualification:
(zus. Qualifikation)First Appointment:
(Erstberufung)

11/10/2011

Valid to:
(Gültig bis)

11/09/2015

Remarks:

TA 1.1, 1.2, 2.1, 2.2, 3.1 Direct work experience.
TA 4.3, 4.5, 13.1 based on the projects registered before 17th
March 2011 as per the Annex D para 5 of the Accreditation
Standard

Languages:

Chinese simplified
English**Experience Exchange**

Date

Location

Remarks

Accreditation(s)

MonitoringLatest Monitoring:
(letzte Beurteilung)Next Monitoring:
(nächste Beurteilung)

Remarks:

History of scope allocation

Date: 2012-02-13
Change: EAC CDM added
By: Praveen Urs
Reason:

Date: 2012-02-13
Change: EAC CDM, CDM, CDM, CDM added
By: Praveen Urs
Reason:

History

Created:	06/12/2011 05:00:51 PM	Walter Tang/Chn/TUV
Modified:	13/02/2012 08:00:10 PM	Praveen Urs/Chn/TUV
	06/12/2011 05:01:30 PM	Walter Tang/Chn/TUV