

FUEL-WOOD SAVING WITH IMPROVED COOKSTOVES IN CAMBODIA VERIFICATION REPORT 1ST JANUARY - 31ST DECEMBER 2012



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Summary:

Bureau Veritas Certification has made the seventh verification of the Fuel-Wood Saving with Improved Cook stoves in Cambodia Project for the period of 1st January 2012 to 31st December 2012.

The verification scope is defined as a periodic independent and objective review and an ex-post determination of the monitored reductions in GHG emissions during defined verification period and consisted of the following three phases: i) desk review of the project design, baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

During the verification process, verification team had issued 3 CARs (Corrective Actions Requests) and 7 CLs (Clarification Request) including 2 FARs (Forward Action Requests) from previous verification period had been reviewed. At the end of verification, all issues were closed and project proponent had revised its Monitoring Report Document and other related document. In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology named "Improved Efficiency in Use of Non-Renewable Biomass" derived from proposed methodology SSC.II.G.

Based on the available information we have seen and evaluated, we confirmed the emission reduction amount of 373,769 tCO₂e during the crediting period of 1st January 2012 to 31st December 2012

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1 INTRODUCTION

1.1 Objective

Verification is the periodic independent review and ex-post determination by the verification body of the monitored reductions in GHG emissions during defined verification period.

The verification serves as project description verification and its requirement of all VCS projects. The verification is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant VCS version 3 and host country criteria are reviewed in order to confirm that the project description, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation voluntary carbon units (VCUs).

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the project design document/project description document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against VCS Standard version 3.3 and Validation and Verification Manual version 3.0 requirements and associated interpretations. The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvements of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

The verification report is based on VCS PD, monitoring report, supporting documents made available to the verifier and information collected through performing interviews and during the on-site inspection. The verification opinion is assured to provide the credibility of all above.

1.4 Summary Description of the Project

Title of project activity: Fuel-Wood Saving with Improved Cook Stoves in Cambodia

Project proponents: Group Energies Renewable, Environmental and Solidarities (GERES) - Cambodia

Location of the project activity: The project is located in Cambodia at 9 provinces: Kandal, Kompong Speu, Prey Veng, Takeo, Siem Reap, Battambang, Kampong Cham and Kompong Chhnang, and 1 city : Phnom Penh

The project was initiated as part of the Cambodian Fuel-wood Saving Project (CFSP), which was created to reduce the wood consumption in Cambodia in order to protect its forest resources. There are three phases of the project.

Phase I of the project began in 1997 and ended in 2001. This phase was primarily a set up phase which elaborated stove design, trained producers and developed a distribution network for the New Lao Stove (NLS).

Phase II of the project started in 2002 and was completed in January 2007. Phase II focused on developing the commercialized distribution of the stove design.

Phase III (current) phase involves scaling-up of the project to achieve large-scale dissemination, and is distinguished from the first two phases by its funding source; carbon finance. The project had been co-financed by the EU and, following the end of start-up funding, additional capital was sought in the form of carbon financing to not only complete the financing of the first two phases but also increase market penetration.

The ultimate goal of the project is to facilitate a nationwide shift from inefficient exploitation of fuel wood to sustainable and efficient biomass use.

Apart from avoiding GHG emissions by reduced wood and charcoal combustion, the project also contributes to improvements in a number of areas: Avoidance of overexploitation of the forests reduction of airborne particles emission and associated respiratory diseases; time saving in firewood collection, reduction of purchased fuel costs, and transfer of technology to indigenous people and creation of employment opportunities.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

The validation process has been conducted by Det Norske Veritas with issued date as of 7 June 2007. This report is publicly available on v-c-s.org website at link

https://vcsprojectdatabase2.apx.com/myModule/ProjectDoc/Project_ViewFile.asp?FileID=2145&IDKEY=miofj09234rm9oq4jndsma80vcalksdjf98cxkjaf90823nmq3j2957955

2.2 Validation Findings

2.2.1 Gap Validation

Not Applicable.

2.2.2 Methodology Deviations

Not Applicable.

2.2.3 Project Description Deviations

Not Applicable.

2.2.4 New Project Activity Instances

The project is not registered under grouped project activity and there is no inclusion of new project activities in this verification period.

2.3 Validation Conclusion

As stated in validation report, validation team gave opinion that the project correctly applies and meets the relevant VCS requirements and the relevant host country criteria. The validation was based on the information made available to validation team and the engagement conditions detailed in validation process.

3 VERIFICATION PROCESS

3.1 Method and Criteria

The overall verification process, from Contract review to Verification report & Opinion, was conducted using Bureau Veritas Certification Holding SAS's internal procedures.

The verification process consisted of the following steps:

- A desk review of the VCS PD and supporting documents with the use of the requirements of methodology entitle "Improved Efficiency in Use of Non-Renewable Biomass" derived from SSC.II.G., amended by the Joanneum Institute and approved by the community of practice (HEDON, Stove and Carbon Special Interest Group) and meets the relevant VCS requirements and local legislation and related tools, in accordance with VCS standard version 3.
- A desk review of monitoring report and supporting documents submitted by the project proponent.
- On-site inspections, review of performance records, interviews with project proponents and on-site operators, collection of measurements, observation of established practices and testing of the accuracy of monitoring equipment
- Review of monitoring results and verification of the correct application of monitoring methodologies
- Follow-up responses to Clarification and Corrective Action Requests
- Verify calculation formula and results and crosscheck data from original sources as appropriate
- Determination of the reductions in GHG emissions

3.2 Document Review

The document review has been conducted as follows:

#	Title
1	Efficient Cookstoves to Mitigate Global Warming and Contribute to Poverty Alleviation in Cambodia – Project Description (Final Draft)
2	Fuel-Wood Saving with Improved Cookstoves in Cambodia – Monitoring Report version 1 (1 st January to 31 st December 2012) dated 27/02/2013

#	Title
3	Fuel-Wood Saving with Improved Cookstoves in Cambodia – Monitoring Report version 2 (1 st January to 31 st December 2012) dated 07/03/2013
4	Fuel-Wood Saving with Improved Cookstoves in Cambodia – Monitoring Report version 3 (1 st January to 31 st December 2012) dated 15/03/2013
5	Fuel-Wood Saving with Improved Cookstoves in Cambodia – Monitoring Report version 4 (1 st January to 31 st December 2012) dated 21/03/2013
6	NLS database 1 st January to 31 st December 2012 – Emission Reduction calculation version 1 dated 18/02/2013
7	NLS database 1 st January to 31 st December 2012 – Emission Reduction calculation version 2 dated 15/03/2013
8	NLS database 1 st January to 31 st December 2012 – Emission Reduction calculation version 3 dated 21/03/2013
9	NLS transport emission version 1 dated on 07/03/2013
10	NLS transport emission version 2 dated on 15/03/2013
11	NLS transport emission version 3 dated on 21/03/2013
12	GERES Cambodia New Lao Stove Project Quality Control & Monitoring Procedures Manual

3.3 Interviews

The verification team interviewed the following persons as part of verification process.

#	Name	Title	Organization
1	Kimberley BUSS	CDM Analyst	GERES-Cambodia
2	Chen Cheth	New ICS project manager	GERES-Cambodia
3	Sann Saly	Monitoring Team Leader	GERES-Cambodia
4	Srey Makara	Quality Control (Physical) Team Leader	GERES-Cambodia
5	Samnang Heng	Project Assistant	GERES-Cambodia
6	Prey Sovann	GIS & database Specialist	GERES-Cambodia

3.4 Site Inspections

Site inspections have been performed according to the following schedule.

#	Date	Site Inspection
1	12 March 2013	<u>NLS producer</u> - Vann Tola - Ven Chomraeun - Kong Sophear <u>NLS Middleman</u> - Seng Sovann <u>NLS Retailers</u> - Phornng Pov

#	Date	Site Inspection
2	13 March 2013	<u>NLS producer</u> - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Sim Mom - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Keo Chanthear - Phon Sopha - Phon Somen <u>NLS Middleman</u> - Sim Srun - Kim Sophy <u>NLS Retailers</u> - Prak Kim Oun - Prak Chheng Ry
3	14 March 2013	GERES team

3.5 Resolution of Any Material Discrepancy

There is no any material discrepancy during this verification period.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The proposed project activity is to reduce charcoal and thereby fuel wood consumption by introducing improved Lao cook stoves in Cambodia. It is implemented and has been in operation since 10 May 2003, when the commercial manufacturing, distribution and sales of NLS commenced. The project started the management and monitoring of quantity produced by the producers and the quantity of NLS sold to the distributors as input to a Voluntary Carbon Standard project since 10 May 2003.

Verification team had conducted on-site inspection during 12-14 March 2013 at both GERES office in Phnom Penh and nearby province. With respect to the fact that NLS producers at Kampong Chhnang are accounted of 80% of annual NLS production in year 2012, therefore, the 16 NLS producers in Kampong Chhnang was selected to be visited by verification team during on-site inspection, as shown in table below;

<u>Prey Moan Village</u> - Vann Tola	<u>Andong Russey Village</u> - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Keo Chanthear
<u>Chamkar Tamao Village</u> - Ven Chomraeun - Kong Sophear	<u>Banh Chhkol Village</u> - Phon Sopha - Phon Somen
<u>Kdey Tnoat Village</u> - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Sim Mom	

With reference to objective evidence found from all 16 NLS producers above, it's found that the project was implemented as stated in the registered Project Description. The New Lao Stoves is still produced, distributed and sold in nine difference provinces (Kandal, Kampot, Prey Veng, Takeo, Siem Reap, Battambang, Kampong Cham, Kampong Chhnang and Pursat) and one city (Phnom Penh) in Cambodia. The structure and activities of the NLS team-Quality Control and Monitoring (QCM) is consistent with the Monitoring Report (1st January 2011 – 31st December 2012) and the quality assurance and quality control procedures has been applied to all NLS producers in accordance with the monitoring plan such as QC Label record, production and sold record etc.

During the verification of emission from transportation, verification team conducted cross-checking between actual bill, data presented in table 20-21 of MR and transport emission spreadsheets. It was found that there were 2 sampling which have significant error more than 5% materiality threshold defined by VCS standard. Hence CAR02 was raised for this inconsistency. Moreover, CAR03 was also raised due to the sampling transportation cost (Gasoline) of 441.28 USD dated 10 Jan 2012. The interview's result with Ms. Samnang Heng, ICS Executive Assistant, showed that this is cost for airfare which is derived from more than one project by GERES including this project activity. However, there was no clear evidence on how this cost is related to this project activity. Based on their responses, the inconsistency of the 2 sampling is corrected and the transportation cost had been removed due to that this transaction is not related directly to the project activity in MR version 04 dated on 21/03/13. At the end of verification, these revisions were accepted. Thus, CAR02 and CAR03 are closed.

On top of the above, there are numerous CLs had been issued with regard to references crosschecking. These are described in annex 1 of this verification report.

In case of forward action request (FAR) from previous verification, there are 2 FARs reviewed by verification team in this verification period as following;

FAR01: the boiling test in year 2012 should be conducted in size A0 and A4 for some producers who have the 1st and 2nd rank in sold record in each size.

With reference to table 9-12 of the MR version 01 dated on 15 February 2013, the Adapted Water Boiling Test (AWBT) was conducted on twelve A0 stoves and twelve A4 stoves in 2012. All tested stoves achieved more than 27% efficiency in the AWBTs. Verification team confirmed that data of AWBT presented in table 9-12 of the MR version 01 are based on actual test which can be verified from original hard copy at GERES office during on-site inspection at Phnom Penh, Cambodia. In light of the above, verification team considered that project proponent fulfilled the request in FAR01 from previous verification. Therefore, FAR01 is closed.

FAR02: There are 2 minor issues associated in FAR02 as follow,

2.1 The retailer's record of NLS purchased and sold should be more implemented as possible. The retailer's competency and awareness should be improved to ensure that the NLS purchased and sold will be recorded correctly and continuously.

In connection to this, GERES provided small financial incentives for retailers who cooperate and fill-in logsheets. Hence in 2012, GERES can get the information more than eight thousands of NLS data from January to October 2012. Verification team had assessed to the GERES database and found credible evidences that large amount of data had been obtained from producer, middleman and retailer. Combined with the fact that almost producers and middlemen were well cooperated with GERES in order to keep and maintain Log Book and QC Log Sheet, verifier team considered that there is improvement among producer-middlemen-retailer chain in term of record keeping. Consequently, verification team held positive opinion towards the issues above, and this issue is closed.

2.2 The retailer's record of NLS in year 2012 should be interpreted and cross checked with "53.4 days of stove shelf life" to ensure that it is still valid and conservative to calculate the Emission Reduction in year 2012.

With reference to this, GERES had conducted "stove shelf life" cross-checking (or POST TIME) by hiring GIS & database Specialist, Mr. Prey Sovann, his responsible is to track the amount of time that NLS would go from the producer to end user. The data had been gathered from 2009-2012 with the sample size at 12,429 NLS, the GERES study showed that the average POST time is 18 days. Verification team had interviewed Mr. Prey Sovann during GERES office visit in order to confirm the above calculation. It was found that the data in POST TIME cross-checking had involved data from year 2009 to 2011 which is not relevant to this verification period.

In the light above, verification team had requested project proponent to recalculate the POST TIME based only data in year 2012. However, the data available in GIS database for the year 2012 was only January to October. For the rest 2 months (i.e., November and December), the data had already been taken to GERES office, but it required few months to transfer data from hard copy into GIS database. Taken data from January – October 2012 into account, this is resulting that the sample size for POST TIME cross-checking was down from 12,429 NLS to around 8,618 data. From the data shown that the average POST TIME is around 18.3 days, in other words, the NLS typically spent 18.3 days from producer to end user via chain of producer-middlemen-retailers.

Even though the recalculated POST time has been decreased from 53.4 days to the average of 18 days, the project proponent still chose the 53.4 days figure for the emission reduction calculation to maintain conservative approach.

In conclusion, verification team satisfied the GERES's action by using the POST TIME at 53.4 days applied in calculation of Emission Reduction for the sake of conservativeness. This is accepted and FAR02 (point 2.2) from previous verification period is closed.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The verifier had accessed to the EXCEL files of "Emission Calculation Spreadsheet and NLS Database 1st Jan – 31st Dec 2012" and found that the Emission Reduction calculation has been calculated by the following algorithm:

Parameters	Calculation Equation
Emission Reduction	(Baseline Emission – 15% of leakage deduction) – Transport Emission
Baseline Emission	Total Biomass Saving x NCV of Biomass x Emission Factor of Biomass
Total Biomass Saving	Wood Saving + Charcoal Saving
Wood Saving	Wood Usage x 20.89% of Wood Saving by Household Cooking Test
Charcoal Saving	Charcoal Usage x 21.12% of Charcoal Saving by Household Cooking Test
Wood Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x (Traditional Wood Consumption)
Charcoal Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x (wood to charcoal ratio) x (Traditional Charcoal Consumption)
Number of Stove units in use each month	Number of Stove units in use last month – Number of unit retired last month + ((1-A) x Number of Stove units sold last month) + (A x Number of Stove units sold last two month)
Number of unit retired	Number of Stove units sold last 18 month.
Number of Stove units sold	Stove sold to the Middle Man + Stove sold to the End User.

The verifier had accessed to "Log Books", "Testing Results" and "Raw Data Records" to verify each parameter that used to calculate the emission reduction during period 1st January – 31st December 2012 as follows:

1. Wood saving and Charcoal saving which is the result of the "Household Fuel Consumption Test (HFCT)"

As result of CAR01 that verification team issued at document review stage, project proponent had introduced HFCT test result for 'Dry Season' in MR version 03 dated on 15 March 2013. Verification team satisfied in this latest MR revision. During GERES office visit on 12 and 14 March 2013, verification had also requested for clarification on how "%Fuel Saving" determined as indicated in Table 4 of section 3.3.1 of the MR version 02. With clarification from technical GERES's staff, it was clear that this parameter was correctly calculated and in line with technical principle. This is accepted by Mr Kritsana one of verifier in the team.

In addition to the above, verifier had cross-checked data presented in HFCT spreadsheet for these following files with original hard copy at GERES office.

- CTL_HFCT Result In Boeng Tumpun_(PNH)_Dry Season_Charcoal.xls
- CTL,TSN_12Feb16_HFCT Result In Takhmau(KND)_Dry.xls
- CTL_11Jun12_HFCT Result In Boeng Tupun_PNH_Rainy_Season_Charcoal.xls
- CTL,TSN_16Jul12_HFCT Result In Takhmau-(KND)_Rainy Season_Wood.xls

Given that there is no error found between original hard copy at GERES office and data presented in HFCT spreadsheet, verifier had no curiosity for its authentic of data used in '%fuel saving'. Verification team confirmed that data presented in table 4 section 3.3.1 and section 8 (appendix 2) of the MR are solely based on actual test. Its authentic and accuracy of data are confirmed.

2. Equipment Ratio & Stove Life Time

At document review, verifier had verified parameter 'Equipment Ratio (1.23)' and 'Stove Life Time (18 months)' with monitoring plan and found that these parameters were applied in emission reduction calculation. These parameters were based on 'The National Stove User Survey' which had been conducted on year 2011. In line with GERES plan that the national stove user survey will conduct every two years (biennial), so the results from 2011 national survey is still valid for emission reduction calculation in this monitoring period (1st January – 31st December 2012). In connection to the above, verification team had been verified its authentic of these parameters against original hard copy of 'The National Stove User Survey' year 2011 at the previous verification (please refer to 6th Verification report of this project). Combined with positive result from 6th verification, the verification team had no curiosity for its authentic of these parameters. Therefore, applications of "equipment ratio" and "stove life time" from 2011 national survey result are accepted and verification team confirmed the correctness and accuracy of these parameters.

In addition to the above, the 'Stove Life Time (18 months)' had been applied in emission reduction calculation in term of 'number of NLS in use', please see detail in table 3 of the monitoring report version 5. This term had taken account of number of NLS sold in past 18 months, so there is possibility to see 'number of NLS in use' larger than 'number of NLS sold' at accumulated monthly data. Combined with objective evidence from 'The National Stove User Survey' described above, verification team confirmed that 'Stove Life Time (18 months)' is based on reliable sources, and this causing the 'number of NLS in use' is larger than 'number of NLS sold' as described in section 2.1 of the monitoring report. This occurrence is NOT contradicted with the evidences found by verification team and its correctness of this result is confirmed.

3. POST 2012

With reference to description provided in Appendix 3 : POST TIME CALCULATION in MR version 01 dated on 15 February 2013, it's found that project proponent still used conservative approach by applying 53.4 days in spite of the recent GERES cross-checking study which is shown that the POST is less than 53.4 days. This had been explained in more detail at section 4.1 above (FAR02).

However, during onsite inspection, verification team found some of NLS stoves are left behind and not being sold at retailers' side. These NLS are having POST TIME larger than 53.4 days

which was applied in emission reduction calculation. Detail of these onsite finding is presented in table below;

Retailer Name	Onsite finding by Verification Team	POST time (days) (Until onsite inspection date)
1. Prak Kim Oun	Found one (1) NLS size A0 and one (1) NLS size A1 which were produced since from November 2012	102
2. Prak Chheng Ry	Found one (1) NLS size A3 which was produced since from January 2012	406

In response to the finding above, there is justification from GERES that these left behind and not being sold NLS are probably resulted of poor stock management at retailer's side. Retailers may forget to bring out old NLS stove to be shown at the shop but keep placing newly produced NLS stove instead. Therefore, there is possibility to have some old NLS stove left behind in store and not being sold while the newly produced NLS stove had been sold quickly. In addition to that, some of NLS size (i.e., NLS size A3) is not quite popular and not easily sold due to its bigger size. In other words, the NLS size A3 is too big and not match demand of buyers whom preferred smaller size. It's also justified by GERES that even though financial incentive had been given for retailers who are corporate to keep and maintain sold record, but it's fact that GERES found not well corporation from them, resulting that some old NLS stove having POST TIME larger than 53.4 still left in retailers' side.

With justification from GERES above, verification team had cross-checked this onsite finding with recent POST TIME cross-checking done by GERES staff (see section 4.1 above), it's found that there is possibility to have some NLS sold to end user larger than 53.4 days. However, this portion is only 4% out of total 8,618 NLS sample (refer to figure 2 in MR version 4) but the average POST TIME, which is accounted of 96% of total sample, is about 18 days. From this reason, verification team considered this onsite finding is acceptable and its accuracy of POST TIME is confirmed.

4. Number of stove sold

Verification team had verified the number of stove sold by the following steps:

Step 1: Cross-checking between copied versions of Log Book at GERES office with original hard copy of Log Book at producer side

This step is aimed to verify the authentic of copied version of Log Book at GERES office whether this is solely based on actual stove sold at producer side.

Verification team had selected some months to cross-check whether there is agreement between copied Log Book and original Log Book, the agreement between copied and original log book is shown below

Producer	Sampling month	Agreement between
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		copied and original Log Book
SUN Tha	Jan, Feb, Aug, Oct	OK.
RIS Sarath	Jan, Apr, Sep, Nov	OK.
SIM Sour	Feb, May, Aug, Oct	OK.
DUL Sam Oun	Feb, Mar, Jun, Dec	OK.
MOM Samean	Jan, May, Jul, Nov	OK.
DOURNNG Saronn	Feb, Apr, Sep, Dec	OK.
KONG Sophear	Mar, Jun, Sep, Oct	OK.
VEN Chomraeun	Apr, Jun, Sep, Nov	OK.
SIM Mom	May, Jul, Oct, Dec	OK.
VANN Tola	Jan, Feb, Aug	OK.
KEO Chanthear	Mar, Apr, May	OK.
CHOURN Sopheak	Jan – Dec (12 months)	OK.
PHUN Sophal	Jan – Dec (12 months)	OK.
KHOEM Tim	Jan – Dec (12 months)	OK.
PHON Somen	Jan, Mar, May, Jul, Sep, Nov	OK
PHON Sopha	Feb, Apr, Jun, Aug, Oct, Dec	OK
HAN Sophal	Feb, May, Dec	OK

Given that there is no error found between these two data sources, it's confirmed that the copied version used by GERES officer to calculate emission reduction is based on actual stove sold.

Step 2: Cross-checking between data in Emission Reduction Spreadsheet and copied version of Log Book at GERES office

In order to verify the correctness of data in Emission Reduction Spreadsheet transferred from copied version of Log Book, verifiers had conducted cross-checking of data in spreadsheet in some main producer compared against copied version of Log Book, then % error is shown in table below.

Producers	Month & Number of stove sold presented in Emission Reduction spreadsheet	Month & Number of stove sold in copied version Log Book at GERES office	%Error
VANN Tola	Jan Apr Aug Dec	Jan Apr Aug Dec	There is 0.3% error found in December (This is acceptable and not larger than 5% materiality)
DUL Sam Oun	Jan Apr Aug Dec	Jan Apr Aug Dec	0
Sim Sour	Jan Apr Aug Dec	Jan Apr Aug Dec	0
Sun Tha	Jan Apr	Jan Apr	0

	Aug Dec	Aug Dec	
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With reference to both two step of verification, verification team is certain that Number of stove sold used in calculation of the emission reduction is based on actual stove sold from producer. In conclusion, verification team confirmed that data had been correctly transferred from the copied version of Log Book into Emission Reduction spreadsheet. Its correctness and accuracy in parameter of “number of stove sold” are confirmed

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

In term of quality of evidence, the verifier did verify reliability and credibility of evidences submitted for verification such as Producer’s Log Book, Calculation Spreadsheets of Household Fuel Consumption Test (HFCT), and Adapted Water Boiling Test (AWBT) that conducted in year 2012, GIS database, NLS Purchase Bill in year 2012, NLS Sale Bill in year 2012.

During verification process, verification team conducted interview session with NLS producers, NLS project manager, QCM staffs and GERES-Cambodia management team. Based on their responses, verification team had verified their claims on emission reduction during period of 1st January – 31st December 2012 and found that the claim is credible and reliable. The quality of evidence and consistency of data is confirmed.

4.4 Management and Operational System

During on-site inspection on 12-14 March 2013, the verifier had interviewed the GERES’s staffs who have responsibilities and authorities for monitoring and reporting. It is confirmed that the structure and activities during this crediting period are as following details

- **QCM Team** are including Physical QC, Performance QC&Test and Monitoring
- **Physical QC** has responsible for Stove Dimension Test, Clay Testing and Technical Support
- **Performance QC&Test** has responsible for Adapted Water Boiling Test (AWBT) and Household Fuel Consumption Test (HFCT)
- **Monitoring** has responsible for Data Collection, QC Label Tracking and Date Stamp

The QCM Manager and Team Leaders are as below.

Position Name	Position Name
NLS Project Manager	HEP Sokhannaro
NLS Monitoring Team Leader	SAN Saly
NLS Quality Control (Physical) Team Leader	SREY Makara
NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol

The verifier had accessed to the GERES’s document namely “New Lao Stove Project Quality Control Monitoring Procedure Manual”. The content of this Procedure Manual are cover all QA/QC activities that referred in the monitoring plan including

- Physical (QC Stove Dimension Test, Clay Testing etc.)

- Adapted Water Boiling Test (AWBT)
- Household Fuel Consumption Test (HFCT)
- Data Collection, QC Label Tracking and Date Stamp

Verification team found that the quality assurance and quality control procedures been applied to all NLS producers (including new producers) in accordance with the monitoring plan such as QC Label record, production and sold record etc.

With reference to Mr Cheth's (ICS project manager) testimony, it was testified that there were new 7 NLS producers having involvement in NLS production on year 2012. According to GERES's management system, these new NLS producers shall be trained prior to involvement in NLS production. Verification team had requested for certification of successful training in NLS production and found that these 7 new producers had successfully obtained the certificate.

New NLS producer name	Issuance date of Certificate
1. Thean POV	9 April 2012
2. Chourn SOPHEAK	20 February 2012
3. Han SOPHAL	20 February 2012
4. Khoem CHANTHEN	20 February 2012
5. Hun SOPHEAP	9 April 2012
6. Boeun SOKHANN	9 April 2012
7. Sim POV	17 September 2012

During onsite inspection at Kampong Chhnang province on 12-13 March 2013, verification team had assessed the performance of Ms. Han SOPHAL who is new NLS producer and already obtained the certificate from GERES since from 20 February 2012. Verification team had cross-checked completeness and accuracy between data Log book and QC Log Sheet on these following dates;

- 24 February 2012
- 20 May 2012
- 31 December 2012

It's found that there is no error between 2 data sources. Verification team confirmed that Ms Han SOPHAL fulfilled her task completely according to QA/QC procedure.

5 VERIFICATION CONCLUSION

Conclusion of verification process for period of 1st January to 31st December 2012 is based on verification finding from desk review and onsite inspection process including interviewing with NLS producers, key operational staff from GERES-Cambodia during period of 12-14 March 2013. The verification team confirms that calculation of greenhouse gas emission reduction is in accordance with registered VCS project description and principle of VCS standard version 3.3. The emission reduction as stated below was correctly calculated in accordance with baseline and

monitoring methodology named “Improved Efficiency in Use of Non-Renewable Biomass” derived from proposed methodology SSC.II.G

Reporting period: From 1st January 2012 to 31st December 2012

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	2,079,273
Project Emissions	1,639,541
Leakage	65,963
Net GHG emission reductions or removals	373,769

ANNEX 1: VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Verified Carbon Standard version 3.3 and Validation and Verification Manual

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
1. Project implementation in accordance with the registered project document			
a. Are all physical features of the proposed VCS project proposed in the registered PD in place?	Yes. The proposed project activity is to reduce charcoal and thereby fuel wood consumption by introducing improved Lao cook stoves in Cambodia.	OK	OK
b. Have the project proponents operated the proposed VCS project as per the registered PD?	Yes. With reference to the Monitoring Report 1 st January – 31 st December 2012 version 02 dated 3 March 2013. It is confirmed that the project proponent is Group Energies Renewable, Environmental and Solidarities (GERES)- Cambodia as per the registered PD.	OK	OK
c. Was an on-site visit conducted?	Yes. The onsite visit had been conducted during 12-14 March 2013 at GERES office in Phnom Penh and Kampong Chhnang province in Cambodia.	OK	OK
d. If not, justify the rationale of the decision.	Not Applicable.	-	-
e. Does the implementation or operation of VCS project conform with the description contained in the registered PD?	Yes. The project activity has been implemented under Type II category (Energy Efficiency Improvement Projects). The Improved Cook Stoves have been implemented in Cambodia as a part of the larger Cambodian Firewood Saving Project (CFSP). The verifier had conducted the onsite visit to the NLS Producers, Middle Men and Retailers during 12-14/03/2013. The people who were interviewed and observed their activities	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	as follows: Site visit and interview to NLS producer - Vann Tola - Ven Chomraeun - Kong Sophear - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Sim Mom - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Keo Chanthea - Phon Sopha - Phon Somen Site visit and interview to NLS Middleman (Vann Tola) - Sim Srun - Kim Sophy - Seng Sovann Site visit and interview to NLS Retailers - Prak Kim Oun - Prak Chheng Ry - Phorn Pov With reference to the onsite visit to the NLS Producers, Middle Men and Retailers above. It is confirmed that the implementation or operation of VCS project conform with the description contained in the registered PD.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl								
f. If not, which are the potential impacts due to these changes?	Not Applicable.	OK	OK								
2. Compliance of the monitoring plan with the monitoring methodology											
a. Is the validated monitoring plan in accordance with the approved methodology applied by the proposed VCS project?	Yes. With reference to the Project Design Document (PDD) version 06 (final version) dated on 25 April 2007 and combined with the applied methodology “Improved Efficiency in Use of Non-Renewable Biomass”, it is confirmed that the monitoring plan in PDD is in accordance with the approved methodology applied by the proposed VCS project. <table border="1"> <thead> <tr> <th>#</th><th>Methodology</th><th>PDD</th><th>Verification Team's Opinion</th></tr> </thead> <tbody> <tr> <td>1</td><td>Monitoring shall measure representative samples of mass of biomass used before and after installation of devices and efficiency measures, ensuring that the measurements are taken for the same loading and thermal effect.</td><td>Representative sample of mass of biomass used before and after installation of devices and efficiency measures</td><td>This is in line with applied methodology</td></tr> </tbody> </table>	#	Methodology	PDD	Verification Team's Opinion	1	Monitoring shall measure representative samples of mass of biomass used before and after installation of devices and efficiency measures, ensuring that the measurements are taken for the same loading and thermal effect.	Representative sample of mass of biomass used before and after installation of devices and efficiency measures	This is in line with applied methodology	OK	OK
#	Methodology	PDD	Verification Team's Opinion								
1	Monitoring shall measure representative samples of mass of biomass used before and after installation of devices and efficiency measures, ensuring that the measurements are taken for the same loading and thermal effect.	Representative sample of mass of biomass used before and after installation of devices and efficiency measures	This is in line with applied methodology								

CHECKLIST QUESTION	COMMENTS				Draft Concl	Final Concl
		It will include descriptions of the before and after technologies.				
	2	Monitoring will measure representative samples of the moisture content of the biomass at the time it is burnt.	Representative samples of the moisture content of the biomass at the time is burnt	This is in line with applied methodology		
	3	Monitoring shall consist of an annual check of all appliances and new measures installed or a representative sample thereof to ensure that they are still operating or replaced by an equivalent in service appliance or measure.	Annual check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure	This is in line with applied methodology		
	4	Monitoring shall include the efficiency of the appliances	Monitoring shall include the efficiency of the appliances	This is in line with applied methodology		

CHECKLIST QUESTION	COMMENTS				Draft Concl	Final Concl
	5	Monitoring shall ensure that the replaced low efficiency appliances are not used within boundary	Ensure replaced low efficiency appliances are not used within the boundary	This is in line with applied methodology		
	6	Monitoring will include measurement of the quantity of alternative fuels (such as agricultural waste) used by project proponents and an assessment will be made as the aggregate biomass renewability status of the project region	Quantitative of alternative fuels used by project proponents and assessment of aggregate biomass renewability in the region.	This is in line with applied methodology		
	7	If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass	Not applicable	Not applicable		

CHECKLIST QUESTION	COMMENTS				Draft Concl	Final Concl
		outside the project boundary does not occur.				
	8	The wider social and economic impact of the project will be monitored, in general an on-going analysis will be made of its contribution positive or otherwise to sustainable development in the area.	Wider social and economic impact of the projects will be monitored, on-going analysis will be made of its contribution positive or otherwise sustainability development in the area.	This is in line with applied methodology.		
b. Are there any monitoring aspects of the project that are not specified in the methodology (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	No.				OK	OK
3. Compliance of monitoring with the monitoring plan						
a. Have the monitoring plan and the applied methodology been properly implemented and followed by the project proponents?	Yes. With reference to section 3.1 of the monitoring report (MR) version 1 dated on 15 February 2013, verification team had verified the monitoring plan against monitoring plan in PDD version 6 dated on 27 April 2007, and found that these following parameters had been addressed properly.				OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl												
<u>1. Representative sample of mass of biomass used before and after installation of devices and efficiency measures</u>															
<table><tr><th>Item</th><th>PDD</th><th>MR</th></tr><tr><td>Data Unit</td><td>Kg/month/Family</td><td>Kg/month/Family</td></tr><tr><td>Sources of data to be used:</td><td> - Household Fuel Consumption Test data (2003-2004) - Stove User Survey (2006) - Stove Producer Sales data (2003-2007) </td><td> - Household Fuel Consumption Test - National Stove Users Survey - Stove Producer Sales data </td></tr><tr><td>QA/QC</td><td>GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension</td><td>GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension</td></tr></table>				Item	PDD	MR	Data Unit	Kg/month/Family	Kg/month/Family	Sources of data to be used:	- Household Fuel Consumption Test data (2003-2004) - Stove User Survey (2006) - Stove Producer Sales data (2003-2007)	- Household Fuel Consumption Test - National Stove Users Survey - Stove Producer Sales data	QA/QC	GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension	GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension
Item	PDD	MR													
Data Unit	Kg/month/Family	Kg/month/Family													
Sources of data to be used:	- Household Fuel Consumption Test data (2003-2004) - Stove User Survey (2006) - Stove Producer Sales data (2003-2007)	- Household Fuel Consumption Test - National Stove Users Survey - Stove Producer Sales data													
QA/QC	GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension	GERES Cambodian Monitoring Unit will take sample from producers yearly to ensure production standard meet standardised dimension													
<u>Verification Team's Opinion</u> This is in line with registered PDD.															
<u>2. Representative sample of moisture content of the biomass at the time is burnt</u>															
<table><tr><th>Item</th><th>PDD</th><th>MR</th></tr></table>				Item	PDD	MR									
Item	PDD	MR													

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	Data Unit	Kg/month/Family	%		
	Description	Fuel saving are calculated using data from studies conducted in both rainy and dry season. Test are conducted under laboratory conditions but designed to replicate actual use.	Fuel saving are calculated using data from studies conducted in both rainy and dry season. Test are conducted under laboratory conditions but designed to replicate actual use.		
	Sources of data to be used:	Household Fuel Consumption Test data (2003-2004)	Household Fuel Consumption Test		
	QA/QC	Standardised methodology and replicability of tests. Test are repeated frequently allowing results to be verified by the observable range of data	Standardised methodology and replicability of tests. Test are repeated frequently allowing results to be verified by the observable range of data		
	Description of measurement methods and procedures to be applied:	-	Fuel saving are calculated using data from studies conducted in both rainy and dry season. Test are		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
			conducted under laboratory conditions but designed to replicate actual use		
	Any Comment	Water boiling tests are used to check the quality of stove production. Moisture content of the wood	Moisture content data is not required for calculations because the humidity of the fuel is automatically taken account of through the HFCT and uniformity of the fuel used for both NLS and TLS HFCTs. Only humidity of wood is checked and only for the purpose of ensuring the moisture content for NLS and TLS HFCTs is comparable. Moisture content for charcoal is usually more uniform – differences in wood species provides scopes for greater discrepancy in		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
			moisture content.		
	<u>Verification Team's Opinion</u> Please refer to CAR01 below				
	<u>3. Annual Check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure</u>				
	Item	PDD	MR		
	Data Unit	Stove lifetime years No of stoves sales per month	Stove lifetime years No of stoves sales per month		
	Description	The project activity uses a conservative estimate of three years lifespan per stove. After that period the stove is assumed to be replaced, these stoves are deducted from the monthly stove sales. Thus monitoring system adopts a conservative value to ensure	The project activity currently uses a conservative estimate of 1.5 lifespan per stove, based on survey data from households. After that period the stove is assumed to be replaced, these stoves are deducted from the monthly stove sales. These calculations are underpinned by the stove sales data		

CHECKLIST QUESTION	COMMENTS		Draft Concl	Final Concl
		that the ER takes the replacement of stove units into consideration. These calculations are underpinned by the stove sales data which will demonstrate the increased market share of NLS. In addition survey data demonstrate user's preferences	which demonstrate increased v3.0 10 market share of NLS. In addition survey data demonstrate user's preferences.	
	Sources of data to be used:	ICS lifetime tests (GERES, 2006). Stove Producer Sales data (2003-2007) Bi-annual survey data	National Stove User Survey Stove Producer Sales data	
	QA/QC	Internal validation of stove producer's sales data.	Internal validation of stove producer's sales data.	
	Description of measurement methods and procedures to be applied:	Measurement method combines <i>ex-ante</i> and <i>ex-post</i> data. Conservative	Measurement method combines <i>ex-ante</i> and <i>ex-post</i> data. Conservative lifetime assumption of three years is	

CHECKLIST QUESTION	COMMENTS		Draft Concl	Final Concl
	lifetime assumption of three years is determined by survey data. This figure is combined with sales figures collected by the monitoring unit every month from each stove producer.	determined by survey data. This figure is combined with sales figures collected by the monitoring unit every month from each stove producer.		
	<u>Verification Team's Opinion</u> This is in line with the registered PDD. The changing in stove lifespan from 3 years to 1.5 years is considered more conservative, this is accepted.			
<u>4. Monitoring shall include the efficiency of the appliances</u>				
	Item	PDD	MR	
	Data Unit	%	%	
	Description	Monitoring Unit will test samples from stove producers to measure the efficiency of stoves constructed by producers	Monitoring Unit will test samples from stove producers to measure the efficiency of stoves constructed by producers	
	Sources of data to be used:	RCT (Real Cooking Test)	Household Fuel Consumption Test (HFCT)	

CHECKLIST QUESTION	COMMENTS		Draft Concl	Final Concl
	QA/QC	Training for technicians is provided and established methodology is used. Test are repeated frequently allowing results to be verified by the observable range of data	Training for technicians is provided and established methodology is used. Test are repeated frequently allowing results to be verified by the observable range of data	
	<u>Verification Team's Opinion</u> This is in line with the registered PDD. The change in "Source of data to be used" in MR is in accordance with Annex 3 of registered PDD, this is accepted.			
	<u>5. Ensure replaced low efficiency appliances are not used within boundary</u>			
	Item	PDD	MR	
	Data Unit	-	-	
	Description	Bi-annual survey data on user behaviour in addition the Stove sales data demonstrates the increasing market share of the NLS over time	Bi-annual survey data on user behaviour in addition the Stove sales data demonstrates the increasing market share of the NLS over time	

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl						
	Sources of data to be used:	Stove sales data (2003-2006) User Survey (2003-2006)	Stove sales data User Survey								
	QA/QC	Statistical analysis External evaluation	Statistical analysis External evaluation								
	<u>Verification Team's Opinion</u> This is in line with the registered PDD.										
	<u>6. Quantity of alternative fuels used by project proponents and assessment of aggregate biomass renewability in the region</u>										
	<table><tr><th>Item</th><th>PDD</th><th>MR</th></tr><tr><td>Data Unit</td><td>Deforestation rate Fuel mix</td><td>Deforestation rate Fuel mix</td></tr><tr><td>Description</td><td>Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.</td><td>Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.</td></tr></table>	Item	PDD	MR	Data Unit	Deforestation rate Fuel mix	Deforestation rate Fuel mix	Description	Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.	Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.	
Item	PDD	MR									
Data Unit	Deforestation rate Fuel mix	Deforestation rate Fuel mix									
Description	Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.	Establish that the trend of biomass use is unsustainable in the long term through independent literature and GIS data. Bi-annual survey data will monitor fuel mix being used.									

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl								
	Sources of data to be used:	Independent accredited literature	- Independent accredited literature - National Stove user survey										
	QA/QC	Peer reviewed published reports	Peer reviewed published report										
	<u>Verification Team's Opinion</u> This is in line with the registered PDD.												
	<u>7. Wider social and economical impact of the projects will be monitored; on-going analysis will be made of its contribution positive or otherwise to sustainable development in the area</u>												
	<table><tr><th>Item</th><th>PDD</th><th>MR</th></tr><tr><td>Data Unit</td><td>N/A</td><td>N/A</td></tr><tr><td>Description</td><td>Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are</td><td>Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are derived from them</td></tr></table>			Item	PDD	MR	Data Unit	N/A	N/A	Description	Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are	Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are derived from them	
Item	PDD	MR											
Data Unit	N/A	N/A											
Description	Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are	Survey data designed to assesses socio-economic impacts of the stove project. Furthermore the increasing market share is testament to the competitive advantages of the NLS and consequently the socio-economic benefits that are derived from them											

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl																								
		derived from them																											
	Sources of data to be used:	Survey results	National Stove User Survey																										
	QA/QC	Peer review of literature	Staistical analysis External evaluation																										
	<u>Verification Team's Opinion</u> This is in line with the registered PDD. The change in “QA/QC” does not affect quality of monitoring plan.																												
b. Have all parameters stated in the monitoring plan, the applied methodology been sufficiently monitored and updated as applicable, including:	-			-	-																								
i. Project emission parameters?	Yes. The verifier has accessed to the following original transport bills against what reported in spreadsheet (KBS_13Feb12_NLS_transport emissions.v1.xlsx) at GERES office during onsite visit (14 Mar 2013)			CAR0 2 CAR0 3	OK.																								
<table><tr><th>Spread Sheet Description</th><th>Invoice No.</th><th>Consistency check</th></tr><tr><td>D C#1 393059 ICS MS TKO</td><td>315111</td><td>-3.97%</td></tr><tr><td>D C#3 325822 ICS MS BTM</td><td>314970</td><td>OK</td></tr><tr><td>D C#3 339605 ICS MS BTB</td><td>354344</td><td>OK</td></tr><tr><td>D C#1 44.88L ICS MS SRP</td><td>007047</td><td>OK</td></tr><tr><td>D C#3 358374 ICS MS PST</td><td>811163</td><td>OK</td></tr><tr><td>D C#1 407147 ICS MS PRV</td><td>554823</td><td>+20%, CAR02</td></tr><tr><td>G M#CTL 12058 HFCT PNH</td><td>Not available</td><td>-2.35%</td></tr></table>						Spread Sheet Description	Invoice No.	Consistency check	D C#1 393059 ICS MS TKO	315111	-3.97%	D C#3 325822 ICS MS BTM	314970	OK	D C#3 339605 ICS MS BTB	354344	OK	D C#1 44.88L ICS MS SRP	007047	OK	D C#3 358374 ICS MS PST	811163	OK	D C#1 407147 ICS MS PRV	554823	+20%, CAR02	G M#CTL 12058 HFCT PNH	Not available	-2.35%
Spread Sheet Description	Invoice No.	Consistency check																											
D C#1 393059 ICS MS TKO	315111	-3.97%																											
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G M#CTL 12058 HFCT PNH	Not available	-2.35%																											

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl															
	<table><tr><td>G M#4 10902 ICS MS KCN</td><td>558177</td><td>OK</td></tr><tr><td>G M#4 13105 ICS MS KCN</td><td>000590</td><td>-2.88%</td></tr><tr><td>G M#20 11649 QC KCN</td><td>Not available</td><td>OK</td></tr><tr><td>G M#17 14509 ICS MS Z2</td><td>554545</td><td>-5%, CAR02</td></tr><tr><td>Jan pp 8/2 rass KH+mis</td><td>Not available</td><td>CAR03</td></tr></table> Verification team conducted cross-checking between actual bill, data presented in table 20-21 of MR and transport emission spreadsheets. It was noticed that there are 2 sampling which have the different more than 5%. Hence CAR02 was raised for this inconsistency. CAR02 As per detail provided in table 20 and 21 of Appendix 1 of monitoring report version 02 dated, the price (US\$/litre) of these following are not in line with evidences found onsite; - Table 20 : May, DMH - Table 21 : Jul, DMH Please ensure the correctness of description indicated in above tables. At second response from project proponent, it was found that data in Transport Emission Spreadsheet had been corrected to be in line with evidence found onsite. This is accepted and CAR02 is closed. Verification team interviewed with Ms.Samnang Heng, ICS Executive Assistant, on the sampling “Jan pp 8/2 rass KH+mis” which have the highest cost of \$441.28 and found that this is the cost of airfare which is derived from more than 1 project including this project activity. The verifier had interviewed to the CDM Analyst namely “Kimberley BUSS” and had been confirmed that this transaction is not related directly to the project activity. Hence CAR03 was raised.	G M#4 10902 ICS MS KCN	558177	OK	G M#4 13105 ICS MS KCN	000590	-2.88%	G M#20 11649 QC KCN	Not available	OK	G M#17 14509 ICS MS Z2	554545	-5%, CAR02	Jan pp 8/2 rass KH+mis	Not available	CAR03		
G M#4 10902 ICS MS KCN	558177	OK																
G M#4 13105 ICS MS KCN	000590	-2.88%																
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G M#17 14509 ICS MS Z2	554545	-5%, CAR02																
Jan pp 8/2 rass KH+mis	Not available	CAR03																

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl											
	CAR03 As per description provided in spreadsheet named “KBS_13Feb12_NLS transport emissions.v1”, combined with interview session with Ms Samnang Heng (ICS Executive Assistant) the appearance of gasoline cost at 441.28\$ dated 10/01/2012 is not directly related to this project. At first response from project proponent, it was found that the gasoline cost at 441.28\$ dated on 10/01/2012 is now removed from calculation sheet “KBS_13Feb12_NLS transport emissions.v2” dated on 14/03/2013. This had been revised in MR version 3 dated on 15/03/2013. This revision is accepted. Therefore, the CAR03 is now closed.													
ii. Baseline emission parameters?	With reference to section 3.1 of the monitoring report (MR) version 1 dated on 15 February 2014. The data to be monitored are including <u>1. Representative sample of mass of biomass used before and after installation of devices and efficiency measures</u> As per description in section 2.2.1 of MR version 01 dated on 15 February 2013, the fuel saving is demonstrated below; <table border="1"> <thead> <tr> <th rowspan="2">Fuel</th> <th colspan="2">Fuel Saving</th> </tr> <tr> <th>PDD (2003-2007)</th> <th>2012 (wet season)</th> </tr> </thead> <tbody> <tr> <td>Charcoal</td> <td>21.20%</td> <td>22.06%</td> </tr> <tr> <td>Wood</td> <td>20.89%</td> <td>23.75%</td> </tr> </tbody> </table>	Fuel	Fuel Saving		PDD (2003-2007)	2012 (wet season)	Charcoal	21.20%	22.06%	Wood	20.89%	23.75%	CAR01 CL01 CL02 CL03 CL04	OK.
Fuel	Fuel Saving													
	PDD (2003-2007)	2012 (wet season)												
Charcoal	21.20%	22.06%												
Wood	20.89%	23.75%												

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Verification team noticed that the fuel saving test was conducted only once in year 2012 which is not in accordance with monitoring plan section 3.2 and also not in line with monitoring plan section D.3 of the registered PDD. This is result that the CAR01 is raised below. <u>CAR01</u> As per description in section 3.3.1 of monitoring report (MR) version 01 dated on 15 April 2013, the frequency of Household Fuel Consumption Test (HFCT) in year 2012 is deviated from monitoring plan in registered PDD. Combined with VCS guidance in section 3.2.9 of Validation and Verification manual version 3.0, there is no proper section in MR to elaborate and justify this deviation At first response from project proponent, verification team found that the newly added section for HFCT in 'dry season' is now added in MR version 03 dated on 15 March 2013. This is accepted and CAR01 is closed. <u>2. Representative sample of moisture content of the biomass at the time is burnt</u> As per detail in section 3.2 of MR version 01 dated on 15 February 2013, it's stated that <i>"Moisture content data is not required for calculations because the humidity of the fuel is automatically taken account of through the HFCT and uniformity of the fuel used for both NLS and TLS HFCTs. Only humidity of wood is checked and only for the purpose of ensuring the moisture content for NLS and TLS HFCTs is comparable. Moisture content for charcoal is usually more uniform –</i>		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	<i>differences in wood species provides scopes for greater discrepancy in moisture content"</i> Verification team took note on justification provided above, it is reasonable that moisture content is actually not required in emission reduction calculation but this is already taken account in fuel saving test in HFCT. This is accepted. <u>3. Annual Check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure</u> As per description in section 3.2 of the MR version 01 dated on 15 April 2013, it's described that the lifespan of NLS is 1.5 years. Verification team had reviewed the GERES's response in 6th verification report dated on 19 March 2012 (Ref /01/), it's clear that the survey was conducted on 11 August 2011, at which the frequency of this survey (i.e., Biennially) is in line with monitoring plan in registered PDD <u>4. Monitoring shall include the efficiency of the appliances</u> As per description in section 3.3.1 of the MR version 01 dated on 15 February 2013, it's noticed that the HFCT was conducted only once, which is not in line with description provided earlier in section 3.2 of the MR. Please refer to CAR01 raised above. <u>5. Ensure replaced low efficiency appliances are not used within boundary</u>		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	As per description in section 5.2 of the MR version 01 dated on 15 February 2013, it's noticed that the utilization of New Lao Stove (NLS) in urban/peri-urban had increased from 41.7% to 44% in year 2011. In other hands, the utilization of Traditional Lao Stove (TLS) had declined steadily. This is demonstration of project sustainability. This is accepted. <u>6. Quantity of alternative fuels used by project proponents and assessment of aggregate biomass renewability in the region</u> As per description in section 5.3.1 of the MR version 01 dated on 15 February 2013, it's found that deforestation rate in Cambodia is 1.22% per year. Verification team also reviewed document entitle "Global forest resource assessment 2010 main report" (Ref /02/) and found the reference is correctly quoted. However, verification cannot verify the correctness of these references; Kapos, V., Ravilious, C., Leng, C., Bertzky, M., Osti, M., Clements, T., Dickson, B., 2010, Carbon, biodiversity and ecosystem services: Exploring co-benefits. Cambodia, UNEP-WCMC, Cambridge, UK. Available at http://www.unep-wcmc.org/climate/pdf/Cambodia%20Summary%20Report%202010.pdf. Ministry of Environment, 2010, <i>Fourth national report to the Convention on Biodiversity Conservation (CBD)</i>, Phnom Penh. Available at: http://cdn.www.cbd.int/doc/world/kh/kh-nr-04-en.pdf. Save Cambodia's Wildlife, 2006, The Atlas of Cambodia: National Poverty and Environmental Maps, Save Cambodia's Wildlife, Phnom Penh, Cambodia.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Top N., Mizoue N., Kai S., 2004, "Estimating forest biomass increment based on permanent sample plots in relation to woodfuel consumption: a case study in Kampong Thom Province, Cambodia", J For Res, 9:117–123. Van Mansvelt. R, 2006a, <i>Improved Cookstove Lifetime Survey</i>, GERES Therefore, the CL01 – CL03 are raised below. <u>CL01</u> With reference to description in section 5.3.1 (Non-renewability) in monitoring report version 01 dated on 15 February 2013, please provide the accessible link for these references Kapos, V., Ravilious, C., Leng, C., Bertzky, M., Osti, M., Clements, T., Dickson, B., 2010, Carbon, biodiversity and ecosystem services: Exploring co-benefits. Cambodia, UNEP-WCMC, Cambridge, UK. Available at http://www.unep-wcmc.org/climate/pdf/Cambodia%20Summary%20Report%202010.pdf. Ministry of Environment, 2010, <i>Fourth national report to the Convention on Biodiversity Conservation (CBD)</i>, Phnom Penh. Available at: http://cdn.www.cbd.int/doc/world/kh/kh-nr-04-en.pdf At first response from project proponent, verification team had reviewed the revised links provided in Monitoring Report version 2. This is accepted. Thus CL01 is closed. <u>CL02</u> With reference to description in section 5.3.1 (Non-renewability) in monitoring report version 01 dated on 15		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	February 2013, please provide full text of these following references for cross-checking purpose; Save Cambodia's Wildlife, 2006, The Atlas of Cambodia: National Poverty and Environmental Maps, Save Cambodia's Wildlife, Phnom Penh, Cambodia. Top N., Mizoue N., Kai S., 2004, "Estimating forest biomass increment based on permanent sample plots in relation to woodfuel consumption: a case study in Kampong Thom Province, Cambodia", J For Res, 9:117–123. Van Mansvelt. R, 2006a, <i>Improved Cookstove Lifetime Survey</i>, GERES At first response from project proponent, the references and supporting document had been submitted to verification team. These had been cross-checked and verification team can confirm its correctness in reference to these abovementioned references. Then, the CL02 is closed. <u>CL03</u> Please clarify the footnote reference number 16 "FAO,2001" in page 39 section 5.3.1 of monitoring report version 01, given that this reference cannot be observed in the list of reference (section 6) At first response from project proponent, the description lead to "FAO, 2001" was removed. This revision is satisfied and CL03 is closed. <u>7. Wider social and economical impact of the projects will be monitored; on-going analysis will be made of its contribution positive or otherwise to sustainable development in the area</u> As per description in section 5.4 and 5.5 of the MR version		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	01 dated on 15 February 2013, it's found that the impact on economy and society had been monitored from reliable sources. However, CL04 is raised below for request of full-text, this is for cross-checking purpose. CL04 With reference to section 5.5 of monitoring report version 01, please provide full text of these following reference for cross-checking purpose; - Agence Francaise de Developpement (AFD) and GERES, 2009, Dissemination of domestic efficient cookstoves in Cambodia: Looking back on a 10-year programme combining Development, Fight against Climate Change and Environmental Protection, Agence Francaise de Developpement. - Atukorala. K, 2006, The Evaluation Study of the Comercialized Fuel Efficient Stoves Project in Cambodia, Report submitted to Cambodian Fuelwood Savings Project March 2006. - GERES, 2005, Sustainability of Improved Cookstove Production and its Impacts: A case study. - Winrock International, 2006, Cambodian Case Study: ICS Dissemination. Based on full-text provided project proponent at first reponse, the verification team had cross-checked its interpretation and reference. There is no further question regarding to these above, thus CL04 is closed.		
iii. Leakage parameters?	With reference to Monitoring Report version 2, Leakage calculation had been deducted for 15% of the total emission reduction. This is in line with section B.3 of applied methodology.	OK	OK
iv. The Management and operational system	Yes. With reference to evidence found onsite visit during 12-14		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl										
	March 2013, the verifier had interviewed the GERES's staffs who have responsibilities and authorities for monitoring and reporting. It's cofirmed that the description of 'organization structure and responsibilities' in section 3.3.4 of the MR version 03 dated on 15 March 2013 had been implemented as per following table. <table> <tr> <th>Position</th> <th>Name</th> </tr> <tr> <td>NLS Project Manager</td> <td>HEP Sokhannaro</td> </tr> <tr> <td>NLS Monitoring Team Leader</td> <td>SAN Saly</td> </tr> <tr> <td>NLS Quality Control (Physical) Team Leader</td> <td>SREY Makara</td> </tr> <tr> <td>NLS Testing (Performance Quality Control) Team Leader</td> <td>CHHEANG Tol</td> </tr> </table>	Position	Name	NLS Project Manager	HEP Sokhannaro	NLS Monitoring Team Leader	SAN Saly	NLS Quality Control (Physical) Team Leader	SREY Makara	NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol		
Position	Name												
NLS Project Manager	HEP Sokhannaro												
NLS Monitoring Team Leader	SAN Saly												
NLS Quality Control (Physical) Team Leader	SREY Makara												
NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol												
c. Are equipment controlled and calibrated in accordance with the monitoring plan?	Not applicable. With reference to registered PD, there is no specific equipment that subjected to be calibrated	OK	OK										
d. Are monitoring results consistently recorded as per approved frequency?	Yes. During site visit conducted on 12-14 March 2013, the verifier had accessed to all records of monitoring parameters. It is confirmed that the monitoring results are consistent with the approved frequency.	OK	OK										
e. Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	Yes. With reference to the onsite visit to the NLS Producers, Middle Men and Retailers during 12-14 March 2013. The verifier found that the quality assurance and quality control	OK	OK										

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl						
	procedures been implemented to all NLS producers in accordance with the monitoring plan such as QC Label record, production and sold record etc. Verifier had accessed to the GERES's document named "New Lao Stove Project Quality Control Monitoring Procedure Manual". The content of this Procedure Manual are cover all QA/QC activities that referred in the monitoring plan including - Physical (QC Stove Dimension Test, Clay Testing etc.) - Adapted Water Boiling Test (AWBT) - Household Fuel Consumption Test (HFCT) - Data Collection, QC Label Tracking and Date Stamp With focusing on "Data Collection", combined with interview session with GERES's staff named Kimberley BUSS, it's found that GERES's staff had taken original "Produced and Sold log book" (so called Log Book) and "QC Log Sheet" from each producer for photocopy, and then, bring these copied version of Log Book to fill-in spreadsheet for calculation of emission reduction at Phnom Penh office for monthly basis. In order to verify that the copied version of Log Book and QC Log Sheet used by GERES to calculate emission reduction are the real one, verification team had cross-checked the copied version of these log books and QC log sheet against original Log Book at each producer as per following detail. <table> <tr> <th>Producer</th> <th>Sampling month</th> <th>Result[#]</th> </tr> <tr> <td>SUN Tha</td> <td>Jan, Feb, Aug, Oct</td> <td>OK.</td> </tr> </table>	Producer	Sampling month	Result [#]	SUN Tha	Jan, Feb, Aug, Oct	OK.		
Producer	Sampling month	Result [#]							
SUN Tha	Jan, Feb, Aug, Oct	OK.							

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	RIS Sarath	Jan, Apr, Sep, Nov	OK.		
	SIM Sour	Feb, May, Aug, Oct	OK.		
	DUL Sam Oun	Feb, Mar, Jun, Dec	OK.		
	MOM Samean	Jan, May, Jul, Nov	OK.		
	DOURNG Saronn	Feb, Apr, Sep, Dec	OK.		
	KONG Sophear	Mar, Jun, Sep, Oct	OK.		
	VEN Chomraeu n	Apr, Jun, Sep, Nov	OK.		
	SIM Mom	May, Jul, Oct, Dec	OK.		
	VANN Tola	Jan, Feb, Aug	OK.		
	KEO Chanthea	Mar, Apr, May	OK.		
	CHOURN Sopheak	Jan – Dec (12 months)	OK.		
	PHUN Sopha	Jan – Dec (12 months)	OK.		
	KHOEM Tim	Jan – Dec (12 months)	OK.		
	PHON Somen	Jan, Mar, May, Jul, Sep, Nov	OK		
	PHON Sopha	Feb, Apr, Jun, Aug, Oct, Dec	OK		
	HAN Sopha	Feb, May, Dec	OK		
	<u>Remark:</u> The consistency of copied Log Book and QC Log Sheet used by GERES to calculate emission reduction compared with original sources from NLS producer				
Taken account of cross-checking result above, verification					

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl																							
	team found that authentic of Log Book and QC Log sheet used by GERES to calculate emission reduction are confirmed. However, there are 4 locations showed inconsistency between copied version and original version at some producer as per following; <table border="1"> <thead> <tr> <th>Producer</th><th>Month (amount of NLS sold)</th><th>Original QC logsheet (At producer side)</th><th>Copied QC logsheet (used by GERES)</th></tr> </thead> <tbody> <tr> <td>SUN Tha</td><td>Jan</td><td>04/01/2012, there is difference between original and copied for 4 stoves sold</td><td></td></tr> <tr> <td>SIM Sour</td><td>May (1,232)</td><td>19/05/2012 A1 - 125 A2 - 80</td><td>19/05/2012 A1 - 130 A2 - 85</td></tr> <tr> <td>DUL Sam Oun</td><td>Feb (2,643)</td><td>01/02/2012 A4 - 10</td><td>01/02/2012 A4 - 34</td></tr> <tr> <td rowspan="2">DOURNG Saronn</td><td>Apr (962)</td><td>12/04/2012 A1 - 98</td><td>12/04/2012 A1 - 100</td></tr> <tr> <td>Sep (1,316)</td><td>25/09/2012 A1 - 1 A2 - 46</td><td>25/09/2012 A1 - 17 A2 - 30</td></tr> </tbody> </table> In response to this inconsistency, GERES team explained during onsite visit that NLS producer sometime lost their QC logsheet. So, they revised the new QC logsheet following the copied version of QC logsheet. However, they made a mistake in re-produce QC logsheet replacing what was lost.	Producer	Month (amount of NLS sold)	Original QC logsheet (At producer side)	Copied QC logsheet (used by GERES)	SUN Tha	Jan	04/01/2012, there is difference between original and copied for 4 stoves sold		SIM Sour	May (1,232)	19/05/2012 A1 - 125 A2 - 80	19/05/2012 A1 - 130 A2 - 85	DUL Sam Oun	Feb (2,643)	01/02/2012 A4 - 10	01/02/2012 A4 - 34	DOURNG Saronn	Apr (962)	12/04/2012 A1 - 98	12/04/2012 A1 - 100	Sep (1,316)	25/09/2012 A1 - 1 A2 - 46	25/09/2012 A1 - 17 A2 - 30		
Producer	Month (amount of NLS sold)	Original QC logsheet (At producer side)	Copied QC logsheet (used by GERES)																							
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	Sep (1,316)	25/09/2012 A1 - 1 A2 - 46	25/09/2012 A1 - 17 A2 - 30																							

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Verifier confirmed that the copied version of QC logsheet used by GERES team and the re-produced logsheet done by producer to replace the original one which was lost, had the same handwriting. Moreover, the inconsistency of the amount of NSL Sold between original QC Log Sheet (at producer side) and copied QC Log Sheet (used by GERES) is less than 1% of total NSL sold in year 2012. Hence, this is in acceptable range. GERES team had confirmed that next time if producer lost their records, they will make new duplicate of Photocopy of QC logsheet and give it to the producer. So that the producer do not need to re-produce – this is to avoid the inconsistency that might occur.		
4. Assessment of data and calculation of greenhouse gas emission reductions			
a. Is a complete set of data for the specified monitoring period available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the validator shall make the most conservative assumption theoretically possible in finalizing the verification report).	Yes. The complete set of data from 1st January 2012 to 31st December 2012 was submitted to verification team.	OK	OK
b. Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?	Yes. During site visit on 12-14 March 2013, the verifier had interviewed the CDM Analyst named “Kimberley BUSS” and new ICS project manager named “Chen CHETH” and also accessed to the Calculation Spreadsheets, Log Books and/or Testing Results of the parameters that used to calculate the Emission Reduction as per following; 1. Wood saving and Charcoal saving which is the result	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	<u>of the “Household Fuel Consumption Test (HFCT)”</u> As result of CAR01 at which verification team issued at document review stage, project proponent had introduced HFCT test result for ‘Dry Season’ in MR version 03 dated on 15 March 2013. Verification team satisfied in this latest MR revision. During GERES office visit on 12 and 14 March 2013, verification had also request for clarification on how “%Fuel Saving” as indicated in Table 4 of section 3.3.1 of the MR version 02. With clarification from technical GERES’s staff, it was clear that this parameter was correctly calculated and in line technical principle. This is accepted by Mr Kritsana one of verifier in the team. In addition to the above, verifier had cross-checked data presented in HFCT spreadsheet for these following files with original hard copy at GERES office. Combined with significant amount sampling of original hard copy compared with data presented in HFCT spreadsheet, verifier had no curiosity for its authentic of data used in ‘% fuel saving’ - CTL_HFCT Result In Boeng Tumpun_(PNH)_Dry Season_Charcoal.xls - CTL,TSN_12Feb16_HFCT Result In Takhmau(KND)_Dry.xls - CTL_11Jun12_HFCT Result In Boeng Tupun_PNH_Rainy_Season_Charcoal.xls - CTL,TSN_16Jul12_HFCT Result In Takhmau-(KND)_Rainy Season_Wood.xls <u>2. Equipment Ratio & Stove Life Time</u> At document review, verifier had verified parameter ‘Equipment Ratio (1.23)’ and ‘Stove Life Time (18 months)’ with monitoring plan and found that these parameters were		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	applied in emission reduction calculation. These parameter were based on 'The National Stove User Survey' which had been conducted on year 2011. In line with GERES plan that the national stove user survey will conduct every two years (biennial), so the results from 2011 national survey is still valid for emission reduction calculation in this monitoring period (1 January – 31 December 2012). In connection to the above, verification team had been verified its authentic of these parameters against original hard copy of 'The National Stove User Survey' year 2011 since from previous verification (i.e., 6th Verification). Combined with positive result from 6th verification, the verification team had no curiosity for its authentic of these parameters. Therefore, applications of "equipment ratio" and "stove life time" from 2011 national survey result are accepted and verification team had no further question. <u>3. POST 2012</u> With reference to description provided in section 9 : Appendix 3 : POST TIME CALCULATION in MR version 01 dated on 15 February 2013, it's found that project proponent still used conservative approach by applying 53.4 days in spite of the recent evidence conducted by GIS technical staff (Mr PREY Sovarn) that the POST is less than 53.4. In connection to the application of 53.4 days for POST which is more conservative, verification team is satisfied in this approach and had no further request. However, verification team take opportunity during GERES		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl																					
	office visit during 12-14 March to verify the justification in regard to FAR02, on how evidence from GERES study shown that the POST is less than 53.4 days. This had been elaborated in section 5 (b) below. <u>4. Number of stove sold</u> The verifier had verified the number of stove sold by the following steps: <u>Step 1:Cross-checking between copied version of Log Book at GERES office with original hard copy of Lob Book at producer side</u> This step is aimed to verify the authentic of copied version of Log Book at GERES office is solely based on actual stove sold at producer side. As shown in table below, verifier had selected some months to cross-check whether there is agreement between copied Log Book and original Log Book. It's confirmed that the copied version used by GERES officer to calculate emission reduction is based on actual stove sold. <table><tr><th>Producer</th><th>Sampling month</th><th>Agreement between copied and original Log Book</th></tr><tr><td>SUN Tha</td><td>Jan, Feb, Aug, Oct</td><td>OK.</td></tr><tr><td>RIS Sarath</td><td>Jan, Apr, Sep, Nov</td><td>OK.</td></tr><tr><td>SIM Sour</td><td>Feb, May, Aug, Oct</td><td>OK.</td></tr><tr><td>DUL Sam Oun</td><td>Feb, Mar, Jun, Dec</td><td>OK.</td></tr><tr><td>MOM Samean</td><td>Jan, May, Jul, Nov</td><td>OK.</td></tr><tr><td>DOURNNG</td><td>Feb, Apr, Sep, Dec</td><td>OK.</td></tr></table>	Producer	Sampling month	Agreement between copied and original Log Book	SUN Tha	Jan, Feb, Aug, Oct	OK.	RIS Sarath	Jan, Apr, Sep, Nov	OK.	SIM Sour	Feb, May, Aug, Oct	OK.	DUL Sam Oun	Feb, Mar, Jun, Dec	OK.	MOM Samean	Jan, May, Jul, Nov	OK.	DOURNNG	Feb, Apr, Sep, Dec	OK.		
Producer	Sampling month	Agreement between copied and original Log Book																						
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CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	Saronn				
	KONG Sophear	Mar, Jun, Sep, Oct	OK.		
	VEN Chomraeu n	Apr, Jun, Sep, Nov	OK.		
	SIM Mom	May, Jul, Oct, Dec	OK.		
	VANN Tola	Jan, Feb, Aug	OK.		
	KEO Chanthear	Mar, Apr, May	OK.		
	CHOURN Sopheak	Jan – Dec (12 months)	OK.		
	PHUN Sophal	Jan – Dec (12 months)	OK.		
	KHOEM Tim	Jan – Dec (12 months)	OK.		
	PHON Somen	Jan, Mar, May, Jul, Sep, Nov	OK		
	PHON Sopha	Feb, Apr, Jun, Aug, Oct, Dec	OK		
	HAN Sophal	Feb, May, Dec	OK		
	Step 2: <u>Cross-checking between data in Emission Reduction Spreadsheet and copied version of Log Book at GERES office</u> In order to verify the correctness of data in Emission Reduction Spreadsheet transferred from copied version of Log Book, verifiers had conducted cross-checking of data in spreadsheet in some main producer compared against copied version of Log Book as per following;				
Producers	Month & Number of	Month & Number of	%Error		

CHECKLIST QUESTION		COMMENTS				Draft Concl	Final Concl
			stove sold presented in Emission Reduction spreadsheet	stove sold in copied version Log Book at GERES office			
		VANN Tola	Jan Apr Aug Dec	Jan Apr Aug Dec	There is 0.3% error found in December (This is acceptable and not larger than 5% materiality)		
		DUL Sam Oun	Jan Apr Aug Dec	Jan Apr Aug Dec	0		
		Sim Sour	Jan Apr Aug Dec	Jan Apr Aug Dec	0		
		Sun Tha	Jan Apr Aug Dec	Jan Apr Aug Dec	0		
With reference to both two step of verification, verification team is certain that Number of stove sold used in calculation of the Emission Reduction is based on actual stove sold from producer. Based on sampling result above, it's likely to believe that data had been correctly transferred							

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl														
	from the copied version of Log Book into Emission Reduction spreadsheet.																
c. Have calculations of baseline emissions, proposed project emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	The verifier has accessed to the EXCEL files of “NLS database Jan 1st - Dec 31st 2012.v1.xls” and found that the Emission Reduction calculation has been calculated by the following steps: <table> <tr> <th>Parameters</th> <th>Calculation Equation</th> </tr> <tr> <td>Emission Reduction</td> <td>(Baseline Emission – 15% of leakage deduction) – Transport Emission</td> </tr> <tr> <td>Baseline Emission</td> <td>Total Biomass Saving x NCV of Biomass x Emission Factor of Biomass</td> </tr> <tr> <td>Total Biomass Saving</td> <td>Wood Saving + Charcoal Saving</td> </tr> <tr> <td>Wood Saving</td> <td> Wood Usage x 20.89% (Wood Saving by Household Cooking Test in baseline survey) <u>Mean of verification</u> The application of factor 20.89% in calculation spreadsheet is in line with registered PDD </td> </tr> <tr> <td>Charcoal Saving</td> <td> Charcoal Usage x 21.12% (Charcoal Saving by Household Cooking Test in baseline survey) <u>Mean of verification</u> The application of factor 21.2% in calculation spreadsheet is in line with registered PDD. </td> </tr> <tr> <td>Wood Usage</td> <td>(Number of Stove units in use ÷ 1.23 of equipment ratio) x</td> </tr> </table>	Parameters	Calculation Equation	Emission Reduction	(Baseline Emission – 15% of leakage deduction) – Transport Emission	Baseline Emission	Total Biomass Saving x NCV of Biomass x Emission Factor of Biomass	Total Biomass Saving	Wood Saving + Charcoal Saving	Wood Saving	Wood Usage x 20.89% (Wood Saving by Household Cooking Test in baseline survey) <u>Mean of verification</u> The application of factor 20.89% in calculation spreadsheet is in line with registered PDD	Charcoal Saving	Charcoal Usage x 21.12% (Charcoal Saving by Household Cooking Test in baseline survey) <u>Mean of verification</u> The application of factor 21.2% in calculation spreadsheet is in line with registered PDD.	Wood Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x	CL05 CL06	OK.
Parameters	Calculation Equation																
Emission Reduction	(Baseline Emission – 15% of leakage deduction) – Transport Emission																
Baseline Emission	Total Biomass Saving x NCV of Biomass x Emission Factor of Biomass																
Total Biomass Saving	Wood Saving + Charcoal Saving																
Wood Saving	Wood Usage x 20.89% (Wood Saving by Household Cooking Test in baseline survey) <u>Mean of verification</u> The application of factor 20.89% in calculation spreadsheet is in line with registered PDD																
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Wood Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x																

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl												
	<table><tr><td></td><td>(Traditional Wood Consumption)</td></tr><tr><td>Charcoal Usage</td><td>(Number of Stove units in use ÷ 1.23 of equipment ratio) x (wood to charcoal ratio) x (Traditional Charcoal Consumption)</td></tr><tr><td>Number of Stove units in use each month</td><td>Number of Stove units in use last month – Number of unit retired last month + ((1-A) x Number of Stove units sold last month) + (A x Number of Stove units sold last two month</td></tr><tr><td>Number of unit retired</td><td>Number of Stove units sold last 18 month.</td></tr><tr><td>Number of Stove units sold</td><td>Stove sold to the Middle Man + Stove sold to the End User.</td></tr><tr><td>Transport Emission</td><td>Please refer to CL05 below.</td></tr></table>		(Traditional Wood Consumption)	Charcoal Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x (wood to charcoal ratio) x (Traditional Charcoal Consumption)	Number of Stove units in use each month	Number of Stove units in use last month – Number of unit retired last month + ((1-A) x Number of Stove units sold last month) + (A x Number of Stove units sold last two month	Number of unit retired	Number of Stove units sold last 18 month.	Number of Stove units sold	Stove sold to the Middle Man + Stove sold to the End User.	Transport Emission	Please refer to CL05 below.		
	(Traditional Wood Consumption)														
Charcoal Usage	(Number of Stove units in use ÷ 1.23 of equipment ratio) x (wood to charcoal ratio) x (Traditional Charcoal Consumption)														
Number of Stove units in use each month	Number of Stove units in use last month – Number of unit retired last month + ((1-A) x Number of Stove units sold last month) + (A x Number of Stove units sold last two month														
Number of unit retired	Number of Stove units sold last 18 month.														
Number of Stove units sold	Stove sold to the Middle Man + Stove sold to the End User.														
Transport Emission	Please refer to CL05 below.														
<u>CL05</u> With reference to calculation spreadsheet <Ref to NLS database Jan 1st - Dec 31st 2012.v1.xls>, please provide detail of transport emission calculation in each month. At first response from project proponent, the calculation sheet “KBS_13Feb12_NLS transport emissions.v1.xlsx” had been submitted for verification. Verification team had cross-checked its correctness during onsite visit. This is accepted. Hence the response is satisfactory. The CL05 is closed. <u>CL06</u> With reference to section 4.2 (Project Emission) in Monitoring Report version 01 dated on 15 February 2013, please clarify on how the project emission had been estimated and how it's related to section B.2 (calculation of															

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	emission reduction) in applied methodology. At first response from project proponent, verification team had reviewed the justification and cross-checked with information provided in MR version 03 dated on 15 March 2013. It's found that the calculation of 'baseline emission', 'project emission' and 'summary of GHG reduction and removal' are correct. Then, CL06 is closed.		
d. Have any assumptions used in emission calculations been justified?	No.	OK	OK
e. Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	Yes. IPCC has been referred in case of Net Calorific Value (NCV), Emission Factor (EF) of biomass and Wood to Charcoal Ratio.	OK	OK
5. Forward Action Request from previous verification			
a. Is there/ are there any FAR requested from previous verification?	Yes. There are 2 FARs for previous verification	OK.	OK.
b. Have appropriate justification been provided for the FAR above?	Yes. <u>FAR01</u> <i>The boiling test in year 2012 should be conducted in size A0 and A4 for some producers who have the 1st and 2nd rank in sold record in each size</i> With reference to section 5.1.1. of the MR version 01 dated on 15 February 2013, the Adapted Water Boiling Test (AWBT) was conducted on twelve A0 stoves and twelve A4 stoves in 2012. All tested stoves achieved more than 27% efficiency in the AWBTs as indicated in the Table below	FAR01 FAR02	OK.

CHECKLIST QUESTION	COMMENTS					Draft Concl	Final Concl
	Producer name	% total A0 produced 2012	Date of AWBT	Efficiency			
				Stove 1	Stove 2		
	Khoem Tim	21.66%	29-30 Aug 2012	36.32%	30.99%		
			17-18 Dec 2012	29.75%	28.98%		
	Nhek Sakun	17.08%	13-14 Nov 2012	28.32%	29.09%		
			19-20 Dec 2012	30.14%	28.54%		
	Sim Sour	47.15%	8-10 Aug 2012	33.07%	32.73%		
			18-20 Dec 2012	29.35%	30.84%		
	Producer name	% total A4 produced 2012	Date of AWBT	Efficiency			
				Stove 1	Stove 2		
	Dul Sam Oun	22.49%	12-15 Dec 2012	27.89%	28.25%		
			19-20 Dec 2012	27.51%	27.80%		
	Khoem Tim	11.09%	16-17 Dec 2012	27.47%	28.20%		
			17-19 Dec 2012	27.75%	27.67%		
	Vann Tola	31.29%	18-20 Dec 2012	27.60%	27.82%		
			19-20 Dec 2012	27.81%	28.17%		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Hence this could be concluded that the A0 and A4 stove still meet GERES' quality standards. In connection to the justification of FAR01 above, verifier had accessed to original hard copy of AWBT test for A0 & A4 stove that used to formulate table 9-12 in section 5.1.1. of MR version01 dated on 15 February 2013. – these presented in the spreadsheet files below; <u>A0 size</u> - 54_CTL,TSN_12Dec19_Nhek Sakun_R1&R2_AWBT_NLS_A0.xls - 99_CTL,THA_12Aug08_Sim Sour_R1&R2_AWBT_NLS_C_A0.xls - 102_CTL,TSN_12Aug29_Khoem Tim_R1&R2_AWBT_NLS_C_A0.xls - 106_CTL,TSN_12Nov13_Nhek Sakun_R1&R2_AWBT_NLS_C_A0.xls - 112_CTL,TSN_12Dec17_Khoem Tim_R1&R2_AWBT_NLS_A0.xls - 117_CTL,TSN_12Dec18_Sim Sour_R1&R2_AWBT_NLS_A0.xls <u>A4 size</u> - 96_CTL,KET_12Dec19_Dul Sam Oun_R1&R2_AWBT_NLS_C_A4.xls - 103_CTL,KET_12Dec12_Dul Sam Oun_R1&R2_AWBT_NLS_C_A4.xls - 104_CTL,KET_12Dec16_Khoem Tim_R1&R2_AWBT_NLS_C_A4.xls - 105_CTL,KET_12Dec18_Vann Tola_R1&R2_AWBT_NLS_C_A4.xls - 113_CTL,KET_12Dec17_Khoem Tim_R1&R2_AWBT_NLS_C_A4.xls - 119_CTL,KET_12Dec19_Vann Tola_R1&R2_AWBT_NLS_C_A4.xls		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Verification team confirmed that data of AWBT presented in table 9-12 of section 5.1.1. of the MR version 01 are based on actual test which can be verified from original hard copy at GERES office. In light of the above, verification team considered that project proponent fulfilled the request in FAR01 from previous verification. Therefore, FAR01 is closed. <u>FAR02</u> <i>2.1 The retailer's record of NLS purchased and sold should be more implemented as possible. The retailer's competency and awareness should be improved to ensure that the NLS purchased and sold will be recorded correctly and continuously.</i> In connection to request in FAR02 point 2.1 above, GERES provides small financial incentives for retailers who cooperate and fill-in logsheets. Hence in 2012, GERES can get the information more than six thousand of NLS data from January to October 2012. Verification team had assessed the GERES database and found credible evidences that large amount of data had been obtained from producer, middleman and retailer. Combined with the fact that almost producers and middlemen were well corporated with GERES in order to keep and maintain Log Book and QC Log Sheet, verifier team considered that there is improvement among producer-middlemen-retailer chain in term of record keeping. In light of this, verification team held positive opinion towards the issues above, and this issue is closed.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	2.2 The retailer's record of NLS in year 2012 should be interpreted and cross checked with "53.4 days of stove shelf life" to ensure that it is still valid and conservative to calculate the Emission Reduction in year 2012 Aiming to close this FAR02 (point 2.2), GERES had conducted the survey for Stove Shelf Life by hiring GIS & database Specialist, Mr. Prey Sovann, his responsible is to track the amount of time that NLS would go from the producer to end user. The data had been gathered from 2009-2012 and a sample size of 12,429 NLS. The average POST time is 18 days. Verification team interviewed Mr. PREY Sovann during the site visit to confirm the above calculation. Moreover, verification team had requested, during site visit, to recalculate the Stove Shelf Life based only on 2012 data. However, the data available for the year 2012 was only January to October 2012. For another 2 months, the data had already been taken to GERES office, but it required few month to input the data to GIS database. This resulting that the sampling size is down to 6 thousand of NLS data. Nevertheless, the results showed that the average POST time is still 18 days at which less than 53.4 days. Even though the POST time is now reduced from 53.4 days to the average of 18 days, the project proponent still chose the 53.4 days figure in the emission reduction to maintain conservative approach. In light of the above, verification satisfied the GERES's action that the Stove Shelf Life at 53.4 days still applied in calculation of Emission Reduction for the sake of		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	conservativeness. This is accepted and FAR02 (point 2.2) is closed.		
c. Can any FAR be closed in this verification period?	Yes. <u>CL07</u> Please provide evidences and/or supporting document for these issues; (1) The Adapted Water Boiling Test (AWBT) for A0 and A4 stoves as indicated in section 5.1.1. of Monitoring Report (2) Cross-checking of POST calculation with GIS database as indicated in section 5.1.2. of Monitoring Report At first response from project proponent, the evidences and supporting document had been submitted for further verification. This CL07 is closed.	CL07	OK.

Table 2: Resolution of Corrective Action / Forward Action / Clarification Requests.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CAR01 As per description in section 3.3.1 of monitoring report (MR) version 01 dated on 15 April 2013, the frequency of Household Fuel Consumption Test (HFCT) in year 2012 is deviated from monitoring plan in registered PDD. Combined with VCS guidance in section 3.2.9 of Validation and Verification Manual version 3.0, there is no proper section in MR to elaborate and justify this deviation	3 b (ii)	1st GERES Response (06/03/2013) The HFCT results shown in Table 4 are only the rainy season results, in order to provide a conservative comparison. HFCTs were also conducted for wood and charcoal during the dry season. So HFCTs were conducted twice in 2012, as per the Monitoring Plan. The dry season and rainy season HFCTs are to be attached in email.	1st Verification Team feedback (20/03/2013) As per information provided in section 8.2 of MR version 3 dated on 15 March 2013, verification found that the HFCT results in 'dry season' was presented. This is in line with monitoring plan in registered PD. This is accepted and CAR01 is closed.
CAR02 As per detail provided in table 20 and 21 of Appendix 1 of monitoring report version 02 dated, the price (US\$/litre) of these following are not in line with evidences found onsite; - Table 20 : May, DMH - Table 21 : Jul, DMH Please ensure the correctness of description indicated in above tables.	3 b (i)	1st GERES Response (15/03/2013) The MR version 3 dated on 15 March 2013 and version 2 of Transport Emission Calculation Spreadsheet are attached	1st Verification Team Feedback (20/03/2013) Verification team found that - Table 20: May, DMH The calculation of unit price in invoice evidence No. 554545 dated on 24/04/12 of 5,500 Riel with the exchange rate mentioned by financial team of GERES of 3995 Riel/USD is inconsistency with the value in Table 20 of MR version 3 dated on 15/03/2013 and is not corrected. Moreover, the same value which is presented in Table 23 is not corrected.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		2nd GERES Response (21/03/2013) The corrections have been made in the Monitoring Report (version 4), the transport emissions calculation spreadsheet (version 3) and the ER calculation spreadsheet (version 3). These documents were sent on 21/03/13.	- Table 21: Jul, DMH The price is now corrected following the invoice evidence No. 554823 dated on 4/07/2012. However, the same value presented in Table 24 is not corrected. In addition, the prices for both months (Gasoline – May 2012, and Diesel – July 2012) are still not corrected in “Emissions” tab of “KBS_13Feb14_NLS transport emissions.v2” calculation sheet. CAR02 is pending. 2nd Verification Team feedback (21/03/2013) The revisions in the Monitoring Report (version 4), the transport emissions calculation spreadsheet (version 3) and the ER calculation spreadsheet (version 3) dated on 21/03/13 are acceptable. Therefore, CAR02 is now closed
CAR03 As per description provided in spreadsheet named “KBS_13Feb12_NLS transport emissions.v1”, combined with interview session with Ms Samnang Heng (ICS Executive Assistant) the appearance of gasoline cost at 441.28\$ dated 10/01/2012 is not directly related to this project.	3 b (i)	1st GERES Response (20/03/2013) The version 2 of Transport Emission Calculation Spreadsheet is attached.	1st Verification Team feedback (20/03/2013) Verification team noticed that the gasoline cost at 441.28\$ dated on 10/01/2012 is now removed from calculation sheet “KBS_13Feb12_NLS transport emissions.v2” dated on 14/03/2013. This had been revised in MR version 3 dated on 15/03/2013.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
			This revision is accepted. Therefore, the CAR03 is now closed.
CL01 With reference to description in section 5.3.1 (Non-renewability) in monitoring report version 01 dated on 15 February 2013, please provide the accessible link for these references Kapos, V., Ravilious, C., Leng, C., Bertzky, M., Osti, M., Clements, T., Dickson, B., 2010, Carbon, biodiversity and ecosystem services: Exploring co-benefits. Cambodia, UNEP-WCMC, Cambridge, UK. Available at http://www.unep-wcmc.org/climate/pdf/Cambodia%20Summary%20Report%202010.pdf . Ministry of Environment, 2010, <i>Fourth national report to the Convention on Biodiversity Conservation (CBD)</i> , Phnom Penh. Available at: http://cdn.www.cbd.int/doc/world/kh/kh-nr-04-en.pdf	3 b (ii)	1st GERES Response (06/03/2013) The links have been updated (see Monitoring Report version 2)	1st Verification Team feedback (20/03/2013) The verifier had reviewed the revised links provided in Monitoring Report version 2. It is acceptable. Hence the response is satisfactory. The CL01 is now closed based on adequate responses from the Project Proponent which meet the applicable requirements.
CL02 With reference to description in section 5.3.1 (Non-renewability) in monitoring report version 01 dated on 15 February 2013, please provide full text of these following references for cross-checking purpose;	3 b (ii)	1st GERES Response (06/03/2013) Save Cambodia's Wildlife, 2006, The Atlas of Cambodia: National Poverty and Environmental Maps: not a text, it is an interactive map available here:	1st Verification Team feedback (20/03/2013) Verification team had reviewed the references provided below; - http://www.cambodiaatlas.com/map

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
Save Cambodia's Wildlife, 2006, The Atlas of Cambodia: National Poverty and Environmental Maps, Save Cambodia's Wildlife, Phnom Penh, Cambodia. Top N., Mizoue N., Kai S., 2004, "Estimating forest biomass increment based on permanent sample plots in relation to woodfuel consumption: a case study in Kampong Thom Province, Cambodia", J For Res, 9:117–123. Van Mansvelt. R, 2006a, <i>Improved Cookstove Lifetime Survey</i>, GERES		http://www.cambodiaatlas.com/map Top N., Mizoue N., Kai S., 2004, <i>Estimating forest biomass increment based on permanent sample plots in relation to woodfuel consumption: a case study in Kampong Thom Province, Cambodia: <u>to be attached in email.</u></i> Van Mansvelt. R, 2006a, <i>Improved Cookstove Lifetime Survey: <u>to be attached in email.</u></i>	- Top N., Mizoue N., Kai S., 2004 - Van Mansvelt. R, 2006a It had been cross-checked with description provided in section 5.3.1 of the MR. Verification team had no further question for its interpretation and reference to the abovementioned references. This is accepted and CL02 is closed.
CL03 Please clarify the footnote reference number 16 "FAO,2001" in page 39 section 5.3.1 of monitoring report version 01, given that this reference cannot be observed in the list of reference (section 6)	3 b (ii)	<u>1st GERES Response (06/03/2013)</u> I was unable to locate this document, so I removed the quotation from the text of the Monitoring Report and replaced it with some information from another reputable source (see Monitoring Report version 2).	<u>1st Verification Team feedback (20/03/2013)</u> The verifier had reviewed the response from the Project Proponent and revised reference provided in Monitoring Report version 2. It is acceptable. Hence the response is satisfactory. The CL03 is now closed based on adequate responses from the Project Proponent which meet the applicable requirements.
CL04 With reference to section 5.5 of monitoring report version 01, please provide full text of these following reference for cross-checking	3 b (ii)	<u>1st GERES Response (06/03/2013)</u> Agence Francaise de Developpement (AFD) and GERES, 2009, <i>Dissemination of domestic</i>	<u>1st Verification Team feedback (20/03/2013)</u> Verification team had cross-checked the full text provided for

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
purpose; - Agence Francaise de Developpement (AFD) and GERES, 2009, Dissemination of domestic efficient cookstoves in Cambodia: Looking back on a 10-year programme combining Development, Fight against Climate Change and Environmental Protection, Agence Francaise de Developpement. - Atukorala. K, 2006, The Evaluation Study of the Commercialized Fuel Efficient Stoves Project in Cambodia, Report submitted to Cambodian Fuelwood Savings Project March 2006. - GERES, 2005, Sustainability of Improved Cookstove Production and its Impacts: A case study. - Winrock International, 2006, Cambodian Case Study: ICS Dissemination.		<i>efficient cookstoves in Cambodia: Looking back on a 10-year programme combining Development, Fight against Climate Change and Environmental Protection: to be attached in email.</i> Atukorala. K, 2006, The Evaluation Study of the Commercialized Fuel Efficient Stoves Project in Cambodia: I am still trying to locate this document – I need to speak with my colleague, who is away this week but will be back in the office next week. GERES, 2005, <i>Sustainability of Improved Cookstove Production and its Impacts: A case study: to be attached in email.</i> Winrock International, 2006, <i>Cambodian Case Study: ICS Dissemination: to be attached in email.</i> <u>2nd GERES Response (15/03/2013)</u> Email with attachment of Atukorala. K, 2006 is attached.	- Agence Francaise de Developpement (AFD) and GERES, 2009 - GERES, 2005 - Winrock International, 2006 Based on full-text reference above, verification team found that project proponent had correctly quoted and interpreted There is no full text for Atukorala. K, 2006 provided. This is pending. <u>2nd Verification Team response (20/03/2013)</u> With reference to full text of Atukorala. K, 2006, verification team found that

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
			project proponent had correctly quoted This is accepted and CL04 is closed.
CL05 With reference to calculation spreadsheet <Ref to NLS database Jan 1st - Dec 31st 2012.v1.xls>, please provide detail of transport emission calculation in each month.	4 c	1st GERES Response (06/03/2013) See spreadsheet "KBS_13Feb12_NLS transport emissions.v1": <u>to be attached in email.</u>	1st Verification Team feedback (20/03/2013) The verifier had reviewed the calculation sheet "KBS_13Feb12_NLS transport emissions.v1.xlsx" from the Project Proponent and cross-checked during onsite visit. It is acceptable. Hence the response is satisfactory. The CL05 is now closed based on adequate responses from the Project Proponent.
CL06 With reference to section 4.2 (Project Emission) in Monitoring Report version 01 dated on 15 February 2013, please clarify on how the project emission had been estimated and how it's related to section B.2 (calculation of emission reduction) in applied methodology	4 c	1st GERES Response (06/03/2013) The VCS Monitoring Report template requires that we separate the ER calculations into baseline emissions, project emissions and leakage. But the methodology does not separate the calculation like this. Instead, the methodology uses <u>biomass saving</u> to calculate ERs (tCO ₂ e). The <u>biomass saving</u> is the baseline biomass consumption minus the project biomass consumption . So the biomass saving, expressed as ERs	1st Verification Team feedback (20/03/2013) Verification team reviewed the justification from project proponent and found that the presentation of 'Project Emission' in MR version 01 dated on 15 February 2013 is made to be in line with VCS report template. Verification team re-checked the ER calculation in section 4 of MR version 03 dated on 15 March 2013 and found that calculation on 'baseline emission', 'project emission' and 'summary of

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		(tCO₂e) equals the baseline emissions minus the project emissions. <u>So, looking at the methodology now:</u> Please note that section D.1 of the methodology is the updated version of section B.2. So, based on section D.1, page 9, paragraph 4., ERs are calculated as: $ER_y = B_{y,savings} * NCV_{biomass} * EF_{non-renewable\ biomass\ CO_2} * 10^{-3}$ <u>And:</u> $B_{y,savings} = B_{y,baseline} - B_{y, project}$ <u>Then:</u> $B_{y,savings}$ is converted into tCO₂e in order to quantify ERs. <u>Therefore:</u> $B_{y,savings} = ERs\ (in\ t_{CO_2e})$ <u>And:</u> $ERs = Baseline\ emissions - \textbf{Project emissions} - Leakage$ Please also note that transport emissions are considered part of	GHG emission reduction and removal' are correct. This is accepted and CL06 is closed.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
		project emissions, because they result from the operation of the project (they would not have happened without the project).	
CL07 Please provide evidences and/or supporting document for these issues; - The Adapted Water Boiling Test (AWBT) for A0 and A4 stoves as indicated in section 5.1.1. of Monitoring Report - (2) Cross-checking of POST calculation with GIS database as indicated in section 5.1.2. of Monitoring Report	5 c	<u>1st GERES Response (06/03/2013)</u> The Adapted Water Boiling Test (AWBT) for A0 and A4 stoves as indicated in section 5.1.1. of Monitoring Report: <u>to be attached in email.</u> Cross-checking of POST calculation with GIS database as indicated in section 5.1.2. of Monitoring Report: I think this needs to be done during the field visit.	<u>1st Verification Team feedback (20/03/2013)</u> Verification had received supporting document for AWBT for A0 and A4 stoves. This is satisfied During the onsite visit, verification team had access to the GIS database for POST calculation. Verification had no further curiosity in regard to its credibility and authentic for data presented in MR. Verification team held positive opinion to the above, and CL07 is closed.