

FUEL-WOOD SAVING WITH IMPROVED COOKSTOVES IN CAMBODIA VERIFICATION REPORT 1ST JANUARY - 9TH MAY 2013



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Summary:

Bureau Veritas Certification has made the eighth verification of the Fuel-Wood Saving with Improved Cook stoves in Cambodia Project for the period of 1st January 2013 to 9th May 2013 (129 days).

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 4 CARs (Corrective Actions Requests) and 6 CLs (Clarification Request) 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 170,345 tCO₂e during the crediting period of 1st January 2013 to 9th May 2013

Table of Contents

1	Introduction	5
1.1	Objective	5
1.2	Scope and Criteria.....	5
1.3	Level of assurance	5
1.4	Summary Description of the Project.....	5
2	Validation Process, Findings and Conclusion	6
2.1	Validation Process.....	6
2.2	Validation Findings	6
2.2.1	Gap Validation	6
2.2.2	Methodology Deviations	6
2.2.3	Project Description Deviations	6
2.2.4	New Project Activity Instances	7
2.3	Validation Conclusion	7
3	Verification Process	7
3.1	Method and Criteria	7
3.2	Document Review	7
3.3	Interviews	9
3.4	Site Inspections	9
3.5	Resolution of Any Material Discrepancy	10
4	Verification Findings.....	10
4.1	Project Implementation Status	10
4.2	Accuracy of GHG Emission Reduction or Removal Calculations	11
4.3	Quality of Evidence to Determine GHG Emission Reductions or Removals	15

4.4	Management and Operational System.....	15
5	Verification conclusion	17
Annex 1: VERIFICATION Protocol		18

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: Groupe Energies Renouvelables, Environnement et solidarités (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 3.3.
- 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 version 07 dated 07/07/2009
2	NLS Monitoring Report version 1 (1 st January to 9 th May 2013) dated 12/07/2013
3	NLS Monitoring Report version 1.1 (1 st January to 9 th May 2013) dated 12/07/2013, received on 14/08/13
4	NLS Monitoring Report version 2 (1 st January to 9 th May 2013) dated 12/07/2013, received on 19/08/13
5	NLS Monitoring Report version 3 (1 st January to 9 th May 2013) dated 19/08/2013, received on 20/08/13
6	NLS Monitoring Report version 4.1 (1 st January to 9 th May 2013) dated 02/09/2013, received on 02/09/13
7	NLS Monitoring Report version 4.3 (1 st January to 9 th May 2013) dated 20/09/2013, received on 20/09/13
8	NLS Monitoring Report version 4.4 (1 st January to 9 th May 2013) dated 04/10/2013, received on 04/10/13
9	NLS database 1 st January 2013 to 9 th May 2013– Emission Reduction calculation, received on 16/07/2013
10	Revised NLS database 1 st January 2013 to 9 th May 2013– Emission Reduction calculation, received on 19/08/2013
11	Revised NLS database 1 st January 2013 to 9 th May 2013– Emission Reduction calculation, received on 09/09/2013
12	Revised NLS database 1 st January 2013 to 9 th May 2013– Emission Reduction calculation, dated on 20/09/2013, received on 20/09/2013
13	NLS transport emission received on 12/08/2013
14	Revised NLS transport emission received on 09/09/2013
15	Revised NLS transport emission dated on 20/09/2013, received on 20/09/2013
16	NLS ICS monitoring Procedure
17	QA Procedure
18	Original Stove logbook (sold) in 2013 for all 15 following producers - Vann Tola - Ven Chomraeun - Kong Sophear - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Sim Pov - Phon Sopha - Phon Somen

#	Title
19	Original Adapted Water Boiling Test (AWBT) and Household Fuel Consumption Test (HFCT) for dry season during 16-29 January 2013 and 13-26 February 2013 for these following producers - Sum Sarern - Kol Sarin - Sou Sovana - Morn Chenda - Mek Ky
20	QC logsheet (Raw data) for January and March 2013 for all following 15 producers - Vann Tola - Ven Chomraeun - Kong Sophear - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Sim Pov - Phon Sopha - Phon Somen

3.3 Interviews

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

#	Name	Title	Organization
1	Marina Gavaldao	Climate Change Unit technical director	GERES-Cambodia
2	Chen Cheth	NLS project manager	GERES-Cambodia
3	San Saly	Monitoring Team Leader	GERES-Cambodia
4	Srey Makara	Quality Control (Physical) Team Leader	GERES-Cambodia
5	Heng Samnang	Project Assistant	GERES-Cambodia
6	Ngov-Veng Chheng	Carbon project officer	GERES-Cambodia

3.4 Site Inspections

Site inspections have been performed according to the following schedule.

#	Date	Site Inspection		
1	21 August 2013	GERES team		
2	22 August 2013	<u>NLS producer</u> - Vann Tola - Ven Chomraeun - Kong Sophear - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Sim Pov - Phon Sopha - Phon Somen	<u>NLS Middleman</u> - Sim Srun - Kim Sophy - Ma Bunthoeun	<u>NLS Retailers</u> - Ly You - Meas Sovann - Sak Sreng - Torn Sarun - Put Khemra - Soeng Soeun - Seng Sovann - Srors Sam - Morn Thim - Lyna Omchan - Men Sokear
3	23 August 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 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. However, for this verification, the crediting period of this project has been ended on 9 May 2013. This is the last verification which accounted for 1 January to 9 May 2013. Hence, this verification will not contain data for whole year but only 129 days.

Verification team had conducted on-site inspection during 21-23 August 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 94% of annual NLS production in this verification period (129 days), therefore, the 15 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
<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	<u>Tear Cherng Village</u> - Sim Pov

With reference to objective evidence found from all 15 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 2013 – 9th May 2013) 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 transport emission spreadsheets (see Annex 1). It is found that there are wrong reference dates and mismatch references. However, verifier is able trace back and found correct original invoices for all wrong samplings. Moreover, it is found that the wrong references and wrong date did not affect to transport emission calculation of this monitoring period because there is no effect on price provided in the invoice and calculation spreadsheet. Hence, this is accepted and verifier had no further issue on this.

Verification team had raised CAR01 and CL04 for the project proponent to further clarify on why inconsistency of value between MR, ER calculation sheet, and registered PD. Furthermore, CAR02 is raised for the reason that there is wrong calculation for accumulated total number of NLS in use for each month. In addition, CL05 had been issued with regard to Table references crosschecking. These are described in annex 1 of this verification report. In response to these CARs and CL, project proponent submitted the revised MR. Verification team confirmed its correctness and accepted the revision in revised MR version 4.1 dated on 02/09/13. Hence, CAR01, CAR02, CL04 and CL05 are 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 – 9th May 2013" and found that the Emission Reduction calculation has been calculated by the following algorithm:

Parameters	Calculation Equation
Emission Reduction	Baseline Emission – Leakage – 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
Leakage	15% of Baseline Emission
Transport Emission	(Actual fuel price ÷ Fuel price rate) x NCV of Fuel x Emission Factor of Fuel

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 – 9th May 2013 as follows:

1. Wood saving and Charcoal saving which is the result of the “Household Fuel Consumption Test (HFCT)” and “Adapted Water Boiling Test (AWBT)”

As mentioned earlier that this verification period covers only 129 days in 2013, the fuel saving test was conducted only once in year 2013 in dry season during 13-26 February 2013 at Prek Samrong Village, Ta Khmao for Wood, and 16-29 January 2013 at Boeung Tumpun, Phnom Penh for Charcoal. The test were done following the monitoring plan stated in section 3.2 of MR. Verification team have cross-checked information provided for AWBT and HFCT in MR against (a) hard copies and (b) summary in excel sheet, and for HFCT these following producers had been reviewed.

- Sum Sarern
- Kol Sarin
- Sou Sovana
- Morn Chenda
- Mek Ky

Given that there is no error found between original hard copy at GERES office and data presented in HFCT spreadsheet and AWBT spreadsheet, verifier had no curiosity for its authentic of data used in ‘%fuel saving’. This is accepted by Mr. Kritsana one of verifier in the team. Verification team confirmed that data presented in table 3.1 of section 3.3.1.1 and in section 7.2.1 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). The survey was issued on August 2011, hence GERES still use the value based on the survey on 2011. However, CL02 is raised due to unclear description of conservative value mentioned for the stove life time in the MR version 1 dated on 12 July 2013. In response to this, GERES had revised the description for the following parameter and verification team had satisfied with the revision on MR version 3 dated on 19 August 2013.

Combined with positive result from 6th and 7th verification, the verification team had no curiosity for its authentic and validity 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.

3. POST time

With reference to description provided in section 7.3 : Post time calculation in MR version 01 dated on 12 July 2013, it's found that project proponent still applying 53.4 days in spite of the recent GERES cross-checking study. Even though the recalculated POST time has been decreased from 53.4 days to the average of 20.1 days for year 2013, the project proponent still chose the 53.4 days figure for the emission reduction calculation to maintain conservative approach.

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 (approximately 2 months) which was applied in emission reduction calculation. Detail of these onsite finding is presented in table below;

Retailer shop	NLS size	Production month	POST time until site inspection date
Lyna Omchan	A0	01/13	7 months
	A4	01/13	7 months
	A3	03/13	5 months
	A4	03/13	5 months
Men Sokear	A0	xx/12	at least 8 months
	A3	04/13	4 months

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, the retailers added that these stoves are now broken and the stove color

had been deteriorated by raining. Hence, they cannot sell all these stove due to that end user are likely to choose the newest one which is not broken and the color of stove still look normal.

With justification from GERES and retailer above, it's found that there is possibility to have some NLS sold to end user larger than 53.4 days. However, the average POST TIME (refer to figure 7.5 in MR version 1) is about 20.1 days. Hence, in connection to the application of 53.4 days for POST which is more conservative, verification team is satisfied in this approach and its of POST time is confirmed.

4. Number of stove sold

Verification team had raised CAR04 for project proponent for the reason that NLS stove sold which is used in emission calculation for period of 1 Jan 2013 to 9 May 2013 is 155,278 stoves. This amount of NLS stove is calculated based on 36 producers. However, it is found inconsistency with the number of NLS producer stated in MR version 3 dated on 19 August 2013 and list of producer who joined AWBT test. In response to this, 1 producer, Mr.Bun RITH, was excluded from this verification by project proponent due to the fact that he did not complete the AWBT test following the monitoring plan. Verification team had no objection on exclusion of MR.Bun RITH from this verification period, besides the exclusion of producer provided more conservative result for ER calculation. Verification team reviewed the revision of MR and ER calculation and confirmed its correctness and accuracy. Hence, this is accepted and CAR04 is closed.

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

Step 1: Cross-checking of copied of stove sold data in logbook against data provided in Emission Reduction Spreadsheet

Verification team selected 6 sampling producer as described below for cross-checking the copied of stove sold data in logbook against data provided in Emission Reduction Spreadsheet on the month of January and March 2013.

- Vann Tola
- Sun Tha
- Mom Samean
- Ris Sarath
- Phun Sophal
- Sim Pov

There is no any inconsistency found except March 2013 by Vann Tola. However, the difference is less than 5% materiality threshold defined by VCS standard (1 stoves – see Annex 1). Hence, verification team did not raised any issue on this.

Step 2: Cross-checking of original stove sold data in logbook against QC logsheet at producer sites

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 filled in QC logsheet against original stove sold data in log book. There are few inconsistency found that the amount from original stove sold is larger than the amount in QC logsheet which is used for

emission reduction calculation (see Table 1 of Appendix 1 below). However, verification team considered that this practice is less than 5% materiality threshold and still in conservative approach. Hence, verifiers did not raise any issues.

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 original stove sold data into Emission Reduction spreadsheet. Its correctness and accuracy in parameter of “number of stove sold” are confirmed.

5. Transport emission

Verification team found that project participant had added ‘Transport Emission’ into Emission Reduction calculation; although emission from transportation is not presented in the applied methodology and registered PD. Verification team considered that this activity would not have happened without the implementation of project activities. Moreover, deducting Transport Emission provided more conservative Emission Reduction. Hence, this is accepted.

Verification team issued CL06 from the inconsistency of Diesel price, Gasoline price, and KHR-USD Exchange rate of April 2013 compared with the reference provided and the missing reference evidence submitted for KHR-USD Exchange rate of May 2013. In responses to this, GERES had provided the relevant evidence and revised the MR and ER calculation spreadsheet accordingly. Verification team found that the revisions in MR version 4.3 dated on 20 Sep 2013 and ER dated on 20 Sep 2013 are now corrected. Moreover, the formula used for transport emission in ER calculation was also reviewed and confirmed. Hence, its correctness and accuracy in parameter of “transport emission” is accepted.

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 Spreadsheet of Household Fuel Consumption Test (HFCT), and Adapted Water Boiling Test (AWBT) that conducted in year 2013, NLS Purchase Bill in year 2013, NLS Sale Bill in year 2013, and Fuel invoice.

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 – 9th May 2013 and found that the claim is credible and reliable. The quality of evidence and consistency of data are confirmed.

4.4 Management and Operational System

During on-site inspection on 21-23 August 2013, the verifier had interviewed the GERES’s staffs who have responsibilities and authorities for monitoring and reporting. The verifier had accessed “NLS ICS monitoring procedure” during on site visit. The content of this Procedure Manual are

cover all QA/QC activities that referred in the monitoring plan. 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	CHEN Cheth
NLS Monitoring Team Leader	SAN Saly
NLS Quality Control (Physical) Team Leader	SREY Makara
NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol

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. Chen Cheth's (ICS project manager) testimony, it was testified that there is no new NLS producers having involvement in NLS production on year 2013. Verification team had crosscheck the name compare to previous verification (7th verification) and found that there are 4 producers which were new to this verification. Verification team had requested for certification of successful training in NLS production according to GERES's management system as followed;

NLS producer name	Issuance date of Certificate
1. Khin SOKCHENDA	6 September 2010
2. Yem YUN	20 August 2010
3. Young SUNHAI	24 August 2006
4. Bun RITH	-

It is found that 3 producers had successfully obtained the certificate. However, GERES cannot find the certificate of Mr. Bun RITH. ICS project manager explained that Mr. Bun RITH had been trained since the beginning of the project (2003) and his certification record may be missing due to poor record management. However, he showed the evidence of previous NLS stove produced record which showed that Mr. Bun RITH had produced NLS stove on 2007. In relation with this issue, CAR03 was raised for the reason that there was no AWBT test result from Mr. Bun RITH while it is mandatory by monitoring plan for all producers (section 3.3.5.2 of MR). In response to this, GERES had excluded Mr. Bun RITH and the amount of NLS stove produced by him from the list of NLS producers and ER calculation. The exclusion of Mr. Bun RITH also provided more conservative result for ER calculation. Hence, this is accepted by verification team and had no further question on this issue.

5 VERIFICATION CONCLUSION

Conclusion of verification process for period of 1st January 2013 to 9th May 2013 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 21-23 August 2013. The verification team confirms that calculation of greenhouse gas emission reduction is in accordance with registered VCS project description version 3.1 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 2013 to 9th May 2013

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

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	947,594
Project Emissions	747,187
Leakage	30,062
Net GHG emission reductions or removals	170,345

ANNEX 1: VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Verified Carbon Standard version 3.3 and Validation and Verification Manual 3.0

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 participants operated the proposed VCS project as per the registered PD?	Yes. With reference to the Monitoring Report (MR) version 01 dated 12/07/2013. It is confirmed that the project participant 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 21-23 August 2013 in Phnom Penh and Kampong Chhnang province in Cambodia.	OK	OK
d. If not, justify the rationale of the decision.	Not applicable	OK	OK
e. Does the implementation or operation of VCS project conform with the description contained in the registered PD?	Yes. With reference to section 1.2 of Monitoring Report (MR) version 01 dated 12/07/2013, verification team found that there is no category 'AMS-II.G [Energy Efficiency Improvement Projects]' as mentioned. Thus, CL01 is raised.	~~OK~~ CL01	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	<u>CL01</u> Please clarify that the project activity is categorized as ‘AMS-II.G’ under UNFCCC category. The verifier had conducted the onsite visit during 21-23 August 2013 to verify the selling chain of NLS Producers, Middle Men, and Retailers. The people who were interviewed and their activities are observed as follows: Site visit and interview with NLS producer - Vann Tola - Ven Chomraeun - Kong Sophear - Dul Sam Oun - Sim Sour - Mom Samean - Dourng Saronn - Ris Sarath - Phun Sophal - Khoem Tim - Chourn Sopheak - Sun Tha - Sim Pov - Phon Sopha - Phon Somen		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	Site visit and interview with NLS Middleman - Sim Srun - Kim Sophy - Ma Bunthoeun Site visit and interview with NLS Retailers - Ly You - Meas Sovann - Sak Sreng - Torn Sarun - Put Khemra - Soeng Soeun - Seng Sovann - Srors Sam - Morn Thim - Lyna Omchan - Men Sokear With reference to the onsite visit at location 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.		
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			

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl								
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 07 (final version) dated on 7 July 2009 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. It will</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. It will	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. It will	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
		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	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		

CHECKLIST QUESTION	COMMENTS				Draft Concl	Final Concl
		service appliance or measure.				
	4	Monitoring shall include the efficiency of the appliances	Monitoring shall include the efficiency of the appliances	This is in line with applied methodology		
	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 participants (End user) and an assessment will be made as the	Quantity of alternative fuels used by project participants (End user) and assessment of aggregate biomass renewability in the region.	This is in line with applied methodology		

CHECKLIST QUESTION	COMMENTS				Draft Concl	Final Concl
		aggregate biomass renewability status of the project region				
	7	If the leakage deduction of 15% is not applied, monitoring shall demonstrate that greater use of non-renewable biomass outside the project boundary does not occur.	Not applicable	Not applicable		
	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	Wider social and economic impact of the projects will be monitored, on-going analysis will be made of its contribution positive or	This is in line with applied methodology.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	positive or otherwise to sustainable development in the area.		
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)?	Yes. Verification team found that project participant had added 'Transport Emission' into Emission Reduction calculation. Even though, emission from transportation is not presented in the applied methodology and registered PD. This activity would not have happened without the project activities. In calculation of Transport Emission, the project proponent had monitored the fuel consumption used for operation of project activity which consisted of gasoline and diesel. The fuel receipts had been maintained at the GERES office, and the amount of fuel consumption had been used in calculation with Emission Reduction. In light with above, verification team found that deducting Transport Emission provided more conservative Emission Reduction. Hence, this is accepted.	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 participants?	Yes. With reference to section 3.1 of the monitoring report (MR) version 1 dated on 12 July 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	CL02	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl															
	parameters had been addressed properly. <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>Householde 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><tr><td>Description of measurement methods and procedures to be applied:</td><td>The monitoring will combine ex-ante calculations with the monitored stove sales and periodic</td><td>The monitoring will combine ex-ante calculations with the monitored stove sales and periodic</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)	Householde 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	Description of measurement methods and procedures to be applied:	The monitoring will combine ex-ante calculations with the monitored stove sales and periodic	The monitoring will combine ex-ante calculations with the monitored stove sales and periodic		
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)	Householde 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																
Description of measurement methods and procedures to be applied:	The monitoring will combine ex-ante calculations with the monitored stove sales and periodic	The monitoring will combine ex-ante calculations with the monitored stove sales and periodic																

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		verification of fuel savings. The GERES Cambodia Monitoring Unit will test producers to ensure compliance and efficiency standards are maintained. (see Annex 3)	verification of fuel savings. Thte GERES Cambodia Monitoring Unit will test producers to ensure compliance and efficiency standards are maintained		
	Any Comment	-	-		
	<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>				
	Item	PDD	MR		
	Data Unit	Kg/month/Family	%		
	Description	Fuel saving are clculated using data from studies conducted in both rainy and dry season. Test are conducted under laboratory conditions	Fuel saving are calculated using data from studies conducted in both rainy and dry season. Test are conducted under laboratory conditions but		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		but designed to replicaet actual use.	designed to replicaet 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:	-	Humidity meter		
	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		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
			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 – as differences in wood species provides scopes for greater discrepancy in moisture content.		
	<u>Verification Team's Opinion</u> 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.				

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl									
	<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> <table><tr><th>Item</th><th>PDD</th><th>MR</th></tr><tr><td>Data Unit</td><td>Stove lifetime years No of stoves sales per month</td><td>Stove lifetime years No of stoves sales per month</td></tr><tr><td>Description</td><td>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 that the ER takes the replacement of stove units into consideration. These calculations</td><td>The project activity currently uses a conservative estimate of 1.5 years lifespan (or 18 months) 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 which will demonstrate the increased market</td></tr></table>	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 that the ER takes the replacement of stove units into consideration. These calculations	The project activity currently uses a conservative estimate of 1.5 years lifespan (or 18 months) 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 which will demonstrate the increased market		
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 that the ER takes the replacement of stove units into consideration. These calculations	The project activity currently uses a conservative estimate of 1.5 years lifespan (or 18 months) 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 which will demonstrate the increased market										

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		are underpinned by the stove sales data which will demonstrate the increased market share of NLS. In addition survey data demonstrate user's preferences	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 lifetime assumption of three years is determined by survey data. This	Measurement method combines <i>ex-ante</i> and <i>ex-post</i> data. Conservative lifetime assumption of three years is determined by survey data. This figure is		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		figure is combined with sales figures collected by the monitoring unit every month from each stove producer.	combined with sales figures collected by the monitoring unit every month from each stove producer.		
	Any comment	-	-		
	<u>Verification Team's Opinion</u> The change in stove lifespan from 3 years to 1.5 years is considered more conservative, this is accepted. However, there is inconsistency between 'description' and 'description of measurement methods and procedures to be applied', hence CL02 is raised.				
	<u>CL02</u> Please clarify the difference of lifespan between 18 months in 'description' and 3 years 'description of measurement methods and procedures to be applied' of parameter 'Annual Check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure' inconsistency.				
	<u>4. Monitoring shall include the efficiency of the appliances</u>				
</					

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	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)		
	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		
	Description of measurement methods and procedures to be applied:	See section G.5	An accurate balance (simple 10 kg capacity and 10 g accuracy) which is available in villages; Wood moisture meter		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl						
			if wood cannot be distributed. 25 NLS and 25 TLS 5kg of charcoal and 5kg of fuelwood 10-litre containers (for water)								
	Any comment	-	-								
	<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 the boundary</u>										
	<table><tr><th>Item</th><th>PDD</th><th>MR</th></tr><tr><td>Data Unit</td><td>-</td><td>-</td></tr><tr><td>Description</td><td>Bi-annual survey data on user behaviour in addition the Stove sales data demonstrates the increasing market share of the NLS</td><td>Bi-annual survey data on user behaviour in addition the Stove sales data demonstrates the increasing market share of the NLS over time</td></tr></table>					Item	PDD	MR	Data Unit	-	-
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	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
		over time			
	Sources of data to be used:	Stove sales data (2003-2006) User Survey (2003-2006)	Stove sales data National Stove User Surveys		
	QA/QC	Statistical analysis External evaluation	Statistical analysis External evaluation		
	Description of measurement methods and procedures to be applied:	User surveys will establish the percentage of stove users using traditional and NLS simultaneously	User surveys will establish the percentage of stove users using traditional and NLS simultaneously		
	Any comment	-	-		
	<u>Verification Team's Opinion</u> This is in line with the registered PDD.				
	<u>6. Quantity of alternative fuels used by project participants and assessment of aggregate biomass renewability in the region</u>				
	Item	PDD	MR		
	Data Unit	Deforestation rate	Deforestation rate		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		Fuel mix	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.		
	Sources of data to be used:	Independent accredited literature	Independent accredited literature - annually National Stove user survey – every two years (biennially)		
	QA/QC	Peer reviewed published reports	Peer reviewed published report		
	Description of measurement methods and	-	Literature review Survey of representative		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	procedures to be applied:		sample of stove users in Cambodia (National Stove User Survey)		
	Any comment	-	-		
	<u>Verification Team’s Opinion</u> This is in line with the registered PDD.				
	<u>7. Greater use of non-renewable biomass outside the project boundary does not exist</u>				
	Item	PDD	MR		
	Data Unit	-	%		
	Description	-	Default factor of 15% (as option stipulated in the methodology)		
	Sources of data to be used:	-	Methodology		
	QA/QC	-	-		
	Description of measurement methods and procedures to be applied:	-	-		
	Any comment	-	-		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl									
	<u>Verification Team’s Opinion</u> The default value from applied methodology had been used. This is accepted. <u>8. 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 derived from them</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 derived from them	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 derived from them	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
	Sources of data to be used:	Survey results	National Stove User Survey		
	QA/QC	Peer review of literature	Staistical analysis External evaluation		
	Description of measurement methods and procedures to be applied:	Survey of stoves users. Market data	Survey of representative sample of stove users in Cambodia (National Stove User Survey)		
	Any comment	-	-		
	<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. At GERES office visit (21 Aug 2013),verifier had accessed to the following original transport bills and verified against what were reported in transport emssion calculation spreadsheet (60613-60614_JAN-MAY2013_AL.xlsx) as follow.			CL06	OK
		Spreadsheet Description	Invoice No.	Results	
		D C#01 418456 ICS MS KPT	Not available	OK	
		D C#3 368854 ICS MS PST	002003	OK	

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	D C#3 369806 ICS MS BTB	Not available	OK		
	D C#1 423430 ICS HFCT PNH	747967	OK		
	D C#3 375489 ICS MS BTB	763431	OK		
	G M#4 21300 HFCT PNH	1863308	OK		
	G M#1 419044 HFCT PNH	Not available	OK		
	G M#7 22394 ICS MS Z4	Not available	OK but date mismatch		
	G M#18 14411 ICS MS PNH	1818007	OK		
	G M#17 23066 ICS MS Z1	001705	OK		
	G M#3 37469 ICS MS KCN	Not available	OK		
	G M#26 010331 ICS MS KCN	Not available	OK		
	G M#19 24775 ICS MS BTB	Not available	OK		
	G M#2 939772 ICS MS KCN	Not available	OK		
	G M#17 23542 ICS MS Z3	Not available	OK		
	G R#4 22434 HFCT PNH	009259	OK		
	G M#26 01487 ICS MS KCN	000309	OK		
	G M#27 05054 QC KCN	Not available	OK		
	G M#17 23636 ICS MS Z1	1817687	OK		
	G M#19 25826 ICS MS BTB	069731	OK		
	G M#18 14803 ICS MS Z4	573868	OK		
	G M#27 05303 QC KCN	Not available	OK		
	G M#18 15053 ICS MS Z3	819501	OK		
	G M#19 26343 ICS MS BTB	000235	OK		
	G M#24 11821 SDT QC KCN	002888	OK		
	G M#7 72183 ICS MS KCN	Not available	OK but wrong Ref No.		
	G M#26 02170 ICS MS KCN	Not available	OK but wrong Ref No.		
	G M#18 15234 ICS MS PNH	Not available	OK but		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	G M#25 194483 ICS MS KCN	Not available	wrong Ref No. OK but wrong Ref No.
	G M#2 7.46L QC KCN	Not available	OK but wrong Ref No.
	Verification team conducted cross-checking between actual Bill and data presented in transport emission spreadsheets. It was noticed that there are 5 samplings which have the wrong reference number (these numbers are called 'J.Line' as per calculation spreadsheet) as follow. - G M#7 72183 ICS MS KCN - G M#26 02170 ICS MS KCN - G M#18 15234 ICS MS PNH - G M#25 194483 ICS MS KCN - G M#2 7.46L QC KCN In addition, verification team also found that the date of 'G M#7 22394 ICS MS Z4' reported in transport emission calculation spreadsheet (21/01/13) is inconsistency with original bills (01/01/13). Mr.Chheng Ngov-Veng, Carbon project officer of GERES, explained that these are caused by human error during the process of filling the data in to excel spreadsheet. However, verifier is able trace back and found correct original invoices for 5 all samplings. Moreover, it is found that the wrong references and wrong date did not affect to transport emission calculation of this monitoring period because there is		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	no effect on price provided in the invoice and calculation spreadsheet. And 'G M#7 22394 ICS MS Z4' is still in the range of this monitoring period. In light of above, there is no change in the result of emission from transport . Hence, this is accepted and had no further queries on this particular issue. On desk review of transport emission calculation, It is found that there are Diesel price, Gasoline price, and KHR-USD Exchange rate of April 2013 which are inconsistency with the reference provided. Moreover, there is no evidence provided for the reference source 'Economic Institute of Cambodia'. Hence, verification team issues CL06 as described below. <u>CL06</u> With reference for transport emission calculation spreadsheet, please provide clarification and/or the reference evidence as follow: - Why the calculation of April 2013 in 'Sum' tab, Diesel price (Cell C6), Gasoline price (Cell G6), and KHR-USD Exchange rate (Cell K6) are found inconsistency with the reference '209_bulletin_may_2013.pdf' - The evidence for Gasoline price and KHR-USD Exchange rate in May 2013 by Economic Institute of Cambodia		
ii. Baseline emission parameters?	With reference to section 3.1 of the monitoring report (MR) version 01 dated on 12 July 2013. 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>	CAR01	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl											
	As per description in section 3.3.1 of MR version 01, the fuel saving is demonstrated below; <table><tr><th rowspan="2">Fuel</th><th colspan="2">Fuel Saving</th></tr><tr><th>PDD (2003-2007)</th><th>2013 (dry season)</th></tr><tr><td>Wood</td><td>21.20%</td><td>21.52%</td></tr><tr><td>Charcoal</td><td>20.89%</td><td>22.54%</td></tr></table> Due to this verificatrion period is 129 days, the fuel saving test was conducted only once in year 2013 in dry season during 13-26 February 2013 at Prek Samrong Village, Ta Khmao for Wood, and 16-29 January 2013 at Boeung Tumpun, Phnom Penh for Charcoal. This is still following the monitoring plan mentioned in section 3.2 (twice per year in dry and rainy season). Moreover, in order to be conservative, this increasing result in current period was not considered for the ER calculation in this verification period. However, it is found that the fuel savings from PDD (2003-2007) in Table 3.1 are not consistency with the original value in registered PD (Wood - 20.89%, Charcoal – 21.20%). Hence, CAR01 is rased. <u>CAR01</u> The fuel savings represented in Table 3.1 of MR version 01 dated on 12 July 2013 (both wood and charcoal) are found	Fuel	Fuel Saving		PDD (2003-2007)	2013 (dry season)	Wood	21.20%	21.52%	Charcoal	20.89%	22.54%		
Fuel	Fuel Saving													
	PDD (2003-2007)	2013 (dry season)												
Wood	21.20%	21.52%												
Charcoal	20.89%	22.54%												

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	inconsistency with the registered PD. <u>2. Representative sample of moisture content of the biomass at the time is burnt</u> The moisture content is not required. Please refer to section 3(a) of this Table above. <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 12 July 2013, it's described that the lifespan of NLS is 1.5 years. Moreover, it is found 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 12 July 2013, the HFCT was conducted only once in dry season. This is in line with description provided earlier in section 3.2 of the MR that HFCTs would be conducted during boht rainy and dry seasons to provide real field data on fuel saving. <u>5. Ensure replaced low efficiency appliances are not used within boundary</u> As per description in section 5.2 of the MR version 01 dated on		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	12 July 2013, it's noticed that the utilization of New Lao Stove (NLS) in urban/peri-urban had increased from 41.7% in year 2009 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 participants 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 12 July 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" and found that this is the laest report published by FAO and the reference is correctly quoted. <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 5.3.2 and 5.3.3 of the MR version 01 dated on 12 July 2013, it's found that the impact on economy and society had been monitored from reliable sources.		
iii. Leakage parameters?	With reference to MR version 01 dated on 12 July 2013, Leakage calculation have been deducted for 15% of emission reduction. This is in line with section B.3 of applied	OK	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl												
iv. The Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?	methodology. Yes. With reference to evidence found onsite visit during 21-23 August 2013, the verifier had interviewed with the GERES's staffs who have responsibilities and authorities for monitoring and reporting. It's confirmed that the description of 'organization structure and responsibilities' in section 3.3.4 of the MR version 3 dated on 19 August 2013 had been implemented as per following table. <table> <tr> <th>Position</th> <th>Name</th> </tr> <tr> <td>NLS Project Manager</td> <td>CHEN Cheth</td> </tr> <tr> <td>NLS Project Assistant</td> <td>HENG Samnang</td> </tr> <tr> <td>NLS Testing (Performance Quality Control) Team Leader</td> <td>CHHEANG Tol</td> </tr> <tr> <td>NLS Quality Control (Physical) Team Leader</td> <td>SREY Makara</td> </tr> <tr> <td>NLS Monitoring Team Leader</td> <td>SAN Saly</td> </tr> </table>	Position	Name	NLS Project Manager	CHEN Cheth	NLS Project Assistant	HENG Samnang	NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol	NLS Quality Control (Physical) Team Leader	SREY Makara	NLS Monitoring Team Leader	SAN Saly	OK	OK
Position	Name														
NLS Project Manager	CHEN Cheth														
NLS Project Assistant	HENG Samnang														
NLS Testing (Performance Quality Control) Team Leader	CHHEANG Tol														
NLS Quality Control (Physical) Team Leader	SREY Makara														
NLS Monitoring Team Leader	SAN Saly														
c. Are equipment controlled and calibrated in accordance with the monitoring plan?	Not applicable. With reference to registered PDD, 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 21-23 August 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												

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
e. Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?	No. With reference to the onsite visit to the NLS Producers, Middle Men and Retailers during 21-23 August 2013. The verifier found that the quality assurance and quality control procedures had 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 QA procedure "HSO_04Jan2012_SOP_4_QualityAssuranceProc_V1.doc". The content of this Procedure Manual are cover all QA/QC activities that referred in the monitoring plan including - o Data Collection - o Data receipt - o Data Entry/Import - o Data reporting With focusing on "Data Collection", combined with interview session with NLS Project Manager, CHEN Cheth, 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 on 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 crosschecked the copied version of these log books and QC log sheet against original Log Book at each producer as described in section 4 (b) of this Table below. Verifier confirmed that the copied version of QC logsheet used by GERES team and the original Log book at	GAR03	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	producer's place are the same. However, verification team had checked the procedure of HFCT and AWBT according to the MR version 3 dated 19 Aug 2013. It is found that from the total of 36 NLS producer which the NLS produced are calculated in Emission reduction, there is one producer, Bun Rith, which is not mentioned in the monitored list of AWBT test. This is not following the monitoring plan that the frequency of AWBT is required '<i>Once every 4 months for each producer</i>'. Hence, CAR03 was issued. CAR03 With reference to '13Jan10_All NLS Producers_Scoring Sheet Result_AWBT_Stage01-2013.xls' which is received during onsite visit on 21 August 2013, it is found that NLS Producer, Bun Rith, is not mentioned in the monitored list of AWBT test. Hence, this is not following the monitoring plan that the frequency of AWBT is required '<i>Once every 4 months for each producer</i>'		
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 2013 to 9th May 2013 was submitted to verification team.	OK	OK
b. Has information provided in the monitoring report been cross-checked with other sources such as plant	Yes.	CAR04	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
log books, inventories, purchase records, laboratory analysis?	During site visit on 21-23 August 2013, the verifier had interviewed to the Climate Change Unit technical director. “Marina Gavaldao”, Carbon project officer, “Ngov-Veng CHHENG”, and ICS project manager, “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. Number of stove sold The verifier had verified the number of stove sold by the following steps: <u>Step 1 : Cross-checking of copied of stove sold data in logbook against data provided in Emission Reduction Spreadsheet</u> Given that QC team of GERES had been visit producer every month and make copy of their original logbook to be collected at GERES office in Phnom Penh. Verification decided to verify the number of stove sold in copied logbook, and then, compared to data provided in spreadsheet. Verification team selected 6 sampling producer as described below for cross-checking the copied of stove sold data in logbook against data provided in Emission Reduction Spreadsheet on the month of January and March 2013. - Vann Tola - Sun Tha - Mom Samean - Ris Sarath - Phun Sophal		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl																	
	- Sim Pov There is no any inconsistency found except March 2013 by Vann Tola. The number of NLS sold in March 2013 by Vann Tola reported in Emission reduction spreadsheet is 5,752 stoves while in copied of stove sold data in logbook is 5,751 stoves. The diffence is less than 1% compared to the total of NLS stove used in Emission reduction calculation. Moreover, this is not larger than 5% materiality. Hence, verifier did not raised any issue on this. <u>Step 2 : Cross-checking of original stove sold data in logbook against QC logsheet at producer sites</u> During onsite visit (22 August 2013), verification team had cross-checked data filled in QC logsheet against original stove sold data in log book as per following detail: a) Producers <table><tr><th>Producer Name</th><th>Date</th><th>Cross-check result</th></tr><tr><td rowspan="12">1) Vann Tola</td><td>01/01/13</td><td rowspan="12">There is no any inconsistency found.</td></tr><tr><td>02/01/13</td></tr><tr><td>04/01/13</td></tr><tr><td>05/01/13</td></tr><tr><td>16/01/13</td></tr><tr><td>18/01/13</td></tr><tr><td>27/01/13</td></tr><tr><td>02/03/13</td></tr><tr><td>05/03/13</td></tr><tr><td>06/03/13</td></tr><tr><td>09/03/13</td></tr><tr><td>15/03/13</td></tr></table>	Producer Name	Date	Cross-check result	1) Vann Tola	01/01/13	There is no any inconsistency found.	02/01/13	04/01/13	05/01/13	16/01/13	18/01/13	27/01/13	02/03/13	05/03/13	06/03/13	09/03/13	15/03/13		
Producer Name	Date	Cross-check result																		
1) Vann Tola	01/01/13	There is no any inconsistency found.																		
	02/01/13																			
	04/01/13																			
	05/01/13																			
	16/01/13																			
	18/01/13																			
	27/01/13																			
	02/03/13																			
	05/03/13																			
	06/03/13																			
	09/03/13																			
	15/03/13																			

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		22/03/13 28/03/13 29/03/13			
	2) Sun Tha	03/01/13 12/01/13 13/01/13 16/01/13 17/01/13 20/01/13 02/03/13 05/03/13 09/03/13 10/03/13 12/03/13 13/03/13 21/03/13	There is no any inconsistency found except the date on 10/03/13 and 12/03/13 which are record that there were 4 stoves had been sold directly to end user. These stoves had not been taken into Emission Reduction Calculation. Verification team considered that this practice is still conservative and did not raise any issues.		
	3) Chourn Sopheak	03/01/13 12/01/13 05/03/13 31/03/13	There is no any inconsistency found.		
	4) Phun Sophal	02/01/13 10/01/13 02/03/13 23/03/13	There is no any inconsistency found.		
	5) Khoem Tim	02/01/13	There is no any		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		24/01/13 04/03/13 09/03/13	inconsistency found.		
	6) Sim Pov	11/01/13 14/01/13 12/03/13 23/03/13 30/03/13	There is no any inconsistency found.		
	7) Phon Somen	25/01/13 06/01/13 13/03/13	There is no any inconsistency found.		
	8) Phon Sopha	13/01/13 03/03/13 24/04/13	There is no any inconsistency found.		
	9) Kong Sophear	04/01/13 08/01/13 14/01/13 24/01/13 06/02/13 24/02/13 05/03/13 07/03/13 15/03/13 27/03/13	There is no any inconsistency found.		
	10) Ven Chomraeun	06/01/13 09/01/13 11/01/13 16/01/13 24/01/13 08/03/13 09/03/13 23/03/13 28/03/13	There is no any inconsistency found.		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
	11) Mom Samean	30/03/13 02/01/13 05/01/13 13/01/13 15/01/13 23/01/13 25/01/13 01/03/13 06/03/13 12/03/13 18/03/13 30/03/13 06/05/13 09/05/13	There is no any inconsistency found.		
	12) Dul Sam Oun	02/01/13 07/01/13 10/01/13 19/01/13 23/01/13 24/01/13 19/02/13 21/02/13 02/03/13 06/03/13 07/03/13 19/03/13 26/03/13	There is no any inconsistency found.		
	13) Sim Sour	02/01/13 12/01/13 14/03/13 24/03/13 26/03/13 10/04/13	There is no any inconsistency found.		

CHECKLIST QUESTION	COMMENTS			Draft Concl	Final Concl
		21/04/13 25/04/13 27/04/13 07/05/13			
	14) Ris Sarath	02/01/13 04/01/13 08/01/13 17/01/13 12/02/13 16/02/13 17/02/13 02/03/13 11/03/13 20/03/13 21/03/13 10/04/13 13/04/13 05/05/13 08/05/13 09/05/13	There is no any inconsistency found except the date on 2 Jan 2013 and 17 Feb 2013 which are record that there were 2 stoves had been sold directly to end user (one for each date). These stoves had not been taken into Emission Reduction Calculation. Verification team considered that this practice is still conservative and did not raise any issues.		
	15) Dourng Saronn	03/01/13 07/01/13 05/02/13 12/03/13 21/03/13 26/03/13 21/04/13	There is no any inconsistency found.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	05/05/13 b) Middle Men It was clarified by Project Participant (PP) that there is no guarantee to get selling record of all stoves kept at middle men side although GERES gave some incentive for some middle men to keep and maintain selling record. Given that verification team had been cross-checked the stoves stored at middle men house since from previous verification, it's quite certain that the middle actually bought stoves from GERES stove producer and sold the NLS to end user from their shops. There is no any curiosity from verification side that the middle men had violated this selling chain. In this sense, verification team set up objective to visit their shop to verify that the shelve life is not larger than 53.4 days specified in monitoring report. <u>Kim Sophy</u> Verification team had visited Kim Sophy's shop to verify that he is still continuing business as middle men. It's found that he had stocking the NLS for at least few months. It's evidence found onsite that his NLS are incorporated of NLS which were produced since from July and August. Verification team found that the shelve life time is not larger than 53.4 days referred by monitoring report. Verification team also found that he has selling book record since from Januray 2013 and there is issue raised for this middle men. <u>Ma Buntheon</u> Verification team had visited Ma Bunthoen's shop and found that he has selling book record only at August month while the NLS produced since from June and August were found. It was clarified later by translater that he was just become middlemen since August 2013 that why has no selling record beyond		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	August to show. We was informed that he bought NLS from producer and stored in his house until he's ready to travel again. There is no issue raised for this middlemen <u>Sim Srun</u> Verification team had visited Sim Srun's shop to verify that she is still continuing business as middle men. It is found that she had stocking NLS produced since from May and August 2013 were found. The NLS produced from May 2013 is found only 1 stove. Hence, the shelf life time is larger than 53.4 days referred by monitoring report. It was clarified later by translator that their might be NLS stove left behind due to poor stock management at their side. Verifier take note of this justification and can found only 1 NLS stove from May 2013. Hence, this is accepted. Verifier also found that she has selling book record since from Januray 2013 and there is issue raised for this middle men. <u>C) Retailer</u> Verification team had visited the house of retailers below to verify that there were authentically NLS stoves sold from GERES producer to local retailers and to confirm that supply chain and NLS selling route prior to reaching to end user reported in monitoring report. <u>Put Khemra</u> Verification team had visited Put Khemra's house and found that the stoves stored in her house were only produced since from July 2013 as well as the sold record was found only from July. There was clarification from her side that her business had been temporality stopped since early of 2013 but just resume to continue stove selling business last month (i.e., July)		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	– so this was reason why verification team only found stove and record since from August. Based on clarification provided above, verification team found no any curiosity based objective evidence found onsite. There was no any issue raised from this finding. <u>Sros Sam</u> Verification team had visited Sros Sam's house and found only some of stoves newly produced since from June 2013. Verification team also found selling record since from beginning of this year. It's found that there was well prepared selling record. there is no any issue raised from verification team based on well evidenced records from this retailer. <u>Morn Thim</u> Verification team had visited Mom Thim's house and did not found any stoves left. This is because all the stoves had been sold out. Verification team also found that he was well prepared for selling record, we found the record since beginning of 2013. There was no any issue raised from this retailer. <u>Ly You</u> Verification team had visited Ly You's house and found only some of stoves newly produced since from July 2013. Verification team also found selling record since from beginning of this year. It's found that there was well prepared selling record. there is no any issue raised from verification team based on well evidenced records from this retailer. <u>Meas Sovann</u> Verification team had visited Meas Sovann's house and found		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	only some of stoves newly produced since from July 2013. Verification team also found selling record since from beginning of this year. It's found that there was well prepared selling record. there is no any issue raised from verification team based on well evidenced records from this retailer. <u>Sak Sreng</u> Verification team had visited Sak Sreng's house and found only some of stoves newly produced since from July 2013. Verification team also found selling record since from beginning of this year. It's found that there was well prepared selling record. there is no any issue raised from verification team based on well evidenced records from this retailer. <u>Torn Sarun</u> Verification team had visited Torn Sarun's house and did not found any stoves left. This is because all the stoves had been sold out 1 month ago and still not have plan for future selling. Verification team also found that he was well prepared for selling record. There was no any issue raised from this retailer. <u>Seng Sovann</u> Verification team had visited Sak Sreng's house and found only some of stoves newly produced since from July 2013. Verification team also found selling record since from beginning of this year. It's found that there was well prepared selling record. there is no any issue raised from verification team based on well evidenced records from this retailer. 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		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	producer. Based on sampling result above, it's likely to believe that data had been correctly transferred from the copied version of Log Book into Emission Reduction spreadsheet. 2. Wood saving and Charcoal saving which is the result of the "Household Fuel Consumption Test (HFCT)" and "Adapted Water Boiling Test (AWBT)" Verification team have checked information provided for AWBT and HFCT in MR against (a) hard copies and (b) summary in excel sheet, and for HFCT these following producers had been cross-checked and found no any discrepancy. - Sum Sarern - Kol Sarin - Sou Sovana - Morn Chenda - Mek Ky Moreover, Verification team asked PP how to ensure the accuracy of the test result. NLS Project Manager, CHEN Cheth, explained that HFCT and AWBT required monitoring equipment; Thermometer and weighing scale. He described that Thermometer was calibrated according to the procedure "Thermometer and Thermocouple calibration using ice-water bath and boiled water". Nevertheless, there is no calibration procedure for weighing scale. He clarified that normally they used weighing scale which can be purchased normally in the market. And generally, the NLS staff would perform observation check for the accuracy of weighing scale. If the		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	result is found error, they would bought the new one. However, in terms of emission reduction calculation, PP still uses more conservative value in their calculation. Hence, this is accepted and verification team had no further issue on this. 3. 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 (August). In line with GERES plan that the national stove user survey will conduct every two years (biennial), so the results from 2011 national survey which is done on August 2011 is still valid for emission reduction calculation in this monitoring period (1 January – 9 May 2013). 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. Combined with positive result from 6th and 7th 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.		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl																	
	4. POST time With reference to description provided in section 3.3.2.2 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 Sovann) that the POST is less than 53.4 day. Verification team had cross-checked the POST time during on site visit as by checking the stove in shelf of Retailer shop and stove at 2 retailer houses as followed. <table><tr><th>Retailer shop</th><th>NLS size</th><th>Production month</th></tr><tr><td rowspan="4">Lyna Omchan</td><td>A0</td><td>01/13</td></tr><tr><td>A4</td><td>01/13</td></tr><tr><td>A3</td><td>03/13</td></tr><tr><td>A4</td><td>03/13</td></tr><tr><td rowspan="2">Men Sokear</td><td>A0</td><td>xx/12</td></tr><tr><td>A3</td><td>04/13</td></tr></table> It is found that there are 6 NLS stoves which have POST time larger than 53.4 days. However, the retailers explained that these stove are broken and the stove color had been deteriorated by raining. Hence, they cannot sell all these stove due to that end user are likely to choose the newest one which is not broken and the color of stove still look normal. Verification team confirmed by visual observation that all these	Retailer shop	NLS size	Production month	Lyna Omchan	A0	01/13	A4	01/13	A3	03/13	A4	03/13	Men Sokear	A0	xx/12	A3	04/13		
Retailer shop	NLS size	Production month																		
Lyna Omchan	A0	01/13																		
	A4	01/13																		
	A3	03/13																		
	A4	03/13																		
Men Sokear	A0	xx/12																		
	A3	04/13																		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	stove are broken and decolorized by rain. Hence, the justification is accepted and had no further issue. Moreover, most of the other retailers (mentioned in 'Number of stove sold') also confirmed that all NLS stove normally sold out within 2 weeks to 1 months after receiving from Middle Man /Producer. Hence, in connection to the application of 53.4 days for POST which is more conservative, verification team is satisfied in this approach. <u>5. Number of Producer</u> It is found that the number of NLS stove sold which is used in emission calculation for period of 1 Jan 2013 to 9 May 2013 is 155,278 stoves. Verification team had crosschecked the number and found that the amount of 155,278 stoves is calculated based on 36 producers. It is noticed that there is inconsistency of the number of NLS producer in 3 sources; - 32 producers in MR version 3 dated on 19 August 2013, - 36 producers in 'Copie de CNV-23July2013-NLS_OUT_sort_by_Producers_and_Sizes-v0-1.xlsx' - 35 producers in '13Jan10_All NLS Producers_Scoring Sheet Result_AWBT_Stage01-2013.xls' Hence, CAR04 is raised below. <u>CAR04</u> The number of NLS producer is related directly to the amount		

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl												
	of stoved used in the emission reduction calculation. However, it is found that the number of NLS producer is found inconsistency between - 32 producers in MR version 3 dated on 19 August 2013, - 36 producers in ‘Copie de CNV-23July2013-NLS_OUT_sort_by_Producers_and_Sizes-v0-1.xlsx’ which is received on 23 July 2013 - 35 producers in ‘13Jan10_All NLS Producers_Scoring Sheet Result_AWBT_Stage01-2013.xls’ which is received during onsite visit on 21 August 2013														
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 “CCU_04Jul2013_NLS database 01st Jan - 09th May 2013Vfinal.xlsx” and found that the Emission Reduction calculation has been correctly calculated by the following steps: <table><tr><th>Parameters</th><th>Calculation Equation</th></tr><tr><td>Emission Reduction</td><td>Baseline Emission – Leakage - 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)</td></tr><tr><td></td><td><u>Mean of verification</u> The application of factor 20.89% in calculation spreadsheet is in line with</td></tr></table>	Parameters	Calculation Equation	Emission Reduction	Baseline Emission – Leakage - 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	GAR02 CL03 CL04	OK
Parameters	Calculation Equation														
Emission Reduction	Baseline Emission – Leakage - 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														

CHECKLIST QUESTION	COMMENTS		Draft Concl	Final Concl
		registered PDD		
	Charcoal Saving	Charcoal Usage x 21.2% (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 (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) <u>Mean of verification</u> Please refer to CAR02 below.		
	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.		
	Leakage	15% of Baseline Emission		
	Transport Emission	Please refer to CL03, and CL04 below.		
CAR02				

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	The calculation method of accumulated total number of NLS in use from each month in Table 2.2, 2.3, 4.1 and 4.2 of MR version 01 dated 12 July 2013 are not correct. <u>CL03</u> With reference to calculation spreadsheet “CCU_04Jul2013_NLS database 01st Jan - 09th May 2013Vfinal.xlsx”, please provide detail of transport emission calculation in each month. <u>CL04</u> With reference to MR version 01 dated on 12 July 2013, please clarify why the amounts of fuel consumption for both gasoline and diesel in Table 7.6 are found inconsistency with Table 7.7 and Table 7.8.		
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. Verification team had verified and confirmed correctness of Net Calorific Value (NCV), Emission Factor (EF) of biomass, Wood to Charcoal Ratio, and Factor to convert litres of fuel to tonnes of fuel (diesel and gasoline) which are applied in emission reduction calculation. However, CL05 is raised due to wrong and/or unavailable reference.	CL05	OK

CHECKLIST QUESTION	COMMENTS	Draft Concl	Final Concl
	CL05 With reference to MR version 01 dated 12 July 2013, please clarify the reference as follow; - Figure 2 (page 36) - Figure 3 (Page 33) - Figure 4 (Page 33) - Figure 7 (page 35, 36, 37) - Figure 13 (page 36) - Figure 14 (page 9)		
5. Forward Action Request from previous verification			
a. Is there/ are there any FAR requested from previous verification?	No. There is no FAR from previous verification.	OK	OK
b. Have appropriate justification been provided for the FAR aboved?	Not applicable There is no FAR from previous verification.	OK	OK
c. Can any FAR be closed in this verification period?	Not applicable There is no FAR from previous verification.	OK	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
<u>CAR01</u> The fuel savings represented in Table 3.1 of MR version 01 dated on 12 July 2013 (both wood and charcoal) are found inconsistency with the registered PD.	3 (b) ii	<u>1st GERES Response (19/08/2013)</u> The fuel savings stated in the PDD (see the Table 3.1 below) are used in the ERs calculation excel spreadsheet. We conduct household fuel consumption test (HFCT) to ensure that fuel savings achieved by the NLS should not fall below the thresholds (i.e., 21.20% for wood and 20.89% for charcoal) which are used in the calculation of NLS emission reductions. Yet, to be consistent with the PDD and conservative, we still use the old fuel savings stated in the PDD. MR corrected accordingly.	<u>1st Verification Team response (29/08/2013)</u> Verification team had reviewed the revised MR version 3 dated on 19 Aug 2013 and found that the fuel savings represented in Table 3.1 for “2003-2007 (written in the PDD)” is now consistency with registered PD where Wood is 20.89% and Charcoal is 21.20% . This is corrected and accepted. However, as a result of revision, the Fuel savings achieved through use of the NLS compared to TLS for “2013 (only dry season)” in Table 3.1 of MR version 3 where Wood is 22.92% and Charcoal is 21.52% are now found inconsistency with the results shown in section 7.2.1 and 7.2.2 of MR version 3 dated on 19 Aug 2013 where Wood is 21.52% and Charcoal is 22.92%. Hence, CAR01 is still pending.

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
		<u>2nd GERES Response (02/09/2013)</u> The MR is now corrected accordingly (version 4.1)	<u>2nd Verification Team response (16/09/2013)</u> Verification team had reviewed the revised MR version 4.1 dated on 2 Sep 2013 and found that the result of fuel savings represented in Table 3.1 for “2003-2007 (written in the PDD)” and “2013 (only dry season” are corrected and accepted. Hence, CAR01 is now closed.
<u>CAR02</u> The calculation method of accumulated total number of NLS in use from each month in Table 2.2, 2.3, 4.1 and 4.2 of MR version 01 dated 12 July 2013 are not correct.	4 (c)	<u>1st GERES Response (19/08/2013)</u> MR has been corrected accordingly as well as the ER Excel spreadsheet; the correction can also be found on the following tables of the MR: Table 0.1 Summary of stoves sold and in use, 01st January – 09th May 2013 Table 0.2 Baseline emissions Table 0.3 Biomass saved by NLS project, 1st January – 09th May 2013	<u>1st Verification Team response (29/08/2013)</u> Verification team had reviewed the revised MR version 3 dated on 19 Aug 2013 and found that accumulated total number of NLS in use from each month in Table 2.2, 2.3, 4.1 and 4.2 are now corrected. Hence, this is accepted and CAR02 is now 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
CAR03 With reference to '13Jan10_All NLS Producers_Scoring Sheet Result_AWBT_Stage01-2013.xls' which is received during onsite visit on 21 August 2013, it is found that NLS Producer, Bun Rith, is not mentioned in the monitored list of AWBT test. Hence, this is not following the monitoring plan that the frequency of AWBT is required <i>'Once every 4 months for each producer'</i>	3 (e)	<u>2nd GERES Response (02/09/2013)</u> This producer was excluded from the producers list and accountancy for ERs. He wasn't able to participate to the AWB as its production was less than 30 stoves and so, the fact of taking 7 stoves would have a big impact over its total production. Conclusion: Mr. Bun Rith was excluded from both the ERs calculations and the producers list included in this verification.	<u>2nd Verification Team response (16/09/2013)</u> Verification team had no objection on exclusion of Mr. Bun Rith and his 29 NLS stoves produced from this verification due to the fact that it makes more conservative result for emission reduction calculation. Verification team had reviewed the revised MR version 4.1 dated on 2 Sep 2013 and emission reduction calculation spreadsheet received on 9 Sep 2013. It is found that Mr. Bun Rith is now excluded from the list of NLS procedure. Moreover, 29 NLS stoves produced by Mr. Bun Rith are also removed from emission reduction calculation spreadsheet received on 9 Sep 2013. Hence, the total NLS stove produced is now calculated based on 35 NLS producers. This is accepted and CAR03 is now 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
CAR04 The number of NLS producer is related directly to the amount of stoved used in the emission reduction calculation. However, it is found that the number of NLS producer is found inconsistency between - 32 producers in MR version 3 dated on 19 August 2013, - 36 producers in 'Copie de CNV-23July2013-NLS_OUT_sort_by_Producers_and_Sizes-v0-1.xlsx' which is received on 23 July 2013 - 35 producers in '13Jan10_All NLS Producers_Scoring Sheet Result_AWBT_Stage01-2013.xls' which is received during onsite visit on 21 August 2013	4 (b)	<u>2nd GERES Response (02/09/2013)</u> MR and ERs related files were corrected accordingly – Mr. Bun Rith is excluded from this verification.	<u>2nd Verification Team response (16/09/2013)</u> With reference to 2nd verification team response on CAR03, it is confirmed that there are 35 NLS producers for this verification period. Verification team had reviewed revised MR version 4.1 dated on 2 Sep 2013 and emission reduction calculation spreadsheet received on 9 Sep 2013, and found that they are now corrected. Hence, this is accepted and CAR04 is now closed.
CL01 Please clarify that the project activity is categorized as 'AMS-II.G' under UNFCCC category.	1 (e)	<u>1st GERES Response (19/08/2013)</u> The project fits to all applicability conditions mentioned in the methodology. The term "category" is a current term used by the UNFCCC that also makes reference to "baseline	<u>1st Verification Team response (29/08/2013)</u> Verification team had satisfied with the justification provided that this project activity is in line with the applicability of AMS-II.G.

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				
		methodology”. For the detail analysis of all the applicability conditions, please find below. We strongly believe that the PA is in-line with the scope and applicability of the UNFCCC AMS-II.G . <table><tr><td>‘AMS-II.G’ under UNFCCC category (extract)</td><td>The PA</td></tr><tr><td>This category comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or energy efficiency improvements in existing biomass fired</td><td>Reduce charcoal and thereby fuel wood consumption by introducing improved Lao cook stoves in Cambodia(which can save 21.20% wood or 20.89% charcoal compared to traditional Lao stove). Recommendatio</td></tr></table>	‘AMS-II.G’ under UNFCCC category (extract)	The PA	This category comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or energy efficiency improvements in existing biomass fired	Reduce charcoal and thereby fuel wood consumption by introducing improved Lao cook stoves in Cambodia(which can save 21.20% wood or 20.89% charcoal compared to traditional Lao stove). Recommendatio	Hence, this is accepted with no further question, and CL01 is now closed.
‘AMS-II.G’ under UNFCCC category (extract)	The PA						
This category comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or energy efficiency improvements in existing biomass fired	Reduce charcoal and thereby fuel wood consumption by introducing improved Lao cook stoves in Cambodia(which can save 21.20% wood or 20.89% charcoal compared to traditional Lao stove). Recommendatio						

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
		cook stoves or ovens or dryers. Project participants shall be able to show that non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	ns issued by the Climate Care Trust (which later, got accepted by the CDM board as a small scale project activity), based on modifications of proposed methodology SSC.II.G. by the Joanneum Institute and number of studies (that were used at the time of PDD development, for example, IGES-CCCO charcoal study, 2005) allow to conclude	

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
			that charcoal in the project area is non-renewable.	
CL02 Please clarify the difference of lifespan between 18 months in 'description' and 3 years 'description of measurement methods and procedures to be applied' of parameter 'Annual Check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure' inconsistency.	3 (a)	1st GERES Response (19/08/2013) Clarification added in the MR Page 13-14 of the PDD illustrates that evidence collated at the time of the PDD development allowed the PA to estimate a stove lifetime value of 3 years. Hence this figure is subjected to biennially checks (every two years) by National Stove User Survey. The survey provides information about stove lifetime, user satisfactions and preference of next stove purchase. The 2011 NUS founded that 90% of the stove users are happy with the stove durability against TLS. However, to be conservative and to comply with to recommendation to use the updated stove lifetime based on the NUS, the lifespan of 18 months is used instead of 3 years.		1st Verification Team response (29/08/2013) The clarification of 'description' of parameter 'Annual Check of representative samples to ensure that they are still operating or replaced by an equivalent in service appliance or measure' is now revised in MR version 3 dated on 19 Aug 2013 to <i>"In the PDD a 3 years lifetime was considered. However, according to our National Users Survey data, the project activity currently uses a conservative estimate of 1.5 year lifespan (or 18 months) 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 which will demonstrate the increased</i>

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
			<i>market share of NLS. In addition survey data demonstrate user's preferences."</i> According to justification provided and clarification added in MR version 3 dated 19 Aug 2013, this is found clear and consistency. Moreover, the lifespan of 18 months which is used instead of 3 years provided more conservative result of emission reduction. Hence, this is accepted and CL02 is now closed.
<u>CL03</u> With reference to calculation spreadsheet "CCU_04Jul2013_NLS database 01st Jan - 09th May 2013Vfinal.xlsx", please provide detail of transport emission calculation in each month.	4 (c)	<u>1st GERES Response (14/08/2013)</u> Transport emission calculations excel sent	<u>1st Verification Team response (29/08/2013)</u> Verification team had received the transport emission calculation spreadsheet namely '6013-6014_JAN-MAY2013_AL.xlsx' with reference on 12 August 2013. Hence, this is accepted and CL03 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
CL04 With reference to MR version 01 dated on 12 July 2013, please clarify why the amounts of fuel consumption for both gasoline and diesel in Table 7.6 are found inconsistency with Table 7.7 and Table 7.8.	4 (c)	<u>1st GERES Response (14/08/2013)</u> The monitoring report is corrected accordingly.	<u>1st Verification Team response (29/08/2013)</u> Verification team found that Table 7.6, 7.7 and 7.8 in section 7.4 of MR version 1 dated on 12 July 2013 are now changed to Table 7.8, 7.9, and 7.10 in section 7.4 of revised MR version 3 dated 19 Aug 2013 respectively. However, verification team had reviewed the amounts of fuel consumption for both gasoline and diesel in to Table 7.8, 7.9, and 7.10 in revised MR version 3 dated 19 Aug 2013, and found that they are now correct and consistent. Hence, this is accepted and CL04 is now closed.
CL05 With reference to MR version 01 dated 12 July 2013, please clarify the reference as follow; - Figure 2 (page 36) - Figure 3 (Page 33) - Figure 4 (Page 33)	4 (e)	<u>1st GERES Response (19/08/2013)</u> The MR is corrected accordingly	<u>1st Verification Team response (29/08/2013)</u> Verification team had reviewed the revised MR version 3 dated 19 Aug 2013, and found that the references are now corrected. However, there still had

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
- Figure 7 (page 35, 36, 37) - Figure 13 (page 36) - Figure 14 (page 9)		<u>2nd GERES Response (02/09/2013)</u> The MR was reviewed accordingly	pending references which required clarification/correction as follow; - Figure 2 mentioned in section 7.3.4 - Figures 3 and 4 mentioned in section 7.3.1 - Figure 14 mentioned in section 3.3.2.2 Hence, CL05 is still pending. <u>2nd Verification Team response (16/09/2013)</u> Verification team had reviewed the revised MR version 4.1 dated 2 Sep 2013, and found that all references are now corrected and accepted. Hence, CL05 is closed.
<u>CL06</u> With reference to transport emission calculation spreadsheet, please provide clarification and/or the reference evidence as follow: - Why the calculation of April 2013 in 'Sum' tab, Diesel price (Cell C6),	3 (b) i	<u>2nd GERES Response (02/09/2013)</u> The Transport emissions calculation file was corrected accordingly	<u>2nd Verification Team response (23/09/2013)</u> Verification team found that the references for Diesel price, Gasoline price, and KHR-USD Exchange rate for April and May 2013 are now revised to "CDRI Flash report (May13)" and "CDRI

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
Gasoline price (Cell G6), and KHR-USD Exchange rate (Cell K6) are found inconsistency with the reference '209_bulletin_may_2013.pdf' - The evidence for Gasoline price and KHR-USD Exchange rate in May 2013 by Economic Institute of Cambodia			Flash report (Jun13)" respectively. This is also found consistency with references used for January to March 2013. Verification team had reviewed the transport emission calculation, revised MR version 4.3 dated 20/09/13, and Emission Calculation spreadsheet dated 20/09/13 and found that the information and calculation are now consistent and correct. Hence, this is accepted and CL06 is now closed.