South Asia

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Verification and Certification Report

Verification of the Registered GS Project

"Clean and Efficient Cooking and Heating Project, China"

GS reference number: 949

Monitoring Period 03: 16-05-2012 to 28-02-2013

Report No. 10053TE

10 December 2013

TÜV SÜD South Asia Pvt. Ltd.
Environmental Technology
Carbon Management Service
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INDIA

Date of first issue of this report	18/04/2013
Revision No. of this report	03
Registered PDD (version/date)	Version 04 – 01/04/2011
GS Registration date	29/03/2011
Revised Monitoring Plan	Project design change has been approved by GS on 30/04/2013
Methodology (title; number; version)	Indicative Programme, Baseline, and Methodology for Improved Cook-Stoves and Kitchen Regimes, Version 02
Crediting period	29/03/2009 to 28/03/2018 including 2 years retroactive crediting (renewable)
Published Monitoring Report (version/date)	Version 01 - 15/03/2013
Final Monitoring Report (version/date)	Version 08 - 12/12/2013
Scope	1, 3
Technical Area	1.1, 3.1
Location of the Project	Shanxi Province, Guizhou Province, Enshi Autonomous State of Hubei Province
Project Participant (contractor)	Impact Carbon (Client) 47 Kearny Street, Suite 600, San Francisco, CA 94108 Myclimate Sternenstrasse 12, Zurich 8002, Switzerland
Project Documentation Link	http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000001980

VERIFICATION AND CERTIFICATION CONCLUSION

TÜV SÜD South Asia Pvt Ltd has performed the third periodic verification of the aforementioned registered GS project activity “Clean and Efficient Cooking and Heating Project, China”. The project activity replaces inefficient “traditional” coal-burning stoves with improved biomass stove technologies. it consists of the implementation of improved biomass stoves in Shanxi Province, Guizhou Province and Enshi Autonomous State of Hubei Province. By the end of this monitoring period, total 29,879 stoves in Shanxi Province, 22,411 stoves in Enshi state and 41,743 stoves in Guizhou Province have been retroactively included since 2009.

The management of Impact Carbon is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the project’s Monitoring Plan indicated in the registered PDD and the applied methodology.

A document review, followed by a site visit was conducted to verify the information submitted by the project participant regarding the present verification period. Based on the assessment carried out, the verifier confirms the following:

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project has been implemented and operated in accordance with the descriptions given in the registered GS PDD (version 04, 01-04-2011, and approved project design change, 30/04/2013).
- There are two new clusters involved in the project activity. Therefore, a project design change has been requested to have a 100% compliance with the actual situation. This has been applied and approved by GS foundation on 30/04/2013 (IRL 10). The project design

change complies with the applied GS methodology ("Methodology for Improved Cookstoves and Kitchen Regimes V02") and the monitoring has been carried out in accordance with the project design change.

- The involved stoves being essential for generating emission reductions run reliably, and monitoring equipment is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements;
- the monitoring plan in Monitoring Report is as per registered GS PDD

The closure of all CARs (4) and CRs (4) resulted in change of respective section of the revised MR, while a FAR is raised and expected to be closed in the following monitoring period. Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity.

Verified emission reductions in this monitoring period: 303,913 t CO_2e

Baseline: 303, 913 tCO_2e
Project emissions: 0 tCO_2e
Leakage: 0 tCO_2e

Pune, 10/12/2013

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Certification Body "Environment and Energy"
TÜV SÜD South Asia Pvt Ltd

Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CM	Combined Margin
CO_2e	Carbon dioxide equivalent
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
GS	Gold Standard
GS-TAC	Gold Standard Technical Advisory Committee
GWP	Global Warming Potential
HHs	Households
ICS	Improved Cook Stove
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organisation
OM	Operating Margin
PDD	Project Design Document
PP	Project Participant
SDM	Sustainable Development Matrix
TÜV SÜD	TÜV SÜD South Asia Pvt Ltd
VER	Verified Emission Reductions/Voluntary Emission Reduction
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation And Verification Standard

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1 METHODOLOGY

1.1 Objective

TÜV SÜD has been commissioned by the aforementioined client to perform an independent verification assessment.
The objective of the verification work is to comply with the GS requirements. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, monitoring equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable GS requirements,
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the GS methodology,
- evaluate the data recorded and stored as per the “Gold Standard Methodology for Improved Cook-stoves and Kitchen Regimes – version 02”.

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Designated Operational Entity. The verification is based on the submitted monitoring report, the validated project design documents including its monitoring plan and validation report, the verification reports for its retroactive period, the GS monitoring methodology, relevant decisions, clarifications and guidance from GS TAC and, if applicable, from the EB and any other information and references relevant to the project activity’s resulting emission reductions. These documents are reviewed against the GS requirements and related rules and guidance.
Based on the requirements in the VVS, TÜV SÜD has applied a rule-based approach for the verication of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.
The verification considers both quantitative and qualitative information on emission reductions.
The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Verification Process

The information provided by the project participants is assessed by applying the means of verification specified in the GS general guidance and in the absence of specific means of verification specified at GS the standard auditing techniques are applied.

Once TÜV SÜD receives the Monitoring Report and a confirmation from any PP to upload, the MR is made publicly available through a dedicated interface on the GS website.
A competent assessment team is selected priot to the start of the verificaiton. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the GS project activity. Additionally a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by an on-site visit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the GS registry.

1.4 Appointment of the Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a assessment team in accordance with the appointment rules of the TÜV SÜD Certification Body "Environment and Energy".
The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Verifier (V);
- Verifier Trainee (T);
- Technical Experts (TE);
- Country expert (CE);
- Technical review (TR).

It is required that the sectoral scope(s) and the technical area(s) (TA) linked to the methodology/ies and project have to be covered by the assessment team. Appointment certificates of the selected team members are attached to this report as Annex.

Assessment Team:

Name	Qualification	Scope	Technical Area	Host country experience	Onsite visit
Mr. Tolcach, Eric Rodolfo*	**ATL**	☑	☑ **(GS)**	-	-
Mr. Maharjan, Bhai Raja	**ATL***	☑	☑ **(GS)**	-	☑
Mr. Zhe, Jiang (Eric)	V			☑	☑

* New Assessment team leader Mr. Tolcach, Eric Rodolfo joined the team since June 2013, and the scopes of this project were covered during the on-site mission by Mr. Maharjan, Bhai Raja as per the appointments valid at that time. However, he is not working with TÜV SÜD any more.

Technical Reviewer (s):

Name	Qualification	Scope	Technical area
Mr. Mitterwallner, Robert	**TR**	☑	☑ **(GS)**

1.5 Review of Documents

MR publication has been initiated before the verification activities started. Based on the published MR the assessment team performed a desk review to:

- verify the completeness of the data and the information presented in the MR,
- check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid,

- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of all documents reviewed is available in the Information Reference List attached as Annex 2 to this report.

1.6 On-site Assessment and follow-up Interviews

During on-site visit (31/03/2013 - 03/04/2013, and 09/04/2013) TÜV SÜD performed a physical site inspection and interviewed project stakeholders to:

- confirm the implementation and operation of the project,
- review the data flow for generating, aggregating and reporting the monitoring parameters,
- confirm the correct implementation of procedures for operations and data collection,
- cross-check the information provided in the MR documentation with other sources,
- check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.,
- review the calculations and assumptions used to obtain the GHG data and ER,
- identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

During the site visit in 2nd verification, the audit team went each cluster to perform audits, and confirmed that all three clusters spread from north to south in China. Considering the proposed monitoring period is no more than one year that the situation in all clusters can not be remarkably changed. Furthermore, the fact verified is that the improved stoves are intensively used in different seasons in all three clusters, the audit team decided to visit each cluster in turns when the improved stoved are in use (i.e. stoves are in use in summer in Shanxi Province, and those stoves are mostly in use in winter in Guizhou and Enshi clusters), in order that the stove performance and sales activity can be observed during the site visit. As for while the other two clusters, the document review and interview with relevant PPs will be performed in the TUV SUD office so that PP fianancial burden for on-site visit could be well balanced and alleviated.

Therefore, the following visits (in April, 2013) have been performed for Guizhou Province by randomly selection of the community and the households (the number of households is defined by the DOE[1] in this case since there is no requirement from the registered PDD and GS Methdology):

When performed on-site visit in 3rd verification, the audit team applied stratified random sampling approach. The first level is the community, then the next level is individual household. Considering the transport access and logistics, there are four out of 40 villages/communities chosen in this monitoring period, on the basis of TUV SUD expertise and local experience.

Then, in the next level the household has been selected randomly. The result of this approach is recorded with questionnaire answered by households visited (IRL 03).

The selected villages under the cluster Guizhou Province:
- Guizhou Province, Anshun city, Qibo Village (8 households);
- Guizhou Province, Anshun city, Yaoshang Village (8 households);
- Guizhou Province, Anshun city, Fenghuang Village (10 households);

[1] According to ISO9001, DOE defined that the number of sample randomly selected is no less than the square root of the total HHs that used improved stove in the village. For example, the total HHs are 80, the selected samples should be more than 8.9, which is at least 9 HHs.

- Guizhou Province, Anshun city, Luoyuan Village (9 households)

A list of all persons interviewed is included in the IRL attached as Annex 2 to this report.

1.7 Resolution of Clarification and Corrective and Forward Action Requests

The objective of this phase of the verification is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD`s conclusion on the achieved emission reductions. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the verification process, the concerns raised and responses that have been given are documented in detail in the List of Findings that is attached as Annex 1 to this report.

1.8 Internal Quality Control

Internal quality control within the team is assured by means of a technical review process that takes place after the on-site assessment and after closure of findings. The internal quality control in the verification process is given by the final decision (Verification and Certification Conclusion) made by the CB “Environment and Energy”.

2 REPORTING REQUIREMENTS

In the following sections, the results of the verification are stated. The verification results relate to the project performance as documented and described in the final PDD and Approved project design change (IRL 10) and final Monitoring Report. The verification findings for each verification subject are presented below.

2.1 FARs from Previous Verification

The verification team confirms that all FARs presented in the verification reports have been correctly addressed by the PPs.

Remaining Requests from Previous Verifications	Summary of project owner response	Audit team Conclusion and IRL
Forward action request No. 1 (from 2nd verification report) During the site visit and interviewing with local manufacturer in Shanxi Province, the audit team could confirm the improved stoves became popular in the nearby counties and regions. When the periodic KPT and KS is performed by the monitoring team, the random sampling selection shall cover all the regions where improved stoves were sold, to be assured the survey results are representative. The same situation may apply with the new clusters approved.	All regions where improved stoves were sold during the crediting period were included in the sampling frame for the KS.	☑ The audit team has reviewed the original data for kitchen surveys conducted in Shanxi cluster, and found the samples are randomly selected and distributed in this region. The sample plan are credible and respresentative. (IRL27, 30)
Forward action request No. 2 (from GS Review Request in 2nd Issuance) Please note that the incentive scheme to discourage the use of old stoves is also part of SD monitoring plan, being a retroactive period it is not possible to discuss the same for this monitoring period. The PP shall monitor the same and report in next verification. The PP and DOE are requested to clarify how this FAR has been addressed.	PP has monitored discontinued use of old stoves in Shanxi. In this province the old stoves we replace in non-heating season are mostly large built-in stoves that are hand-made with bricks and clay, and adhered to the wall in kitchen. According to the observation in the quarterly KS, all households surveyed have stopped using that stove in the non-heating season; however, as it has been built-in to the home and it is very difficult to remove, no one disposes it. Rather, they use the installation for a large kitchen table which stores many things like bowls, basins, and kitchen board. In Shanxi, while it is nearly impossible to dispose of old stoves that are built-in to the home, users do discontinue use. As for other two clusters Hubei and Guizhou, the stoves replaced are mostly iron coal stoves, which can be more easily disposed. This is something PP can monitor via the KS over the next monitoring period. Going forward, manufacturers in each province plan to offer a price reduction to users who turn in their old stove. An announcement (eg. banner or poster at each distribution site) to promote the price reduction will be included incentive scheme.	☑ The audit team confirmed that PP has included old stove disposal in KS monitoring and has reported on the incentive scheme in the previous and current verifications. (IRL 03)

2.2 Project Design Change

The project activity replaces inefficient “traditional” coal-burning stoves with improved biomass stove technologies. In the original GS PDD, theimplemented project is in Shanxi province only, it reduces greenhouse gases (GHGs) by replacing household use of high emissions fuels such as coal with readily available excess renewable agricultural residues. Similarly, the proposed design change replaces baseline inefficient “traditional” coal-burning stoves with improved biomass stoves that function as both cooking and heating technologies. The new project sites are in the coal endemic areas of Enshi state of Hubei province, and Guizhou province. The combined cooking and heating stoves installed in these regions reduce GHGs by replacing household use of coal with readily available biomass, which mostly consists of renewable woodfuel. Combined with the 2nd verification (IRL 9), the project design change was approved during GS Request Review on 30 April 2013 (IRL10).

2.3 Project Implementation in accordance with the registered Project Design Document

The project activity in Shanxi Province is fully implemented according to the descriptions presented in the registered GS PDD of 01/04/2011. However, PP has proposed the project design change as mentioned in chapter 2.2, and finally approved by GS on April 30, 2013. The detailed validation has been addressed in the chapter 2.2.

According to the registered GS PDD of 29/03/2011 (IRL 06), and the approved project design change (IRL 10), the project activity is well operational in all three clusters (Shanxi, Guizhou and Enshi state) and the same has been confirmed during the second on-site visiting. Therefore, the verifier confirmed through the visual inspection that all physical features of the GS project activity including data collecting systems and storage have been implemented in accordance with the registered PDD.

2.4 Compliance of the Monitoring Plan with the Monitoring Methodology

The monitoring plan of the original cluster (Shanxi Province) and newly added clusters (Guizhou Province and Enshi state) is in accordance with the GS Methodology for Improved Cook-stoves and Kitchen Regimes, version 02, applied by the proposed GS project activity. Neither a revision nor a deviation to the monitoring plan has been requested to the GS TAC.

2.5 Compliance of the Monitoring with the Monitoring Plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered GS PDD. All parameters were monitored and determined as per the Monitoring Plan. The verification of the parameters required by the monitoring plan is provided as follows:

Data / Parameter:	*Ny,i,Shanxi*
Data unit:	Stoves
Description:	Number of stoves sold in year y of technology i in Shanxi Province
Source of data used:	The Project Sales Record (TSR) provides a conservative record of Project sales. The sales record is used to create the Project Database, which re-organizes sales data and tracks the quantity of stoves sold each day by cluster. These records are kept in Microsoft Excel. (IRL 38)

<table>
<tr><td>Means of verification/Comments:</td><td>Local stove manufacture (Jinqilin) has established recordkeeping systems that enable them to meet the monitoring requirements in GS VER Methodology Page 22: all stove sales record the name, phone, and address of all bulk purchases, and the same information for households (as many as possible). If a stove is returned for any reason, or replaced with a new stove, the Partners ensure that the electronic database is updated to ensure no double counting.</td></tr>
<tr><td>Cross-check</td><td>During the site visits, the audit team confirmed the number of stoves sold by the local manufacturer (Jinqilin), via crosschecking with different credible sources, i.e. Subsidiary report for cook stoves and bank transactions from local government (IRL 39), Receipts for retail records from local distributor (IRL 40), Household lists with original signatures (IRL 41).
<table>
<tr><td>Period</td><td>Total Sale Record</td><td>Cross checking</td></tr>
<tr><td>2009-2010</td><td>13,403 (1st verification)</td><td>1st verification report by DNV</td></tr>
<tr><td>01/10/2010 to 15/05/2012</td><td>12,586 (2nd verification)</td><td>2nd verification report by TUV SUD</td></tr>
<tr><td>16/05/2012 to 31/12/2012</td><td>3,648</td><td>1719 stoves were subsidized by local government (County/Village) with bank statement
1929 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received.</td></tr>
<tr><td>01/01/2013 to 28/02/2013</td><td>242</td><td>242 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received.</td></tr>
<tr><td>Total</td><td>29,879</td><td>The audit team confirmed that the evidence chain is complete and credible.</td></tr>
</table></td></tr>
</table>

Data / Parameter:	*Ny,i,Guizhou*
Data unit:	Stoves
Description:	Number of stoves sold in year y of technology i in Guizhou Province
Source of data used:	The Project Sales Record (TSR) provides a conservative record of Project sales. The sales record is used to create the Project Database, which re-organizes sales data and tracks the quantity of stoves sold each day by cluster. These records are kept in Microsoft Excel. (IRL 42)
Means of verification/Comments:	Local stove manufacture (Huifeng) has established recordkeeping systems that enable them to meet the monitoring requirements in GS VER Methodology Page 22: all stove sales record the name, phone, and address of all bulk purchases, and the same information for households (as many as possible). If a stove is returned for any

	reason, or replaced with a new stove, the Partners ensure that the electronic database is updated to ensure no double counting.

Cross-check	During the site visits, the audit team confirmed the number of stoves sold by the local manufacturer (Huifeng), via crosschecking with different credible sources, i.e. Bidding contracts for biomass stoves (IRL 43), Receipts and invoices for payment from local distributor (IRL 44), Household lists with original signatures (IRL 45).

Period	Total Sale Record	Cross checking
05/01/2009 to 15/05/2012	31,886	2nd verification report by TUV SUD[2]
16/05/2012 to 31/12/2012	7,746	In this monitoring period, the local manufacturer (Huifeng) has won the subsidiary contracts (5,479 stoves) from local governments (County level) by bidding process, then provided the stoves and delivered to the end users. The received confirmation and invoice to government for payment. 2,267 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received.
01/01/2013 to 28/02/2013	2,111	2,111 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received.
Total	41,743	The audit team confirmed that the evidence chain is complete and credible.

Data / Parameter:	*Ny,i,Enshi*
Data unit:	Stoves
Description:	Number of stoves sold in year y of technology i in Enshi state of Hubei Province
Source of data used:	The Project Sales Record (TSR) provides a conservative record of Project sales. The sales record is used to create the Project Database, which re-organizes sales data and tracks the quantity of stoves sold each day by cluster. These records are kept in Microsoft Excel. (IRL 46)
Means of verification/Comments:	Local stove manufacture (Zhiqi) has established recordkeeping systems that enable them to meet the monitoring requirements in GS VER Methodology Page 22: all stove sales record the name, phone,

[2] Guizhou Province as one of newly added cluster in the project design change, was approved by GS on April 30, 2013. It started claim credits from 2nd verification. (IRL 9, 10)

	and address of all bulk purchases, and the same information for households (as many as possible). If a stove is returned for any reason, or replaced with a new stove, the Partners ensure that the electronic database is updated to ensure no double counting.

Cross-check	During the site visits, the audit team confirmed the number of stoves sold by the local manufacturer (Zhiqi), via crosschecking with different credible sources, i.e. Approval for purchase proposal of improved cook stoves (IRL 47), Bank transaction statements (IRL 48), Household lists with original signatures (IRL 49).

Period	Total Sale Record	Cross checking
18/11/2008 to 15/05/2012	16,443	2nd verification report by TUV SUD[3]
16/05/2012 to 31/12/2012	5,441	In this monitoring period, the local manufacturer (Zhiqi) has won the subsidiary contracts (4,263 stoves) from local governments (County level) by bidding process, then provided the stoves and delivered to the end users. The received confirmation and invoice to government for payment. 1,178 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received and bank transfer statement.
01/01/2013 to 28/02/2013	527	527 stoves were sold partly with carbon financing. Each county/village government has issued statement to clearly report the number stoves received and bank transfer statement.
Total	22,411	The audit team confirmed that the evidence chain is complete and credible.

Data / Parameter:	*Uy,i,Shanxi*
Data unit:	Fraction %
Description:	Cumulative annual usage rate for stove age y of stove technology i in Shanxi Province
Source of data used:	100%, Usage survey & report: Jinqilin Stove Ages 0-1; 85%, Usage survey & report: Jinqilin Stove Ages 1-2; 85%, Usage survey & report: Jinqilin Stove Ages 2-3 76%, Usage survey & report: Jinqilin Stove Ages 3-4 Years. (IRL 32)
Means of verification/Comments:	A Usage Survey has been undertaken by Impact Carbon and BUCT monitoring team once a year for sales made in the first year of the project, to establish the drop-off rates in stove usage over time. The sample size is as defined for the baseline KS, selected randomly from

[3] Enshi Autonomous State of Hubei Provice as one of newly added cluster in the project design change, was approved by GS on April 30, 2013. It started claim credits from 2nd verification. (IRL 9, 10)

	users having made their purchase in the first year of the project.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	*Uy,i,Guizhou*
Data unit:	Fraction %
Description:	Cumulative annual usage rate for stove age y of stove technology i in Guizhou Province
Source of data used:	100%, Usage survey & report: Huifeng Stove Ages 0-1; 100%, Usage survey & report: Huifeng Stove Ages 1-2; 100%, Usage survey & report: Huifeng Stove Ages 2-3; 100%, Usage survey & report: Huifeng Stove Ages 3-4 Years. (IRL 33)
Means of verification/Comments:	A Usage Survey has been undertaken by Impact Carbon and BUCT monitoring team once a year for sales made in the first year of the project, to establish the drop-off rates in stove usage over time. The sample size is as defined for the baseline KS, selected randomly from users having made their purchase in the first year of the project.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	*Uy,i,Enshi*
Data unit:	Fraction %
Description:	Cumulative annual usage rate for stove age y of stove technology i in Enshi state of Hubei Province
Source of data used:	100%, Usage survey & report: Zhiqi Stove Ages 0-1; 100%, Usage survey & report: Zhiqi Stove Ages 1-2; 100%, Usage survey & report: Zhiqi Stove Ages 2-3; 100%, Usage survey & report: Zhiqi Stove Ages 3-4 Years. (IRL 34)
Means of verification/Comments:	A Usage Survey has been undertaken by Impact Carbon and BUCT monitoring team once a year for sales made in the first year of the project, to establish the drop-off rates in stove usage over time. The sample size is as defined for the baseline KS, selected randomly from users having made their purchase in the first year of the project.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	$AF_{py,Dcoal,y,i,Shanxi}$
Data unit:	kg/day per household
Description:	Net quantity of coal consumed per day in the project activity by traditional coal stoves in project households with improved stove technology i that is of age y years in Shanxi Province
Source of data used:	2.10 tons/year, Kitchen Performance Test (KPT)/ Aging KPT (IRL 24, 27)

	The sampling method employed was clustered random sampling of 9 villages, 63 households from the sales database. Despite the dispersed geography of rural households the cooking and heating patterns in the target population are homogenous, as demonstrated in the PDD and during previous survey and testing.
Means of verification/Comments:	Annual coal consumption are based on the mean value (according to 90/30 rule) for daily baseline coal use, annual usage drop-off rates (*Uy,i,Shanxi*), and weighted average use months derived from self-reported heating months ($T_{heating\ months,\ Shanxi}$), and self-reported actual months stoves used ($T_{actual\ using\ months,\ Shanxi}$).
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	$AF_{py,Dcoal,y,i,Guizhou}$
Data unit:	kg/day per household
Description:	Net quantity of coal consumed per day in the project activity by traditional coal stoves in project households with improved stove technology i that is of age y years in Guizhou Province
Source of data used:	1.73 tons/year, Kitchen Performance Test (KPT) (IRL 25, 28) The sampling method employed was clustered random sampling of 6 villages, 156 households from the sales database. Despite the dispersed geography of rural households the cooking and heating patterns in the target population are homogenous.
Means of verification/Comments:	Annual coal consumption are based on the mean value (according to 90/30 rule) for daily baseline coal use, annual usage drop-off rates (*Uy,i,Guizhou*), and average self-reported actual months stoves used during which the Project stove is used ($T_{actual\ using\ months,\ Guizhou}$).
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	$AF_{py,Dcoal,y,i,Enshi}$
Data unit:	kg/day per household
Description:	Net quantity of coal consumed per day in the project activity by traditional coal stoves in project households with improved stove technology i that is of age y years in Enshi state of Hubei Province
Source of data used:	2.13 tons/year, Kitchen Performance Test (KPT) (IRL 26, 29) The sampling method employed was clustered random sampling of 12 villages, 168 households from the sales database. Despite the dispersed geography of rural households the cooking and heating patterns in the target population are homogenous.
Means of verification/Comments:	Annual coal consumption are based on the mean value (according to 90/30 rule) for daily baseline coal use, annual usage drop-off rates (*Uy,i,Enshi*), and average self-reported actual months stoves used during which the Project stove is used ($T_{actual\ using\ months,\ Enshi}$).
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the usage survey reports are credible. (IRL 23)

Data / Parameter:	$T_{usage\ months,Shanxi}$
Data unit:	Months
Description:	Average self-reported months of usage with a traditional coal stove in cluster Shanxi.
Source of data used:	Non-heating months (as measured for Age 0-1) are 7.75 months (IRL 50). Actual months of usage as measured in the Aging KPT for Age 1+ (IRL 24) are 9.25 months.
Means of verification/Comments:	During the site visit and interviewing with end users, it is common for users to continue Jinqilin use beyond the non-heating months. Then the monitoring team suveyed each household for the parameter "actual months of stove usage" in stead of "heating months" as this is more precise for the period of the improved stove used. The project uses a weighted value (8.93 months) on the basis of sales records during that period, to arrive at annual project fuel savings value to account for emission reductions in this cluster.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the household suvey are performed in accordance with the original PDD. (IRL 27, 30, 31) All data collected as part of monitoring was archived electronically and will be kept at least for 2 years after the end of the last crediting period.

Data / Parameter:	$T_{usage\ months,Enshi}$
Data unit:	Months
Description:	Average self-reported months of heating in cluster Enshi.
Source of data used:	Ongoing household and kitchen surveys investigated the self-reported heating months during a whole year. (IRL 26, 29)
Means of verification/Comments:	In order to approach precise estimation for the average heating months in a year derived from ongoing the kitchen survey, the project uses a weighted value (5.03 months) on the basis of sales records during that period.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the household suvey are performed in accordance with the original PDD as well as approved project design change. (IRL 30, 31) All data collected as part of monitoring was archived electronically and will be kept at least for 2 years after the end of the last crediting period.

Data / Parameter:	$T_{usage\ months,Guizhou}$
Data unit:	Months
Description:	Average self-reported months of heating in cluster Guizhou.
Source of data used:	Ongoing household and kitchen surveys investigated the self-reported heating months during a whole year. (IRL 25, 28)
Means of verification/Comments:	In order to approach precise estimation for the average heating months in a year derived from ongoing the kitchen survey, the project uses a weighted value (4.38 months) on the basis of sales records during that period.
Cross-check	Based on the specific local and statistic expertise from BUCT monitoring team as third party, the audit team confirmed the

	household suvey are performed in accordance with the original PDD as well as approved project design change. (IRL 30, 31) All data collected as part of monitoring was archived electronically and will be kept at least for 2 years after the end of the last crediting period.

Data / Parameter:	$LE_{pj,y,i,c}$
Data unit:	tCO_2e/stove per lifetime of stove
Description:	One-time leakage emission factor applied to stove sales during project activity year "y" in cluster "c" by transport and/or production of project technologies and activities "i" .
Source of data used:	<table><tr><td></td><td></td><td>Shanxi</td><td>Guizhou</td><td>Enshi state</td></tr><tr><td>A</td><td>Emissions all delivery (kg CO2)</td><td>1457.48</td><td>8381.81</td><td>3410.34</td></tr><tr><td>B</td><td>Amount of stoved sold (piece)</td><td>3890</td><td>9857</td><td>5968</td></tr><tr><td>C (A/B)</td><td>Transport emissions per stove (kg CO2/stove)</td><td>0.375</td><td>0.571</td><td>0.850</td></tr><tr><td>D</td><td>ER per stove (kg CO2/stove year)</td><td>5.20</td><td>4.01</td><td>5.37</td></tr><tr><td>E (C/D)</td><td>% transport leakage emissions of total ER</td><td>0.007%</td><td>0.021%</td><td>0.011%</td></tr></table> Leakage Asessment Report (IRL 58)
Means of verification/Comments:	Based on the local expertise and reasonable assumptions from Impact Carbon, the audit team confirmed the leakage assessment reports are convincible.
Cross-check	-

Sustainability Monitoring Parameters

Component **Indicators**	**Score** **(+,0,-)**	**Assessment and Conclusion**
Local/regional/global environment		
Air quality* (emissions other than GHGs)	+	As stated in the GS PDD, improved stoves generally reduce indoor air pollution and improve air quality. In Shanxi Province, Quarterly Kitchen Survey conducted by CAREI and BUCT monitoring team in Shanxi Province further assessed air quality impacts of the improved stoves during this monitoring period. 30 households each quarter for 3 quarters, total 64 housholds was surveyed (only 4 HHs in Q2). As result, 100% of users reported their improved stoves reduce smoke, symptoms of coughing and eye irritation which are relevant to the air quality. The audit team confirmed the facts by reviewing the kitchen survey report (IRL 27) and interviewing with Ms. Han Wenping as local stove manufacturer. In Guizhou Province, After project design change approval, Kitchen Survey conducted by CAREI and BUCT monitoring team further assessed air quality impacts of the improved stoves in March, 2013, totally 60 households was surveyed (0HH in Q2). As result, 100% of users reported their improved stoves reduce smoke, symptoms of coughing and eye irritation which are relevant to the air quality. The audit team confirmed the facts by stove performance demonstration, site visit 35 households in person (IRL 03), and interviewed with Ms. Li Hui as

		local stove manufacturer. In Enshi state, After project design change approval, Kitchen Survey conducted by CAREI and BUCT monitoring team further assessed air quality impacts of the improved stoves in March, 2013, totally 90 households was surveyed. As result, 100% of users reported their improved stoves reduce smoke, symptoms of coughing and eye irritation which are relevant to the air quality. The audit team confirmed the facts by reviewing the kitchen survey report (IRL 29) and interviewing with Mr. Liao Guangshun as local stove manufacturer.
Sub total	**+**	
Social sustainability and development		
Livelihood of the poor* (including poverty alleviation, distributional equity, and access to essential services)	**+**	The impact of the Project on livelihood of the poor was monitored by the amount of money saved by Project stove users based on the price of coal and the amount of fuel savings recorded in the Kitchen Performance Test. The Project continues to increase the spending power of lower income residents by reducing the amount families must spend on coal. In Shanxi Province, 2-Year Aging Kitchen Performance Test conducted by CAREI and BUCT monitoring team in Shanxi Province in August, 2011, reported that the HH with Jinqilin stove saves an average of 1,961 RMB per year. The audit team confirmed the plausible calculations by interviewing with Mr. Zhang Weihao as monitoring team member, and coal price public available (IRL 64). In Guizhou Province, Kitchen Performance Test conducted by CAREI and BUCT monitoring team in Guizhou Province in March, 2012, reported that the HH with Huifeng stove saves an average of 2,152 RMB per year. The audit team confirmed the plausible calculations by site visit 35 households in person, interviewing with Mr. Zhang Weihao as monitoring team member, and coal price public available. In Enshi Autonomy State, Kitchen Performance Test conducted by CAREI and BUCT monitoring team in Enshi Autonomy State in March, 2012, reported that the HH with Zhiqi stove saves an average of 2,205 RMB per year. The audit team confirmed the plausible calculationsby interviewing with Mr. Zhang Weihao as monitoring team member, and coal price public available.
Access to Affordable and Clean energy services*	**+**	As described in the ongoing kitchen survey (IRL 27,28,29), the HH with Jinqilin stove avoid an average of 2.10 tons coal consumption, and save around 1,961 RMB per year; while the HH with Huifeng and Zhiqi improved stoves avoid 1.73 tons and 2.13 tons coal consumption, and save around 2,152RMB and 2,205 RMB in a year, respectively. On the other hand, PPs monitored the access all three clusters (Shanxi, Guizhou and Enshi) provides for rural households to efficient energy technologies through sales records. Between May 16, 2012 and Feb 28, 2013, the Project provided Chinese residents with a total of 19,915 stoves (3,980 in Shanxi, 5,968 in Enshi, and 9,857 in Guizhou) within this monitoring period. This is an average of 1,714 efficient stoves per month. Monthly sales records has been cross-checked (IRL 38-49). In summary, the waste wood and biomass residues in stead of coal as main fuel of improved stoves in the project activity, it not only assists in expanding the market for improved stoves, but also helps to alleviate the heavy economic burden resulting from a reliance on coal for cooking and heating needs in respective clusters.
Subtotal	**+**	
TOTAL	**+**	

*The asterisk indicators shall monitored in sustainable development monitoring plan.

As for $AF_{py,Apellet,y,i,c}$, $EF_{Pellet\ Machine,i,c}$, $EF_{Pellet\ Machine,i,c}$, $EC_{EL,y,i,c}$, $EC_{pj,y,i,c}$, $TDL_{y,i,c}$ and "New stove performance" indicated in the registered GS PDD are not relevant to the current verification period, since no pellets were produced and identified during the site visit.

2.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan. The reported data have been cross-checked against other sources available as explained above in chapter 2.4.

The verifier confirms that the methods and formulae used to obtained the baseline, project and leakage emissions are appropriate. The same has been done in accordance with the methods and formulae described in the registered monitoring plan and applicable GS methodology. The verifier confirms that the monitoring report includes all parameters and the monitored data at the intervals required by the methodology and GS PDD.

The verifier confirms that all the assumptions, emission factors and default values (ex-ante values from GS PDD) have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report.

Annex 1

List of Findings

List of Findings - Compilation and Resolutions

Version: final

Project Title: Clean and Efficient Cooking and Heating Project, China

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Definitions	
Shall / Should / May	In addition to the definitions contained in the Glossary of CDM terms, the following terms apply in the VVS (VVS/10): Shall is used to indicate requirements to be followed; Should is used to indicate that among several possibilities, one course of action is recommended as particularly suitable; May is used to indicate what is permitted.
Credible	Information is credible if it is authentic and is able to inspire belief or trust, and the willingness of persons to accept the quality of evidence. (VVS/17)
Reliable	Information is reliable if the quality of evidence is accurate and credible and able to yield the same results on a repeated basis. (VVS/17)
CAR	The DOE shall raise a CAR if one of the following situations occur: (VVS/220) (a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient; (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants; (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions; (d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.
CL	The DOE shall raise a CL if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. (VVS/221)
FAR	The DOE shall raise a FAR during verification for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. (VVS/223)

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Compilation and Resolutions of CARs, CRs and FARs

Corrective Action Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	Non renewable biomass fraction assessment	☑ Finding Closed IRL 27, 30, 53, 54 55, 56, 57
Requirement	Information Note, EB 67 Annex 22	
Corrective Action Request	**Corrective Action Request No. 1** As required by GS Meth and GS Review Request in 2nd issuance, Non-renewable biomass (NRB) fraction report shall assess the availability of the fuelwood for each household, but also the renewability of the fuelwood collected by each household (HH) within the reachable distance in the clusters (Guizhou and Enshi). PP shall improve questionnaire used in the data collection during the field survey. PP shall carry out Demonstrably renewable biomass (DRB) assessment in line with the CDM guidelines for the 3rd issuance, and provide the original survey results in the clusters.	
Response	The PP has submitted a DRB assessment that is in line with the CDM guidelines for both Enshi and Guizhou. Please refer to "NRB Study Enshi Iss 3" and "NRB Study Guizhou Iss 3". The Kitchen Survey supports this assessment, and an analysis of the data has been added to Annex 02 and 03 (please refer to the "Biomass" tabs within each worksheet). Data was collected from the following KS questions to measure biomass availability in the regions: a) Is there enough biomass to heat your home with the new stove? b) Compared to five years ago, is the availability of biomass more, less, the same, or do you not know? c) How many days per month do you spend collecting biomass? d) How many hours per day do you spend collecting biomass? e) What is the average distance that you walk each time you collect biomass? Further requirement: PP is requested to provide the original kitchen survey questionnaires relevant to both clusters	

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Corrective Action Requests by verification team		
	(Enshi, 60 copies; Guizhou, 90 copies) for further verification. PP response on 24.07.2013 PPs have provided copies of the original KS questionnaires for Enshi and Guizhou as supporting documentation.	
Assessment Means of verification	During the site visit and document review, the audit team confirmed that the both DRB assessment for Guizhou and Enshi clusters are in line with the guidelines provided in the information note i.e. Appendix 1 EB 67 Annex 22. Furthermore, PP has carried out fuel wood collection area specific surveys for the clusters in Guizhou and Enshi state, respectively. It has been sufficiently demonstrated that the fuel wood is sourced from the sustainable managed forest fields, and the appropriate collection area for the end user.	
Changes in the monitoring report or supporting annexes	Both DRB reports (IRL 53, 54) and MR have been updated to reflect the changes, respectively.	

Corrective Action Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	GS Meth V2 allows PP to survey usage from a representative cohort of households from 1st year of sales in each cluster. That is, periodically PP conducted usage surveys on the random 100HHs at periodical verification to determine the usage rate.	☑ Finding Closed IRL 32, 33, 34
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02 Section III	
Corrective Action Request	**Corrective Action Request No. 2** The audit team has noticed that the usage survey in Guizhou Province, and Enshi State in Hubei Province in the 3rd and 4th stove year are still 100%, respectively. As compared with decreasing usage rate in Shanxi Province, PP shall further substantiate how the usage survey conducted in both new clusters, to be in line with the monitoring plan in GS Methodology.	
Response	The usage monitoring for the Guizhou Province and Enshi State was implemented with the same approach as the monitoring for the Shanxi Province—all in line with GS V2 methodology.	

Corrective Action Requests by verification team		
	The V2 methodology requires a minimum sample size of 100 if the monitored age group includes more than 1,000 stoves. The methodology states that the "usage survey should be undertaken not less frequently than bi-annually (every two years) for sales made in the first year of the project". For all clusters, the usage survey was conducted annually. A total sample size of 100 HHs was selected from sales records of users whose stoves were installed from the first month of each manufacturer's sales to December 2009[1] to calculate the usage rate for the stove age 3-4. To make sure that stoves from each sales month were equally represented, 10 HHs from each month within the sales period were randomly selected. In line with the methodology, more HHs were interviewed though a HH visit compared to over the phone. 64%, 70%, and 60% of the interviews were conducted through a HH visit in Shanxi, Enshi, and Guizhou respectively. It is important to note that the Enshi State Zhiqi and Guizhou Province Huifeng models have higher thermal efficiencies (81.5% and 88.7%, respectively) compared to the Shanxi Province Jinqilin models (CKQ 80 = 41.4%, CKQ 801= 40.4%). This may result in higher customer satisfaction with these models, and thus a higher usage rate. In addition, users of the Jinqilin model report higher months of adoption (8.93 months) compared to the heating months of adoption for the Zhiqi (5.03 months) and Huifeng (4.38 months). This may result in a slower degradation and longer lifespan of these models, which may also influence the higher usage rate. Further requirement: The PP is requested to provide updated usage surveys for all clusters in order to clarify the information aforementioned. PP response on 24.07.2013 PP has submitted revised Annexes 7b, 8b, and 9b, which include columns to indicate whether households were contacted in person or by phone during the survey for this verification period.	

[1] The first month of sales occurred in March 2009 for Shanxi, August 2009 for Zhiqi, and September 2009 (for Huifeng. Please note, the Usage Report previously submitted incorrectly stated that stoves were randomly sampled from the sales months of September to December 2009. This has been corrected to March to December 2009 and the updated version resubmitted.

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Corrective Action Requests by verification team		
Assessment Means of verification	The audit team has reviewed the back-stage document for usage surveys for clusters in Guizhou and Enshi state, which include the detailed information, i.e. whether households were contacted in person or by phone during the survey. Then the audit team confirmed that with the qualified BUCT team, the usage survey conducted by PP for the clusters, Guizhou and Enshi, are in accordance with Meth, therefore credible and acceptable. The explanation above is as discussed during the site visit, and reasonable based on the facts verified.	
Changes in the monitoring report or supporting annexes	Usage survey reports for clusters Guizhou and Enshi state (IRL 33, 34) have been updated, respectively.	

Corrective Action Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	Reported emission reductions	☑ Finding Closed IRL 38, 41, 42, 45, 46, 49, 65
Requirement	GS Principle, Accuracy and conservativeness	
Corrective Action Request	**Corrective Action Request No. 3** 1, PP shall finalize the number of the improved stoves sold in this monitoring period in the sales records, to be in line with the name list in Guizhou cluster (Xiuwen County, Pu'an County) in 2013; 2, PP shall finalize conservatively the number of improved stoves sold among all three clusters, respectively, into the ER summary calculation spreadsheet.	
Response	1. The PP has updated sales records for all three clusters, and has provided Annexes 17, 18, and 19 as evidence. These figures have also been revised in the resubmitted Monitoring Report. 2. The PP has also updated all calculators (see submitted "Calculations" folder), including the ER Summary calculation spreadsheet to reflect finalized sale figures.	

Corrective Action Requests by verification team		
	Further requirement: The PP shall provide the calculation for the "actual stove use self reported" as per the recalculation formulae as this is in line with the deviation until the new aging KPT is performed. Furthermore, the PP shall also perform the same for the other two clusters newly added in the project activity. PP response on 24.07.2013 The PP has clarified this calculation (presented in ER Equations, GS949 and footnote 9 of the MR) with the DOE. Data on self-reported months of usage was available for Shanxi, whereas it had not yet been included in the monitoring of Guizhou and Enshi. For Shanxi, the data is only available during the 2nd biennial aging KPT for Shanxi. The PP conservatively uses a weighted average to account for using self-reported non-heating months (7.75 months) for stoves Age 0-1, and using self-reported months of actual use (9.25 months) in for stoves Age 1+, as was previously done for the last issuance period. For the other two clusters self-reported heating months is calculated from cumulative KS data that is weighted based on sales.	
Assessment Means of verification	1, The information provided in the revised MR is consistent with the evidences verified during this verification process in particular to those evidences collected during the site visit. 2, As for Shanxi cluster, the calculation conservatively applied a weighted average to account for emission reductions, as was previously done for the last issuance period; while Guizhou and Enshi state, its self-reported heating months is calculated from cumulative KS data that is weighted based on sales. The verifier confirms that the methods and formulae used to obtain daily coal consumption are correctly justified, and the relevant assumptions and default values are explicitly mentioned in the calculation spreadsheet. (IRL 65)	
Changes in the monitoring report or	The number of the stoves involved in all three clusters has been transparently documented, while MR and ER spreadsheet have been updated to reflect the changes, respectively,	

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Corrective Action Requests by verification team		
supporting annexes		

Corrective Action Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	Sustainable development indicators	☑ Finding Closed IRL 03, 27, 28, 29, 30, 31
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02 Section III	
Corrective Action Request	**Corrective Action Request No. 4** 1, PP shall further clarify the sampling rules for each cluster for monitoring sustainable development indicators, the audit team found that the number of samples is different from cluster to cluster within its quarterly kitchen surveys for the sustainable indicators in the MR; 2, During the site visit in two households (one is in Yaoshang village, another is in Fenghuang village) with random sampling in Guizhou cluster, the audit team found the indoor air quality is in bad conditions, because the chimney (which is not part of improved stove project, each household might pay extra money to have chimney) was not installed appropriately, PP shall further address it for Air Quality, as one of sustainable indicators in the MR;	
Response	1. Generally, the KS for each cluster included a sample of 30 for each quarter of sales within the issuance period. The variation of sample size among the clusters is due to the following: a) Shanxi – Only 37 stoves were sold in the month of May only during Q2. Thus, only 4 HHs (10% of 37) were surveyed for this quarter of monitoring period. b) Enshi – No stoves were sold during Q2, so no HHs were sampled for the KS this quarter. c) Guizhou – The previously submitted KS Data Analysis worksheet (Annex 03) mistakenly	

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Corrective Action Requests by verification team		
	repeated the HH survey results. This repeated data has been removed a revised Annex 03 with data from 30 HHs for each quarter has been submitted. 2. The Guizhou cluster stove manufacturer, Huifeng, equips stoves with standard chimneys that are sized for typical houses in the region. This issue of ill-fitting chimneys has been discussed with Huifeng and the company will now offer customized chimney adjustments free of charge. In addition, end users are given warranty cards that include Huifeng contact information to use if there are dissatisfied with their stoves or if they require maintenance. Huifeng has responded and provided stove maintenance to users that have contacted the company. As part of the quarterly KS, project HHs are asked if the amount of smoke they are exposed to has increased, decreased or remained the same since the installation of the Huifeng stove. All Guizhou KS respondents reported less smoke exposure with the new stove. <u>Further requirement:</u> This monitoring period covers from 15/05/2012 to 28/02/2013, therefore covering the 2nd, 3rd and 4th quarter in 2012 and the 1st quarter in 2013. Due to this, it is not clear the reason for having 3 kitchen surveys available. PP shall clarify the information presented for the 1st quarter of 2013. <u>PP response on 24.07.2013</u> Kitchen surveys for this project are conducted at the end of every quarter. Fieldwork is clustered and conducted on a schedule in order to maintain feasible monitoring costs. Since this verification ended before the end of Q1 of 2013, data for households that received a stove in January and February of 2013 were not included in the KS. Data for these households will be included in the next verification period.	
Assessment Means of verification	1, The explanation and revision in the updated MR is accepted and in accordance with the information gathered on-site during the interviews performed. 2, The audit team has reviewed the kitchen surveys, indicating that no issue was raised for the indoor air quality, and the overall results are satisfied. With the follow-up action and free chim-	

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Corrective Action Requests by verification team		
	ney implemented in the household identified during the site visit, its environment got improved. The audit team considered the case is not representative, and the similar situation will be avoided with periodical maintenance and training, as well as free chimney equipped as promised by PP.	
Changes in the monitoring report or supporting annexes	The survey results for sustainable indicators in MR have been updated to reflect the changes.	

Clarification Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	The figures were changed slightly compared to those in the MR for the last monitoring period, although the literature in the footnote 7 below is the same as in the MR for GS 2PV. For example, "*Families spend between 10% and 14% of their annual income and 14% to 17% of their total living expenditures on cooking fuels in rural settings in Shanxi, Enshi, and Guizhou*." "*low-income families spend as much as 12% of annual income*"; "*an average of ¥1,457 RMB (US$234) per year*"	☑ Finding Closed IRL 10, 27, 28, 29
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02	
Corrective Action Request	**Clarification Request No. 1** Due to inconsistencies identified between the 2nd and 3rd issuance in the project summary, PP shall further clarify with it.	
Response	The figures cited were changed to reflect updated data from the KS. While KS respondents reported spending and average of ¥923 - ¥1,622 per coal ton across the three clusters last monitoring period, respondents from this monitoring period reported spending and average ¥694 - ¥1,244 per coal ton. The PP used the same statistical sources for net income and living expenditure data cited in footnote 7, but updated the figures reported in the MR based on re-	

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Clarification Requests by verification team		
	vised calculations using new KS data. Please note that these calculations, however, do not account for inflation. In addition, the figures cited above have been updated on page 9 of the MR to reflect changes made in the KS analysis explained in 1c. of the response to Corrective Action Request No. 4.	
Assessment Means of verification	The verification team checked and verified the information provided in the revised MR and found that is consistent with the one provided by the sources mentioned in the MR.	
Changes in the monitoring report or supporting annexes	The MR has been updated to reflect the changes.	

Clarification Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	During the site visit, the audit team visited household randomly selected within the village in Guizhou cluster. It was found that some households with the improved stoves still kept coal in stock in the storage room.	☑ Finding Closed IRL 24, 25, 26, 27, 28, 29
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02 Section III	
Clarification Request	**Clarification Request No. 2** PP shall further substantiate how to consider the coal consumption if any in the aging KPT/KPT report.	
Response	Reasons why HHs may still have coal stocks were discussed during the site visit, including: 1. The coal was purchased and not completely consumed before the adoption of the improved stove;	

Clarification Requests by verification team		
	2. HH may hold on to stocks for large family occasions, such as a marriage or death, when extra fuel is may be needed for cooking for large numbers. Aging KPTs were not conducted this monitoring period, as these measurements are conducted biennially and the last aging KPT was conducted in the beginning of 2012. It is important to note that these tests measure the consumption of coal by measuring changes in coal stock over a four day period; coal usage is therefore subsumed in the KPT data. Please note that coal consumption is also self-reported through the Kitchen surveys for both the heating and non-heating seasons. In the most recent KS for Guizhou only 2 HHs (3%) reported using coal in the non-heating season after the purchase of their Huifeng stove. Each reported a consumption of 6 kilograms per day. None of the 90 KS respondents reporting using coal during the heating season after the purchase of their Huifeng stove.	
Assessment Means of verification	The audit team talked with HHs on-site and follow-up interviewed, and confirmed the coal observed in the storage room is not used for daily life. In some special occasions, which need meal supply for visitors in short period, i.e. marriage and funeral; they have to use coal as main fuel. On the other hand, the audit team has reviewed the KPT/KS for all three clusters, it still reported that the HHs kept using the coal in the winter season for heating purpose in Shanxi cluster (north of China); while 3% HHs kept using the coal out of the heating season in Guizhou cluster (south of China), no HHs using coal in Enshi state. According to the survey results, the audit team concluded the clarification provided by the PP is in line with the information gathered and reported by the interviewed people during the site visit, and the coal in stock identified has been reflected in the on-going kitchen survey. Based on the facts verified, the audit team has accepted the explanations.	
Changes in the monitoring report or supporting annexes	No change to the project documents.	

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Clarification Requests by verification team		
	Comments and Results	Conclusion and IRL
Issue	In this list of monitoring parameters, the parameters "clustering definitions" and "New stove performance" are missing.	☑ Finding Closed IRL 66
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02 Section III	
Corrective Action Request	**Clarification Request No. 3** In accordance with the registered GS PDD, PP shall clarify why not to address the missing parameters in the MR, in particular, the "clustering definitions" and "New stove performance".	
Response	Clusters were originally defined in Tables 2 and 4 of the MR, which outline monitored parameters and ERs by cluster. For clarity, the PP has added a “Clustering Definitions” table to Section 2 - Project Description and Summary of the MR (see pg. 7). This table defines each cluster by region, technology distributed, and manufacturing partner. “New stove performance” was not reported on this monitoring period, as no new stoves were added to the project during this issuance period. When new stoves are added, data on “new stove performance” collected through kitchen performance tests (KPTs) will be reported. Please see pg. 13 of the MR, Parameter $AF_{py,Dcoal,y,i,c}$, “source of data to be used” section for a description of previous reporting on “new stove performance”.	
Assessment Means of verification	The revised MR that provides information regarding the two parameters, is as discussed during the site visit, and reasonable based on the facts verified.	
Changes in the monitoring report or supporting annexes	The MR has been updated to reflect the change.	

Clarification Requests by verification team		
	Comments and Results	Conclusion and IRL

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Clarification Requests by verification team		
Issue	After-sale service	FAR IRL 25, 28
Requirement	Methodology for Improved Cook-stoves and Kitchen Regimes V.02 Section III	
Corrective Action Request	**Clarification Request No. 4** During the site visit, the audit team found the stove grates were reported broken frequently due to inappropriate use. It may distort the survey results of the self-reported stove usage applied in the using seasons. PP shall clarify how to address it in the kitchen survey.	
Response	Since last year the Guizhou stove manufacturer, Huifeng, has offered an additional grate with each stove sold at no additional charge. This issue of broken grates found on site has been discussed with the company and it has since repaired all broken grates that were found during the site visit. In addition, the company is following up with users in major sales regions to collect information on stoves that require maintenance. Huifeng will offer repairs to all stoves that require it. Once again, warranty cards provide contact information for end users to contact the manufacturer directly if they are dissatisfied with their stove or its performance – the manufacturer also services stove repairs through this channel. Huifeng is also exploring alternative stove materials that will extend the life of the grate.	
Assessment Means of verification	DOE further assessment on 10.12.2013 DOE confirms that it is not severe failure to cease the use of improved stove. The users have to report such failure to the maintenance staff, so that the company can arrange the trips, i.e. once a month to fix those minor failures. The broken grates found on site have been discussed with the company. The broken grate can be replaced with spare one as soon as it is found or reported during the company periodic trips. When verifying the emission calculations, the DOE confirmed the influence of damaged stoves on emission reductions is accounted for in KTs as fuel consumption is measured among a random sample of project stove users, as well as there were usage survey conducted to cover this issue. Therefore, it can be confirmed no material impact is identified on the emission reductions calculations.	

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Clarification Requests by verification team		
	The clarification provided by the PP is accepted and in accordance with the information gathered on-site during the interviews performed. Nonetheless, further implementation of these corrective actions taken is to be follow-up during next verification process. **Forward Action Request No. 1** The follow up with users in major sales regions performed by the provider in order to collect information on stoves that require maintenance is to be checked during next verification process as well as the result of actions undertaken. Meanwhile, PP shall improve survey questionnaire to report the broken frequency and period in the future Usage Surveys.	
Changes in the monitoring report or supporting annexes	FAR 1 has been noted and relevant documentation will be included in the materials for next verification.	

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Annex 2

Information Reference List

Project title: Clean and Efficient Cooking and Heating Project, China
Document revision number: 03

Interviewed Persons during onsite audit:

31.03.2013 to 03.04.2013

Name	Function	Company
Ms. Li Hui	President of Board	Anshun Huifeng Energy Saving Stove Company Ltd. (AHESS)
Mr. Zhang Meichang	President Assistant	AHESS
Ms. Wang Wei	Accountant	AHESS
Mr. Xiaofu Chen	Director	China Association for Rural Energy Industries (CAREI)
Mr. Zhang Weihao	Monitoring team member	Beijing University of Chemical Technology (BUCT)
Ms. Caitlyn Toombs	Senior project manger	Impact Carbon
Ms. Kai Carter	Project manger	Impact Carbon
Mr. Tian Hanshu	Office director	Anshun Xixiu District Agriculture Bureau
Mr. Qi Weixue	Deputy director	Anshun Agriculture Committee
Mr. Guo Baoping	Agriculture Expert	Anshun Agricultural Machinery Bureau
Mr. Wei Honghua	Office director	Anshun Xixiu District Science and Technology Bureau
Mr. Chen Qianlong	Office director	Anshun Xixiu District Industry and Economy Bureau
Mr. Zhou Yong	Officer	Anshun Xixiu District government
Mr. Yu Dengguo	Officer	Anshun Xixiu District government

Mr. Yang Zhengang	Office staff	Anshun Xixiu District Industry and Economy Bureau
Mr. Meng Youfu	Local household	Yaoshang Village
Mr. Yue Dingwen	Local household	Yaoshang Village
Mr. Zhang Daowu	Local household	Yaoshang Village
Mr. Zhang Daolong	Local household	Yaoshang Village
Mr. Wang Fahai	Local household	Yaoshang Village
Mr. Wang Shunming	Local household	Yaoshang Village
Mr. Chen Jinyou	Local household	Yaoshang Village
Mr. Xia Qicai	Local household	Yaoshang Village
Mr. Zhu Zhiquan	Local household	Luoyuan Village
Mrs. Yang Shiying	Local household	Luoyuan Village
Mr. Zhu Qizhong	Local household	Luoyuan Village
Mrs. Li Yungui	Local household	Luoyuan Village
Mr. Chen Xingxiang	Local household	Luoyuan Village
Mr. Wu Daoxing	Local household	Phone interview (13721540711)
Mr. Zhu Qicai	Local household	Luoyuan Village
Mr. Zhu Zhiyun	Local household	Luoyuan Village
Mr. Zhu Zhiyong	Local household	Phone interview (13368631862)
Mrs. Zhao Zhiying	Local household	Qibo Village
Mrs. Wang Mingying	Local household	Qibo Village
Mr. Zou Changfu	Local household	Qibo Village
Mr. Wang Guiyang	Local household	Qibo Village

Mr. Li Farong	Local household	Qibo Village
Mr. Xia Zhaogui	Local household	Qibo Village
Mr. Chang Shaoyou	Local household	Qibo Village
Mr. Yu Deyuan	Local household	Qibo Village
Mr. Li Shuming	Local household	Fenghuang Village
Mr. Hu Qiping	Local household	Fenghuang Village
Mr. Yang Qixue	Local household	Fenghuang Village
Mr. Wu Qineng	Local household	Fenghuang Village
Mr. Hu Qiquan	Local household	Fenghuang Village
Mr. Zhou Qishun	Local household	Fenghuang Village
Mr. Li Guangming	Local household	Fenghuang Village
Mr. Zhou Yuanchang	Local household	Fenghuang Village
Mr. Yang Xinghua	Local household	Fenghuang Village
Mr. Liu Dexue	Local household	Fenghuang Village

09.04.2013 Morning

Name	Function	Company
Ms. Han Wenping	General manager	Shanxi Jinqilin Energy Technology Company Ltd.
Ms. Zhang Jia	Administration	Shanxi Jinqilin Energy Technology Company Ltd.
Ms. Han Xiuling	Accountant	Shanxi Jinqilin Energy Technology Company Ltd.
Mr. Xiaofu Chen	Director	CAREI

Mr. Zhang Weihao	Monitoring team member	BUCT

09.04.2013 Afternoon

Name	Function	Company
Mr. Tan Yongshuang	Office director	Enshi Ecology and Energy Bureau
Mr. Liao Guangshun	General manager	Enshi Zhiqi Biomass Energy Science and Technology Development Company Ltd.
Mr. Chen Xiaofu	Director	CAREI
Mr. Zhang Weihao	Monitoring team member	BUCT

Other Interviewed Persons (not during onsite audit):

Name	Function	Institution/Company	Date of Interview
Mr. Xiaofu Chen	Director	CAREI	03/2013-08/2013
Mr. Zhang Weihao	Monitoring team member	BUCT	03/2013-08/2013

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
0.	Gold Standard	"Clean and Efficient Cooking and Heating Project, China" www.impactcarbon.org/our-projects/stoves-in-china/	Up to date	*Reference to the PDD/MR chapter or CDM requirement*
1.	Gold Standard	Indicative Programme, Baseline, and Methodology for Improved Cook-Stoves and Kitchen Regimes, Version 02	08/02/2010	
2.	TÜV SÜD	Participant list of on-site interviews	31/03-03/04/2013, 09/04/2013	
3.	TÜV SÜD	Filled Survey Forms for sampling onsite	31/03-03/04/2013	Total 35 copies
4.	Impact Carbon	Monitoring report of "Clean and Efficient Cooking and Heating Project, China"	15/03/2013	Version 01
5.	Impact Carbon	ER calculation tool, version 01	15/03/2013	
6.	Impact Carbon	PDD of "Clean and Efficient Cooking and Heating Project, China"	01/04/2011	Version 04
7.	DNV	Validation report of "Clean and Efficient Cooking and Heating Project, China" Report No. 2010-9436	12/06/2010	
8.	DNV	1st verification report of "Clean and Efficient Cooking and Heating Project, China" Report No. 2011-9203	10/05/2011	Period: 29/03/2009 to 30/09/2010
9.	TÜV SÜD	2nd verification report of "Clean and Efficient Cooking and Heating Project, China" Report No. 600501031	05/12/2012	Period: 01/10/2010 to 15/05/2012
10.	Impact Carbon	Project Design Change Approval	30/04/2013	a FAR raised
11.	Impact Carbon	Guizhou Passport	30/04/2012	
12.	Impact Carbon	Hubei/Enshi Passport	30/04/2012	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
13.	Yu County Business Administration, Shanxi	Business license of Shanxi Jinqilin Energy Technology Company Ltd. (Jinqilin)	04/01/2007	Ref. 140322200003685
14.	Anshun Business Administration	Business license of Anshun Huifeng Energy Saving Stove Company Ltd. (Huifeng)	23/11/2009	Ref. 522500000003467
15.	Enshi Business Adminstration	Business license of Enshi Zhiqi Biomass Energy Science and Technology Development Company Ltd. (Zhiqi)	27/05/2009	Ref. 422801000018873
16.	CAREI	Map of villages implemented the improved stoves in Shanxi Province	03/2013	GPS coordinates
17.	CAREI	Map of villages implemented the improved stoves in Guizhou Province	03/2013	GPS coordinates
18.	CAREI	Map of villages implemented the improved stoves in Enshi state	03/2013	GPS coordinates
19.	CAREI	Improved stoves technology design and specifications	06/2012	
20.	Shanxi Mechanic Product Quality Supervision and Test Station	Stoves Performance Tests (Model CKQ)	31/01/2008 22/10/2011	Ref. WJ08013101 Ref. ZWJ11100069
21.	Beijing Zhongyan Huanneng & Environment Protection Tech. Test Centre	Stoves Performance Tests (Model ZQ-JG-220)	05/05/2011	Ref. 2010010320U
22.	Beijing Zhongyan Huanneng &	Stoves Performance Tests (Model HK-HF-70)	05/05/2011	Ref. 2010010320U

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
	Environment Protection Tech. Test Centre			
23.	Impact Carbon	Training seminar and Qualification of the Monitoring Team (BUCT)	2009	
24.	BUCT	KS_KPT Report; Shanxi_v2	05/2012	
25.	BUCT	KS_KPT Report; Guizhou	08/05/2012	
26.	BUCT	KS_KPT Report; Enshi	05/2012	
27.	Impact Carbon	KS report and data analysis; Shanxi_v2	03/06/2013	
28.	Impact Carbon	KS report and data analysis; Guizhou_v2	23/07/2013	
29.	Impact Carbon	KS report and data analysis; Enshi_v4	23/07/2013	
30.	BUCT	KS Scanned Sample	07/2013	
31.	BUCT	QKS Scanned Sample	07/2013	
32.	BUCT	Usage survey and Usage report v2, Jinqilin, Shanxi Stove Ages 0-1, 1-2, 2-3, 3-4 years	2007	08/07/2013 updated
33.	BUCT	Usage survey and Usage report v2, Huifeng, Guizhou Stove Ages 0-1, 1-2, 2-3, 3-4 years	2010	08/07/2013 updated
34.	BUCT	Usage survey and Usage report v2, Zhiqi, Enshi Stove Ages 0-1, 1-2, 2-3, 3-4 years	2009	08/07/2013 updated
35.	Jinqilin	Training records	2012-2013	
36.	Huifeng	Training records	2012-2013	
37.	Zhiqi	Training records	2012-2013	
38.	Jinqilin	Sales records for cook stoves in Shanxi Province	2009-2013	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
39.	Local official administrative	Subsidiary report for cook stoves and bank transactions from local government/manufacturers	2012-2013	Crosscheck evidence
40.	Distributors	Receipts for retail records	2012-2013	Crosscheck evidence
41.	Jinqilin stove receivers	Household name lists with original signatures	2010-2013	As many as possible
42.	Huifeng	Sales records for cook stoves in Guizhou Province	2009-2013	
43.	Local official administrative	Bidding contracts for biomass stoves	2012-2013	Crosscheck evidence
44.	Bank statement	Receipts and invoices for payment	2012-2013	Crosscheck evidence
45.	Huifeng stove receivers	Household name lists with original signatures	2009-2013	As many as possible
46.	Zhiqi	Sales records for cook stoves in Enshi Autonomy State	2009-2013	
47.	Badong County Finance Bureau	Approval for purchase proposal of improved cook stoves	18/06/2012	Crosscheck evidence
48.	Distributors	Bank transaction statements	2012-2013	Crosscheck evidence
49.	Zhiqi stove receivers	Household name lists with original signatures	2009-2013	As many as possible
50.	Impact Carbon	Monitoring Report by Berkeley Air Monitoring Group in 2009	2009	
51.	Impact Carbon	Guizhou local stakeholder consultation (LSC) report	30/04/2012	
52.	Impact Carbon	Hubei/Enshi LSC Report	30/04/2012	
53.	Impact Carbon	Non-Renewable Biomass (NRB) Study, NRB Calculations, Enshi	03/06/2013	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
54.	Impact Carbon	NRB Study, NRB Calculations, Guizhou	03/06/2013	
55.	State council	Forestry Law Amendment, People Republic of China	29/04/1998	
56.	Enshi Forestry Survey and Plan Institute	Hubei/Enshi Forestry resources overview	23/03/2012	
57.	Anshun Forestry Bureau, Guizhou	Anshun Forestry resources overview	28/03/2012	
58.	Impact Carbon	Leakage Assessment version 4	22/07/2013	
59.	Impact Carbon	ER calculation; Shanxi	22/06/2013	
60.	Impact Carbon	ER calculation; Guizhou	22/07/2013	
61.	Impact Carbon	ER calculation; Enshi	22/06/2013	
62.	CAREI & Zhiqi	VER Purchase Agreement	18/11/2008	Start date of improved stove involvement
63.	CAREI & Huifeng	VER Purchase Agreement	05/01/2009	Start date of improved stove involvement
64.	SHANXI COAL	Coal price history records and trends analysis http://www.sxcoal.com/shxcoal/index.html	Access on 04/08/2013	
65.	Impact Carbon	Final ER calculation tool, version 06	20/11/2013	
66.	Impact Carbon	Final MR version 08	12/12/2013	

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Annex 3

Appointment Certificates

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

CERTIFICATE OF APPOINTMENT

Mr. Tolcach, Eric Rodolfo fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12	21.11.12				
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	**Date**
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0045/002

Date	Signature
01.03.2013	

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

South Asia

CERTIFICATE OF APPOINTMENT

Mr. Maharjan, Bhai Raja fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12		1.2, 2.1, 3.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12					
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	21.11.12
2.1_Electricity distribution	21.11.12
3.1_Energy demand	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0027/002.

Date	Signature
01.03.2013	

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

CERTIFICATE OF APPOINTMENT

Mr. Jiang, Zhe (Eric) fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12			1.2, 13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12				21.11.12	
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	21.11.12
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0021/002.

Date	Signature
01.03.2013	

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ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

South Asia

CERTIFICATE OF APPOINTMENT

Mr. Mitterwallner, Robert fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	1.1, 4.10, 1.2, 4.1, 4.3, 13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12		21.11.12			
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	**Date**
1.1_4.10_Thermal energy generation	01.03.13
1.2_Energy generation from renewable energy source	21.11.12
4.1_Cement sector	21.11.12
4.3_Iron and steel sector	21.11.12
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0030/003.

Date	Signature
01.03.2013	
31.07.2013	