VERIFICATION REPORT

for the Post Registration Changes of the CDM Project Activity

Revision to the Registered Monitoring Plan

Proj. 2311: Federal Intertrade Hong-Ru River Solar Cooker Project

In

China

Report No. 01 997 9105045593-PRC

Version 01.2, 2013-09-09

Designated Operational Entity (DOE)

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I. Project data:

Project title:	Federal Intertrade Hong-Ru River Solar Cooker Project	**Report No.:** 01 997 9105045593-PRC
Registration No. / Date:	2311 / 2009-05-31	**Current revision No.:** 01.2
Monitoring period:	Not Applicable	**Date of current revision:** 2013-09-09
Methodology:	AMS-I.C Version 12	**Date of first issue:** 2013-07-10
Publication of MR:	Not Applicable	
Average emission reductions:	Not Applicable	Not Applicable
GHG reducing measure/technology:	*Thermal energy generation from solar energy by the dissemination of solar cookers*	

Party	Project participants	Party considered a project participant	Contract party
People's Republic of China (Host)	Ningxia Federal Intertrade Co. (Project Owner)	No	☒
Netherlands	SwissRe Global Markets Limited (CER Purchaser)	No	☐
Switzerland	Post 2012 Carbon Credit Fund CV	No	☐

II. Verification Team:

Verification Team			Role									
Full name	**Affiliation TÜV Rheinland**	**Appointed for Sectoral Scopes (Technical Areas)**	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Mr. Feng Hu	China	1.2, 3.1, 13.1	**X**									
Mr. Timothy Chan		1.2, 2.2, 13.1				**X**						
Mr. Walter Tang		1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1								**X**		

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

III. Verification Report:

Final approval	Released	Distribution
☒	**By: Mr. Henri Phan**	☐ No distribution without permission from the Client or responsible organizational unit
Date: 2013-09-10		☒ Unrestricted distribution

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	CDM Validation and Verification Standard
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
DD	Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MoC	Modalities of Communication
MP	Monitoring Plan
MR	Monitoring Report
N_2O	Nitrous oxide
PDD	Project Design Document
PoA	Programme of Activities
PP	Project Participant
TUVR	TUV Rheinland (China) Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation And Verification Standard

Verification opinion — summary

The verification team of the DOE (TÜV Rheinland (China) Ltd.) is assigned by "Ningxia Federal Intertrade Co." to perform the verification of post registration changes "revision of monitoring plan" to the registered CDM Project Activity "Federal Intertrade Hong-Ru River Solar Cooker Project" (UNFCCC Registration No.: 2311) in China, as described in the revised PDD (Version 17, 09/09/2013) meets all relevant requirements of the UNFCCC for CDM project activities including CDM Project Standard (PS) and Validation and Verification Standard (VVS). The request is to perform the independent and objective verification on the revised PDD for revision of monitoring plan.

Verification methodology and process

The verification has been performed as described in the VVS version 03.0 and constitutes the following steps:

- Desk review of following documents,

1. registered PDD Version 15, dated 09/03/2009

2. revised PDD Version 17, dated 09/09/2013, and relevant documents

3. Validation Report Version 02, dated 10/03/2009

4. Previous monitoring reports and verification reports (1st to 4th monitoring periods)

- Issue of verification opinions and verification report to the PRC

The verification team is able to confirm that the revised monitoring plan in compliance with all the requirement of the applied methodology and related guidelines regarding sampling design. The DOE therefore accepts the changes and request for approval of the revision of monitoring plan for the CDM project activity.

2013-09-10 Date	2013-09-10 Date	2013-09-09 Date
Mr. Henri Phan DOE Manager TUV Rheinland (China) Ltd.	Walter Tang Technical Reviewer TUV Rheinland (China) Ltd.	Feng Hu Team Leader TUV Rheinland Hong Kong Ltd.

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1. Introduction

Ningxia Federal Intertrade Co. (NXFI)has commissioned the DOE TÜV Rheinland (China) Ltd. (TUVR) to perform a verification of the Post Registration Changes "Revision of Monitoring Plan" to the registered CDM Project Activity "Federal Intertrade Hong-Ru River Solar Cooker Project" (UNFCCC Reg. No.: 2311) in China (hereafter "project activity"). The term "UNFCCC criteria" refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. The independent Verification by the DOE is required on the revision of monitoring plan in the revised PDD to confirm the post registration changes with respect to the requirements of the applied methodology (AMS-I.C./ Version 12). This report summarises the post registration changes of the project with respect to VVS requirements.

1.1 Objective

Verification is the independent review and *ex-post* determination of both quantitative and qualitative information of the actual implementation and operation of the project activity by a Designated Operational Entity (DOE) towards the revised PDD.

The purpose of verification is to have independent third party assessment to verify that the proposed revision of monitoring plan in the revised PDD in compliance with all the requirement of the applied methodology and related requirement of the VVS. The DOE concludes that the respective post registration changes are presented in transparent manner as per VVS and CDM project cycle procedure (PCP).

1.2 Scope

The scope of the verification of post registration changes are:

- To verify whether the changes is likely to lead to a reduction in the accuracy of calculation of emission reductions ;
- To verify whether the information's provided in the monitoring plan of the revised PDD in compliance with the requirement of the applied methodology;
- To verify whether the proposed changes result in a less conservative baseline and GHG emission reduction;
- To verify whether the proposed changes would not adversely affect the conclusions of the validation report of the registered PDD with regards to Additionality, Scale, Applicability and Compliance;
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material mis-statement.

The verification shall ensure that reported changes and information's are substantial, complete and accurate with sufficient supportive evidence in order to reach the verification conclusion.

2. Methodology

The verification consists of the following three phases:
1. Completeness check;
2. Desk review of all relevant documents;
3. Final Verification statement.

The following sections outline each step in more detail.

2.1 Desk review

The following table outlines the documentation reviewed during the verification:

Ref no.	*Reference Document*	
/1/	/1.1/	UNFCCC, CDM Validation and Verification Manual (VVS), Version 3.0, CDM-EB65-A05-STAN
	/1.2/	UNFCCC, Clean Development Mechanism Project Standard, Version 03.0, CDM-EB70-A02
	/1.3/	UNFCCC, Clean Development Mechanism Project Cycle Procedure, Version 03.2, CDM-EB65-A32-PROC
	/1.4/	UNFCCC, "Standard For Sampling And Surveys For CDM Project Activities And Programme Of Activities", Version 3.0, EB69 Annex 04
/2/	UNFCCC, Approved monitoring methodology: AMS-I.C. "Thermal energy for the user with or without electricity", Version 12, EB33 Annex 22 (registered version)	
/3/	UNFCCC, Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities, Version 06, EB 21 Annex 22 (registered version)	
/4/	UNFCCC, "Guidelines for sampling and survey for CDM project activities and programmed of activities", Version 02.0, EB69 Annex 05	
/5/	/5.1/	Registered PDD, Version 15, 09/03/2009 (Proj. 2311) << http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view >>
	/5.2/	Revised PDD, Version 17, 09/09/2013
/6/	Registered Validation Report, Version 02, 09/03/2009 << http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view >>	
/7/	Previous Monitoring Reports for 1st to 4th periodic monitoring periods << http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view >>	
/8/	Previous Verification Reports for 1st to 4th periodic monitoring periods << http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view >>	
/9/	Letter of Approval, The Federation Office for the Environment of Switzerland, 19/11/2009	
/10/	Modalities of Communication form << http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view >>	

2.2 Internal quality control

The final verification report underwent a technical review by a qualified independent reviewer before requesting approval of the post-registration change. The technical review was performed by a technical reviewer qualified

in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification that meets the criteria of EB guidelines for qualification.

2.3 Verification Team

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

Verification Team			Type of Involvement						
Full name	**Affiliation TÜV Rheinland**	**Appointed for Sectoral Scopes (Technical Areas)**	Supervising the work	Desk review	Site Visit + Interview	Report Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Mr. Feng Hu	China	1.2, 3.1, 13.1	X	X			X		
Mr. Timothy Chan		1.2, 2.2, 13.1		X		X			
Mr. Walter Tang		1.1, 1.2, 2.1, 2.2, 3.1, 4.3, 4.5, 13.1							X

3. Description of Post Registration Changes

3.1 Changes to the Project Design of a Registered Project Activity

By reviewing Section A the revised PDD /5.2/, the project design are consistent with the respective description in Section A of the registered PDD /5.1/. The project location, applied technology, technical specifications, the capacity, etc. of the project activity is confirmed not changed.

Regarding to the project participant, a new project participant is added. The assessment is summarized as follows:

Table 1.

Parties and Project Participants	
Parties and Project participants in the registered PDD	**Project participants in the revised PDD**
1. Ningxia Federal Intertrade Co. (People's Republic of China) 2. SwissRe Global Markets Limited (Netherland)	1. Ningxia Federal Intertrade Co. (People's Republic of China) 2. SwissRe Global Markets Limited (Netherland) 3. Post 2012 Carbon Credit Fund CV (Siwtzerland)

A new project participant "Post 2012 Carbon Credit Fund CV" from Switzerland has been added. The verification confirms that the letter of approval confirming the voluntary participation of "Post 2012 Carbon Credit Fund CV" in the project activity has been issued by Switzerland DNA /9/. According to the UNFCCC Project Registration Website for the project activity[1], the MoC had been updated to include "Post 2012 Carbon

[1] http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1227667866.93/view

Credit Fund CV" as one of the focal point. As per the information shown on the website, it has been approved by the EB. The validation team confirms the addition of the project participants is in compliance with the requirement of Section 6.3.4 of Project Cycle Procedure /1.3/.

3.1.1 Impact on Additionality of the project activity

Not applicable. Since the changes are limited to the revision of the monitoring plan. There is no change in any aspects that will affect the additionality of the project activity.

3.1.2 Impact on the scale and boundary of the project activity

Not applicable. Since the changes are limited to the revision of the monitoring plan. There is no change in the scale and boundary of the project activity.

3.1.3 Impact on the applicability and application of approved baseline methodology under which the project activity has been registered

The changes are limited to the revision of the monitoring plan. There is no change in any aspects that will affect the applicability of the applied baseline.

The verification team confirms the project activity is in compliance with the all applicability conditions of the applied methodology AMS-I.C/ Version 12.

3.1.4 Impact on the compliance of the monitoring plan with the applied monitoring methodology

Not Applicable. The addition of project participant will not affect the compliance of the monitoring plan with the applied methodology.

3.1.5 Impact on the level of accuracy and completeness of the monitoring plan

Refer to Section 4.1.1 below.

3.1.6 Findings from the previous verification reports

☒ TÜV Rheinland verification team confirms that the findings from previous verification reports, if any, have been taken into consideration.

☐ TÜV Rheinland verification team confirms that no findings from previous verification reports have been taken into consideration.

3.2 Changes to the Registered Monitoring Plan or Monitoring Methodology

According to Appendix 6 of the revised PDD, the key changes in the monitoring plan are:

1. The method of monitoring Parameter *n* is revised to by survey method with simple random sampling approach at confidence and precision 90/10 level. It replaces the full sampling survey (100% sampling size of the 17,000 units of solar cookers) approach indicated in the registered PDD.

2. A complete design of sampling plan for the monitoring of Parameter *n* and Parameter t_i is provided in Section B.7.2 of the revised CPA-DD in accordance with the outline recommended by "Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities" Version 2.0 /4/. The sampling approach and sampling size have been specified.

The verification team assesses the compliance of post-registration change for the revision of monitoring plan based on the related guidelines in the VVS as well as the applied methodology AMS-I.C/ Version 12. The design of the sampling plan is reviewed against related requirements stipulated in "Standard For Sampling And Surveys For CDM Project Activities And Programme Of Activities" Version 3.0 /1.4/ and "Guidelines for sampling and survey for CDM project activities and programmed of activities" Version 2.0 /4/.

Summary of the changes

Table 2.

Post registration change in the monitoring plan **Description of the proposed changes as compared to the respective description in the registered monitoring plan**	
1. Method of monitoring for Parameter *n*	
Description in monitoring plan of the registered PDD	**Proposed revision to the monitoring plan in the revised PDD for forth-going implementation of monitoring in the project activity**
P.23 of the registered PDD **Monitoring method:** For the number of systems operating, a CDM group will be set up to track the number of operating solar cookers. The monitoring of total number of operating solar cookers will be conducted annually during the last quarter of each year.	P.21 of the revised PDD **Monitoring method**: For number of solar cookers engaged in the proposed project (*n*) and the monthly operating time of each solar cooker (t_i), sampling survey will be utilized in the monitoring.

When was the changes occurred (after registration /prior to registration)	Post-registration
Reason for these changes taking place	As reported from the PP, the changes are made in order to improve the efficiency of carrying out the monitoring plan. The registered monitoring plan requires 100% sampling on all the solar cooker systems installed for the project activity. This has been induced too much unnecessary workload to the PP due to no clear sampling guidance at the registration request. As per latest and valid Sampling guidance, it provides clear guidance to PP by using sampling. Therefore the PP opts for simple random sampling approach at confidence/ precision 90/10 level to carry out the monitoring of Parameter *n*.
How does the changes impact on the overall operation/ability of the project activity to deliver emission reduction as stated in the registered PDD	The verification team does not perceive any impact to the overall operation/ability of the project activity to deliver emission reduction as stated in the registered PDD, since the only change is the sampling size (100% sampling Vs sampling size at 90/10 confidence/precision level) which is determined in accordance with the sampling guidelines /4/.
Do these changes lead to more accuracy and conservativeness in emission reduction calculations?	The accuracy of ER calculations is considered to be unchanged as the sampling had taken the confidence/ precision level into account.
Are these changes in accordance to the approved monitoring methodology?	As per the applied methodology, it is allowed to apply survey method for the monitoring of the number of operating systems. The revised monitoring method for Parameter *n* will follow the sampling plan which is in accordance with sampling guidelines.

Table 3.

Post registration change in the monitoring plan **Description of the proposed changes as compared to the respective description in the registered monitoring plan**	
2. Sampling design	
Description in monitoring plan of the registered PDD	**Proposed revision to the monitoring plan in the revised PDD for forth-going implementation of monitoring in the project activity**
P.23 of the registered PDD The registered PDD has indicated the sampling approach as simple random sampling. And the sampling size for Parameter t_i is calculated as 309.	Section B.7.2 of the revised PDD A comprehensive sampling plan is provided in accordance with the sampling guidelines. Simple random sampling approach is applied for conducting survey of monitoring Parameter *n* and Parameter t_i. The sample sizes for both the parameters are determined in accordance with the sampling guidelines.
Assessment opinion	

When was the changes occurred (after registration /prior to registration)	Post-registration
Reason for these changes taking place	At the time of verification of this request of the post registration change to the monitoring plan, it is required by the CDM Project Standard /1.2/ to develop and describe the sampling plan in accordance with "Standard for sampling and survey for CDM project activities and programme of Activities" /1.4/ when the applied methodology allows using survey method for monitoring. As per the standard, it follows the recommendation from "Guidelines for sampling and survey for CDM project activities and programmed of activities" /4/ to develop the sampling plan.
How does the changes impact on the overall operation/ability of the project activity to deliver emission reduction as stated in the registered PDD	The verification team does not perceive any impact to the overall operation/ability of the project activity to deliver emission reduction as stated in the registered PDD, since the sampling plan in the revised PDD is confirmed in compliance with the sampling guidelines /4/.
Do these changes lead to more accuracy and conservativeness in emission reduction calculations?	The accuracy of ER calculations is considered to be unchanged as survey method is allowed by the applied methodology. The verification team confirms the sampling plan is in compliance with the sampling standard /1.4/ and guidelines /4/. It is deemed conservative.
Are these changes in accordance to the approved monitoring methodology?	As per the applied methodology, it is allowed to apply survey method for the monitoring of the number of operating systems. The sampling plan developed in the revised PDD is in accordance with sampling standard and guidelines.

3.2.1 Impact on the level of accuracy of the monitoring plan

The level of accuracy is considered to be unchanged as the sampling plan is in compliance with the sampling standard /1.4/ and guidelines /4/. The assessment on the sampling plan is as follows:

As discussion above, the parameters n and t_i will be based on survey method. In this case, it is confirmed the sampling plan has been described in the revised PDD in accordance with the applied methodology i.e. AMS-I.C/ Version 12, and related requriements and gudiances of "Standard for sampling and for surveys of CDM project activities and programme of activities" Version 03.0 /1.4/ and "Guidelines for sampling and survey for CDM project activities and programmed of activities" Version 02.0 /4/. The assessments are tabulated as below:

Table 4.

	Summary of the sampling plan in the revised PDD	**Verification opinions**
Objective and reliability requirement	**For Parameter *n*** Determining the total number of solar cookers operating during the crediting period, and with a 90/10 confidence/precision.	The verification team confirms that the selected parameters for survey are related to the ER calculation. As per the applied methodology, survey methods are applicable for the determination. The applied confidence and precision level (i.e. 90/10) complies with the requriement stipulated in the sampling standard /1.4/.
	For Parameter t_i Determining the average monthly operating time of solar cookers during the crediting period, and with a 90/10 confidence/precision.	
Target population and Sampling	**For Parameter *n* and t_i** The 17,000 solar cookers to be installed in the proposed project.	The target populations and sampling frame is determined as the 17,000 solar cookers. It has covered all the individual systems under the

frame		project activity. It is considered appropriate.
Sampling method	**For Parameter *n* and t_i** Simple random sampling will be used. The sampling tool is Microsoft Excel, a reliable and widely accepted tool for random sampling.	Simple random sampling is used. By reviewing previous monitoring reports /7/ and their repsective verification reports /8/, the method of sampling by Microsoft Excel was proved feasible and reliable for the generation of random sample. It is considered appropriate.
Sampling size	**For Parameter *n*** Equation $m \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$ Calculated sampling size: 72	The equation is adopted from Equation (1) of Para 48 of the sampling guidelines /4/. The verification team agrees that simple random sampling is appropriate as the populations of the solar cooker users in the proejct area is homogenous. By reviewing the calculations, it is confirmed that 90% confidence and 10% precision are applied. The total sampling size is 17,000. And the expected proportion is selected as 0.8. According to previous verification reports (refer to Table 5. below), the percentage of operational solar cooker verified in previous monitoring period was over 90% after 4 years of use. And the monitoring method was 100% inspection of the installed solar cooker. So it can be concluded that the applied expected proportion 0.8 is far more conservative when it is compared with the verified operational rate. Therefore, it complies with Para. 41 (a) of the sampling guidelines /4/. The applied value for the calulations are hence considered appropriate. According to Footnote 24 of the revised PDD, a "latest historical results of p of this project" will be compared with the applied expected proportion value i.e. 0.8. Then the conservative value will be used to calculate the sample size. Moreover, a relaibility check will be done at each monitoring period. In case it fails to pass the reliability test, additional samples will be taken in order to meet the confidence/ precision level. The verification team considers these two procedures can assure and ensure the sampling in compliance with the required confidence/ precision level according to the sampling guidelines. Furthermore, the sampling size is devided by 0.95 to safeguard the non-respondance. With reference to all the previous verification reports /8/, the response rate for previous survey of Parameter t_i were 100% and there was no missing data revealed. Therefore, the implementation of the survey practice is considered to be reliable. Furthermore, there are procedures written in the revised PDD for handling missing data. The procedures are

		considered appropriate that can ensure conservative ER calculations. The sampling size of 72 is therefore confirmed as appropriate at this verification stage and it will meet the 90/10 confidence and precision requirement.
	For Parameter t_i Equation $$m \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V}$$ Calculated sampling size: 80	The equation is adopted from Equation (18) of Para. 82 of the sampling guidelines /4/. By reviewing the calculations, it is confirmed that 90% confidence and 10% precision are applied. The total sampling size is 17,000. And the expected mean and standard deviation are determined as 120 hours (based on official data[2]) and 63.45 (the largest possible value[3]). The applied value for the calulations are considered appropriate. Furthermore, the sampling size is devided by 0.95 to safeguard the non-respondance based on the same reason discussed in the above for Parameter *n*. The sampling size of 80 is therefore confirmed as appropriate and it will meet the 90/10 confidence and precision requirement.
Field meaurements	**For Parameter *n*** Field measurement objective: Total number of solar cookers operating out of the sample users. Method of measurement: Visual inspections[4] Timing and frequency of measurement: Annually monitored during the last quarter[5] of each monitoring period, but at least once per year, i.e., the interval of the measurements is no more than one year.	The objective of the sampling is to determine total number of solar cookers operating out of the sample users, and the method of measurement is essentially by visual inspection. According to the verification report, visual inspection is confirmed allowable for carrying out the monitoring. For the frequency of monitoring, it will be monitored at least once per year which is in compliance with the applied methodology. Therefore, the field measurement is considered clear and appropriate.
	For Parameter t_i Field measurement objective: Usage time of the cookers for each of the sample users. Method of measurement: Respondent self-reports, and operational logs[6] Frequency of measurement: Daily monitored during each monitoring period.	The objective of the sampling is to determine the usage time of solar cookers for each of the sample user, and the method of measurement is self-reporting by the respondents with operational log as records. According to the validation report, this method of measurement was approved. For the frequency of monitoring, it will be monitored on daily basis which is in complaince with the applied methodology. Therefore, the field measurement is considered clear and

[2] Refer to Footnote 22 of the revised PDD. It uses official data to estimate the monthly usage time of solar cooker by the users.
[3] Refer to Footnote 27 of the revised PDD. The longest day lighting time is applied in the calculation. Hence the largest possible standard deviation will be resulted.
[4] According to paragraph 32 of General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities (Version 1), the practitioners of the sampling are expected to select the most effective information gathering method. The implementer should decide on what would be the most reliable and cost effective method for collecting the data, depending on the variables of interest. Alternative methods include visual inspections, physical measurements, respondent self-reports, and operational logs. This project will be implemented in remote rural areas. For this project, the most reliable and cost effective method to collect the data will be visual inspections, respondent self-reports, and operational logs.
[5] The time period selected (last 3 months of each monitoring period) is conservative to be applied, and the parameter is not subject to seasonal fluctuations.
[6] Please refer to footnote 22 of the revised PDD.

		appropriate.
Quality assurance/ Quality control	The QA/QC procedures are the same as the registered PDD, with an additional handling procedure for missing data: 5. The general principle is that zero value will be used for the missing or damaged data. This is the most conservative approach. Duiring the monitoring process, the monitoring personnel will be required to strictly abide by the above principle.	The additional procedure is considered conservative. The QA/QC procedures are considered appropriate.
Anaylsis	**For Parameter *n*** The percentage of operating solar cookers out of the sample users will be calculated, and then the total number of operating cookers in the proposed project will be calculated by using the abovementioned percentage multiplying the total number of cookers (17,000).	It is in line with the ER calculations of the applied methodology.
	For Parameter t_i The daily usage time of the cookers of all the sample users will be summed up for each month in the monitoring period ("the total monthly usage time"), then the average monthly usage time of the cookers will be calculated by dividing the total monthly usage time by the sample size.	It is in line with the ER calculaitons of the applied methodology.
Implementation plan	The sampling process will start as soon as the target population is determined. Before the beginning of each monitoring period, sample users for n (72) and t_i (80) will be drawn. Before the beginning of the next monitoring period, a new round of random sampling will be conducted among the 17,000 users to generate two new sets of sample users which will be monitored during the forthcoming monitoring period. The monitoring data will be collected throughout the entire crediting period of the proposed project. As to who will conduct the data collection and analyses, please refer to Section B.7.3.	As discussed in P.13 for "Sample Size", the additional QA and QC procedures will be done to confirm the sampling size meeting the required confidence/ precision level. The implementation plan can ensure all the monitoring parameters will be monitored completely. Since the PP has already applied survey method for Parameter t_i in the current version of monitoring plan. The feasibility of generating credible and traceble data has been proven by the previous verifications. Therefore, it is appropriate.

According to Para. 235 to 239 of the sampling guidelines (EB69 Annex 5) /4/, it indicates the percentage of cookstove still in operation can be calculated by $p = r / n$. By using the previous monitoring data (1st - 4th monitoring period, /7/ /8/), p = 16,989 / 17,000 = 99.9% (take the verified 4th monitoring period as an example). Where r is the no. of "successes" (i.e. no. of solar cooker still in operation), and n is the total no. of solar cooker observed in the sample. The p-values of previous verified monitoring periods are tabulated as below:

Table 5.

Monitoring period	***1st***	***2nd***	***3rd***	***4th***

Percentage of operational solar cookers[7] (i.e. *p)*	*100%*	*100%*	*100%*	*16989 units operational, 99.9%*

Summary

It is confirmed that the revised sampling plan is in compliance with the applied methodology i.e. AMS-I.C/ Version 12, and related requirements and guidances of "Standard for sampling and for surveys of CDM project activities and programme of activities" Version 03.0 /1.4/ and "Guidelines for sampling and survey for CDM project activities and programme of activities" Version 02.0 /4/.

3.2.2 Monitoring plan in accordance with monitoring methodology

☐ TÜV Rheinland verification team confirms that the approved monitoring plan in the registered PDD is in accordance with the approved monitoring methodology applicable to the project activity, but the monitoring plan defers from the actual practice.

☒ TÜV Rheinland verification team confirms that the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity.

3.2.3 Findings from the previous verification reports

☒ TÜV Rheinland verification team confirms that the findings from previous verification reports, if any, have been taken into consideration.

☐ TÜV Rheinland verification team confirms that no findings from previous verification reports have been taken into consideration.

3.2.4 Conclusion of the Verification team

TÜV Rheinland verification team concludes that the post registration changes are assessed as per VVS requirements and the proposed changes are confirmed in compliance with the applied methodology AMS-I.C / Version 12 and relevant requirements for sampling.

[7] Sources: 1st – 4th monitoring reports /7/ and the respective verification report /8/.

Appendix A

CERTIFICATES OF COMPETENCE

Qualification

Hu, Feng /

Emission Trading
United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	☒ ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)	☐ ja	Add. reviewer: (Zusätzlicher Prüfer)	☐ yes
EAC Scopes: (EAC Branchen)	CDM 01 - Energy industries (renewable - / non-renewable sources) CDM 13 - Waste handling and disposal CDM 03 - Energy demand		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	01/23/2011	Valid to: (Gültig bis)	12/25/2014

Remarks:	Valid for TA 1.2, 13.1, 3.1
Languages:	Chinese English German

Experience Exchange

Date	Location	Remarks	Accreditation(s)
2010-12-21	Beijing	GC CDM Auditor Experience Exchange, Beijing, 2010-12-21to23 United Nations Framework Convention on Climate Change	

Monitoring

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

Remarks:

History of scope allocation

Date:	2013-06-24
Change:	EAC CDM added
By:	Henri Phan
Reason:	appointed for TA 3.1 on 22/06/2013

Date:	2011-12-27
Change:	EAC CDM added
By:	Manfred Brinkmann
Reason:	Valid for TA1.2, 13.1

Date:	2011-01-24
Change:	EAC CDM added
By:	Manfred Brinkmann
Reason:	Valid for TA 1.2

History

Created:	11/01/2010 11:53:12 AM	Feng Hu/Hk/Chn/TUV
Modified:	06/24/2013 12:36:43 PM	Henri Phan/Chn/TUV
	03/17/2012 01:54:50 AM	Praveen Urs/Chn/TUV
	12/27/2011 06:54:32 PM	Manfred Brinkmann/Jpn/TUV
	ZE9	
	12/27/2011 06:54:13 PM	
	ZE9	
	12/27/2011 06:51:29 PM	
	ZE9	
	01/24/2011 10:10:57 AM	
	ZE9	
	11/01/2010 11:53:39 AM	

Export to ICMS

Last Export:

Qualification

Chan, Timothy /

Emission Trading
United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	☒ ja	Qualification Level: (Qualifikationsstufe)	Auditor
External: (Externer)	☐ ja	Add. reviewer: (Zusätzlicher Prüfer)	☐ yes
EAC Scopes: (EAC Branchen)	CDM 13 - Waste handling and disposal CDM 02 - Energy distribution CDM 01 - Energy industries (renewable - / non-renewable sources)		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	03/20/2012	Valid to: (Gültig bis)	03/19/2015

Remarks:	TA 1.2, TA 2.2 , TA 13.1
Languages:	Cantonese Chinese English

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

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

Remarks:

View / Edit Monitoring

History of scope allocation

Date:	2012-10-08
Change:	EAC CDM added
By:	Praveen Urs
Reason:	

Date:	2012-03-20
Change:	EAC CDM added
By:	Praveen Urs
Reason:	

Date:	2012-03-20
Change:	EAC CDM added
By:	Praveen Urs
Reason:	

History

Created:	05/19/2011 12:55:01 PM	Timothy Chan/Hk/Chn/TUV
Modified:	10/08/2012 12:05:43 PM	Praveen Urs/Chn/TUV
	10/08/2012 12:05:12 PM	Praveen Urs/Chn/TUV
	09/28/2012 12:23:05 PM	Praveen Urs/Chn/TUV
	03/20/2012 05:16:31 PM	
	05/19/2011 12:55:43 PM	

Export to ICMS

Last Export:

Qualification

Tang, Walter /

Emission Trading
United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	☒ ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)	☐ ja	Add. reviewer: (Zusätzlicher Prüfer)	☒ yes
EAC Scopes: (EAC Branchen)	CDM 01 - Energy industries (renewable - / non-renewable sources) CDM 02 - Energy distribution CDM 03 - Energy demand CDM 13 - Waste handling and disposal CDM 04 - Manufacturing industries		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	10/11/2011	Valid to: (Gültig bis)	09/11/2015

Remarks:	Appointed as Technical Reviewer for TA 1.1, 1.2, 2.1, 2.2, 3.1 Direct work experience. TA 4.3, 4.5, 13.1 based on Annex D para 9 of the Accrediation Standard
Languages:	Chinese simplified English

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

Latest Monitoring: (letzte Beurteilung)	Next Monitoring:

(nächste Beurteilung)

Remarks:

History of scope allocation

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

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

History

Created:	12/06/2011 05:00:51 PM	Walter Tang/Chn/TUV
Modified:	07/06/2012 04:47:48 PM	Praveen Urs/Chn/TUV
	07/02/2012 03:08:57 PM	Praveen Urs/Chn/TUV
	07/02/2012 03:08:48 PM	Praveen Urs/Chn/TUV
	05/15/2012 03:30:46 PM	
	02/13/2012 08:00:10 PM	
	12/06/2011 05:01:30 PM	

Export to ICMS

Last Export: