

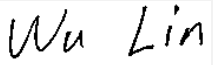


VCS VERIFICATION OF “HEQING SOLAR COOKER PROJECT II”

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Summary:

Shenzhen CTI International Certification Co., Ltd (CTI) to performed a verification of the VCS Project Activity “Heqing Solar Cooker Project II” in China (hereafter “project activity”). This report summarises the findings of the verification of the project, as well as criteria given in VCS Standard V4.2 to provide for consistent project operations, monitoring and reporting. The objective of this verification is to verify and certify the Verified Carbon Units (VCU) reported for the “Heqing Solar Cooker Project II” in China (VCS1859) for the period 01/08/2018 - 21/09/2021.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified. The verification comprises a review of the monitoring report over the monitoring period 01/08/2018 – 21/09/2021 based on the registered PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participants. On-site visit and stakeholders’ interviews are also performed as part of the verification process.

In CTI’s opinion, the GHG emission reductions reported for the project in the monitoring report are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology AMS-I.C. (Version 18) and the monitoring plan contained in the Project Design Document (version 9 dated 03/08/2011). There are 5 CL findings which are satisfactorily resolved during the verification process.

CTI confirmed that the GHG emissions reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI is able to certify that verified carbon units from “Heqing Solar Cooker Project II” during the period 01/08/2018 – 21/09/2021 amount to 498,454tCO_{2e}.

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1 INTRODUCTION

1.1 Objective

The objective of this verification is to verify the verified carbon unit (VCUs) of the project “Heqing Solar Cooker Project II” (hereafter referred to as “the Project”), which is located at *Gaotai county and Linze county of Zhangye in Gansu Province, China* for the period from 01/08/2018 to 21/09/2021.

The verification under VCS standard version 4.2 /39/ with reference to CDM project Standard /36/ and UNFCCC criteria refers to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria is the independent *ex-post* quantification and certification of the greenhouse gas (GHG) emission reductions achieved by a project activity which has completed validation under Clean Development Mechanism (CDM) and Verified Carbon Standard (VCS). The above work is carried out through an independent assessment and a written assurance is provided on the GHG emission reductions achieved for the period specified.

1.2 Scope and Criteria

The scope of the verification is:

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

1.3 Level of Assurance

Consideration of materiality in planning the verification. This is a project with less than 300,000 tonnes of CO₂e per year. The materiality threshold with respect to the aggregate of errors, omissions, and misrepresentations relative to the total reported GHG emissions reduction and/or removals shall be five percent. Before planning the verification, the VVB has determined the risks of potential errors and the corresponding verification process in response to the risks as follows:

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Errors in manual transfer of records.	Low	The values of monitoring parameter B (i.e. the monthly operating time of each solar cooker) were manually transferred from the hand-written survey records to the ER calculation spreadsheet.	The verification team plans to check all the original monitoring data (for parameter B) of all households recorded by the Rural Energy Station (RES)/15/, which was the original data from the credible third party.

The monitoring period was 01/08/2018 – 21/09/2021 which consists of 4 sub-periods (SP):

SP1: 01/08/2018 – 31/07/2019

SP2: 01/08/2019 – 31/07/2020

SP3: 01/08/2020 – 31/07/2021

SP4: 01/08/2021 – 21/09/2021

A set of simple random sampling was performed with sample size of 79 households for each monitoring parameter at each sub-period. The verification team conducted on-site sampling check using acceptance sampling method with a sample size of 25 (out of 79 PP sampled households) and acceptance number of 1 assuming 1% AQL and 15% UQL for each sub-period. The producer's risk and the consumer's risk are set at 10% as recommended in the "Sampling and surveys for CDM project activities and programmes of activities" /33/.

During the verification, all the original records have been checked against with the data input to the ER calculations spreadsheet. There is no error identified for all the 4 sub-periods. The data was accurately transferred to the ER calculation spreadsheet. Refer to Section 4.4. for detailed assessments.

With the above measure in verification, the verified GHG emission reduction data is free from material misstatement.

1.4 Summary Description of the Project

The project involves installation of 49,000 parabolic type solar cookers with 910.0 W rated power per unit and the total installed capacity of 44.59 MW_{thermal}, which are all located in the rural areas of Gaotai County and Linze County of Zhangye in Gansu Province. The solar cookers were distributed in 15 townships (Shahe, Xinhua, Banqiao, Pingchuan, Liaoquan, Yanuan, Nijiaying, Xiangdao, Heli, Nanhua, Xinba, Luotuo Cheng, Xuanhua, Heiquan, and Luo Cheng) in Gansu Province.

2 VERIFICATION PROCESS

The verification has been performed as described in CDM validation and verification standard for project activities (version 03.0) and VCS Standard (Version 4.2), VCS Registration and Issuance Process (Version 4.1) which constitutes the following steps:

- Submission of Version 1.0 MR (24/09/2021)
- Desk review of the MR (version 1.0 dated 24/09/2021) and the relevant documents
- On-site assessment (21/02/2022 to 24/02/2022)
- Submission of Version 2.1 MR (10/03/2022)
- Issuance of CL list (23/04/2022)
- Resolution of CL (10/05/2022)
- Technical review (27 May 2022)
- Submission of revised MR version 2.2 (04/06/2022)
- Issuance of verification report
- VCS review
- Submission of revised MR version 2.3 (06/10/2022)

2.1 Method and Criteria

The Project Participants¹ (PP) has performed a set of simple random sampling with sample size of 79 households for each monitoring parameter at each sub-period, the verification team conducted on-site sampling check using acceptance sampling with a sample size of 25 (out of 79 PP sampled households) and acceptance number of 1 assuming 1% AQL and 15% UQL for each SP. The producer's risk and the consumer's risk are set at 10% as recommended in the "Sampling and surveys for CDM project activities and programmes of activities" /33/.

2.2 Document Review

Desk review of the monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the sampling, QA/QC procedures and other relevant documents. Please refer to Appendix 1.

2.3 Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
/i/	Pan	Cong	Beijing Harmonious Energy Development Co., Ltd.	21/02/2022 – 22/02/2022	- Project design and implementation - Project related legal issues - Equipment installation and starting of operation - Monitoring period for this verification - Monitoring plan and Procedures - QA and QC - Training history and records - Data collection and record keeping - Operation and maintenance records - Missing Data handling - Emission Reductions Calculation - Management system	Qiang Chen

¹ Project participants (PP) refer to either project proponent Clean Air Trade, Inc. ("CAT") or project operator Beijing Harmounious Energy Development Co Ltd ("BHED")

/ii/	Wu	Jian	Gaotai Rural Energy Station (RES)	23/02/2022	- Monitoring plan and procedures - QA and QC - Training history and records - Missing Data handling - Data collection and record keeping - Operation and maintenance records - Operation situation	Qiang Chen
/iii/	100 households (25 for SP1, 25 for SP2, 25 for SP3, 25 for SP4)	Nanhua, Xiangdao, Heli, Heiquan, Luotuo Cheng, Shahe, Yanuan, Banqiao, Pingchuan, Liaoquan, Xinhua, Township		21/02/2022 – 23/02/2022	- Monitoring plan and procedures - QA and QC - Training history and records - Missing Data handling - Data record and report - Operation situation	Qiang Chen

2.4 Site Inspections

Duration of on-site inspection: 21/02/2022 to 23/02/2022				
No.	Activity performed on-site	Site location	Date	Team member
1.	Visit 100 solar cooker household users (for SP1, SP2, SP3, SP4)	Nanhua, Xiangdao, Heli, Heiquan, Luotuocheng, Shahe, Yanuan, Banqiao, Pingchuan, Liaoquan, Xinhua, Township	21/02/2022 – 23/02/2022	Qiang Chen

2.5 Resolution of Findings

Table 1. Remaining Forward Action Request (FAR) from validation and/or previous verification

FAR ID	n/a	Section no.	n/a	Date: n/a
Description of FAR				
n/a				
Project participant response				Date: n/a
n/a				
Documentation provided by project participant				
n/a				
VVB assessment				Date: n/a
n/a				

Table 2. Clarification request (CL) from this verification

CL ID	01	Section no.	n/a	Date: 26/04/2022
Description of CL				
According to Table 1 of Section 1.11 of the MR (Version2.0), “The 49000 households’ exposure to HAP has been reduced by 3.17 years (01/08/2018 - 30/09/2021)”. Please clarify the calculations of reduced exposure to HAP due to this monitoring period? Why the whole period of time was accounted for the calculations disregard the actual hours of solar cooker operations?				
Project participant response				Date: 03/05/2022
First we’d like to clarify that what was written on MR was “The 49000 households’ exposure to HAP has been reduced by 3.14 years (01/08/2018 -21/09/2021).” The inefficient cookstoves in project area are indoor with poor or no ventilation, and consequently the polluted air generated by these inefficient cookstoves will remain indoor for a long time. Moreover, the inefficient cookstoves are used several times a day, which continues to “renew” the indoor pollutions. Therefore, the households using inefficient cookstoves are exposed to HAP during the entire time instead of just the cooking time. This is why the whole monitoring period was used. The baseline scenario is that the inefficient cookstove generates indoor air pollution several times a day and the current pollution level is the result of <u>cumulative</u> pollution instead of just instant pollution, i.e., <i>current pollution level = previously accumulated pollution + instant pollution</i>. Similarly, the pollution reduction by solar cooker has a cumulative effect as well. i.e., <i>current reduction = previously accumulated reduction + instant reduction</i>. What matters is the cumulative pollution or reduction, not each individual instant pollution or reduction. Therefore, the pollution reduction mentioned in this monitoring report means cumulative reduction, not individual instant reduction. For the times when there is no instant reduction, such as a rainy day, although the household’s instant reduction is zero on that day, the pollution level on that day is still lower than the baseline level because of the cumulative reduction created by using solar cookers during previous days. Therefore, the reductions on cumulative household air pollution (HAP) exist throughout the entire monitoring period. The cumulative basis used here is consistent with the basis of other main data (such as emission reductions) in this monitoring report. For example, when we say that xxx tons of emission reductions are generated in this monitoring period, we mean the cumulative tons and we don’t mean that the emissions reductions are generated at every single minute of this monitoring period				

Documentation provided by project participant	
n/a	
VVB assessment	Date: 10/05/2022
First, as per PP's response, it is confirmed that the monitoring period should be 01/08/2018 -21/09/2021 which are consistently indicated in the MR and ER spreadsheets. Based on the on-site observation, the solar cooker can effectively reduce the consumption of coal and hence reduce the pollutant emissions during the combustion. While it is not feasible to quantify the exact impact of the project to the reduction of household air pollution, the verification team agrees that the project can qualitatively improve indoor air quality. It is accepted that the household has enjoyed the benefit of less air pollutant environment during the whole monitoring period. This CL is therefore closed.	

CL ID	02	Section no.	n/a	Date: 26/04/2022
Description of CL				
According to Table 1 of Section 1.11 of the MR (Version2.0), "Number of households with increased income, and the increased amount of income" is the indicator for SDG1.2 and 10.1. It is measured by the amount of saved expenditure on coal consumption per household with the assumption that expenditure saving is equivalent to income increase. Please justify the assumption.				
Project participant response				Date: 03/05/2022
For the rural households using inefficient cookstoves, because cooking is a necessity of life, purchasing coal for cooking is also a necessity of life. In other words, for these households, the expenditure on coal can't be avoided. Using solar cooker reduces such unavoidable expenditure, and consequently the household will have extra money to spend on other things, which is equivalent to income increase. The revised MR (v2.1) is attached.				
Documentation provided by project participant				
MR Version 2.1				
VVB assessment				Date: 10/05/2022
The verification team considers that justification is sound and reasonable. It has been consistently reflected in the revised MR.				

Therefore, this CL is closed.

CL ID	03	Section no.	n/a	Date: 26/04/2022
Description of CL				
According to MR Appendix 1-Row 5-ER, the money saved from current (9 th) monitoring period is 3 times larger than the “over project lifetime”. Please clarify.				
Project participant response				Date: 03/05/2022
There were typos in the Excel file supporting MR Appendix 1-Row 5-ER calculation. These typos have been corrected in the updated file enclosed.				
Documentation provided by project participant				
Revised ER spreadsheet				
VVB assessment				Date: 10/05/2022
The ER spreadsheet has been revised accordingly.				
This CL is therefore closed.				

CL ID	04	Section no.	n/a	Date: 26/04/2022
Description of CL				
Please justify the reference coal price applied in the calculations of saved expenditure on coal consumption.				
- The representativeness of the 3 coal wholesalers to the project area. - While annual coal price is calculated, why an average price for the whole period of 2018 -2021 is applied instead of individual SP?				
Project participant response				Date: 03/05/2022
- The three coal wholesaler/retailers in project area are officially licensed, large and reputable coal sellers under the supervision of the government. Their prices reflect the market prices and under the supervision of the government. Therefore, their prices are representative of the local coal price.				

The money saved needs to be calculated not only for this monitoring period (9th MP, 2018-2021), but also for the entire project life (2011-2021). However, we only have the coal price data for this monitoring period. Therefore, we used the average coal price of this MP to calculate the money saved for both this MP and the project life. If we chose to use each individual annual price to calculate the money saved, we could only do the calculation of 2018-2021, and there would be no price available for the calculation of the rest of project life. - The reference of coal prices of the 3 coal wholesalers/ retailer was provided on March 10 under the following path: “General docs-same for both projects \ MR - Appendix 1 (SDG) supporting docs \ MR Appendix 1- Row 1 & 4- Coal price.pdf” - The SDG data are calculated for <u>both</u> the current (9th) monitoring period and the project lifetime because of the format of Table 1 in the template of VCS Monitoring Report v4.1 - the headers of this table include both “Current Project Contributions” and “Contribution Over Project Lifetime”. According to the analysis on a major coal price index of China (PDF file attached), the average price of 2018-2021 can be used as the approximation for the average retail price of 2011-2021. Therefore, we used the average price of this monitoring period as the approximation for the average price of the project life	
Documentation provided by project participant	
MR Appendix 1- Row 1 & 4- Coal price.pdf CL4 Coalprice 2011-2020.pdf	
VVB assessment	Date: 10/05/2022
Based on the coal price of the 3 local retailers supported by the submitted evidence, the average coal price of 2018-2011 is calculated for the project as per PP’s response. According to another supporting document showing the coal price trading index, which provide an indicative trend of the coal price. The difference between 2011-2021 Average and 2018-2011 Average is about 4%. It shows that the average local retailer coal prices can be reasonably applied for the whole project lifetime. The verification team accepted that the approach which is considered the best estimation of the coal prices. This CL is therefore closed.	

CL ID	05	Section no.	n/a	Date: 26/04/2022
Description of CL				
Please provide the screenshot of random sampling process for random selection of sampling users for parameter A and B for each SP.				
Project participant response				Date: 03/05/2022
They were forgotten to be included last time. They are provided in the replying email this time.				
Documentation provided by project participant				
Screenshot of random sampling process for random selection of sampling users for parameter A & B for SP1, SP2, SP3, SP4				
VVB assessment				Date: 10/05/2022
The screenshots are checked and confirmed consistent with the sampling records. Therefore, this CL is closed.				

Table 3. Corrective Action Request (CAR) from this verification

CAR ID	n/a	Section no.	n/a	Date: n/a
Description of CAR				
n/a				
Project participant response				Date: n/a
n/a				
Documentation provided by project participant				
n/a				
VVB assessment				Date: n/a
n/a				

2.5.1 Forward Action Requests

Table 4. FAR from this verification

FAR ID	n/a	Section no.	n/a	Date: n/a
Description of FAR				
n/a				
Project participant response				Date: n/a
n/a				
Documentation provided by project participant				
n/a				
VVB assessment				Date: n/a
n/a				

There is no FAR issued during the verification.

2.6 Eligibility for Validation Activities

CTI is a Validation and Verification Body (VVB) accredited by Verra, it is eligible to conduct both validation and verification for the VCS project activity. CTI is also an accredited Designated Operational Entity (DOE) by UNFCCC.

VCS Project 1860 Heqing Solar Cooker Project I 8th verification

VCS Project 1859 Heqing Solar Cooker Project II 8th verification

CDM9977 West African Biodigester Programme of Activities

CDM1620 Hedcor Sibulan 42.5MW Hydroelectric Power Project

CDM5119 Heqing Solar Cooker Project I

CDM 5106 Heqing Solar Cooker Project II

GS5303 Indonesia Domestic Biogas Programme of Activities (IDBP) (ID1172), VPA-2 (GS 5303)

According to Section 4.1.20 (1) of VCS Standard V4.2, it stipulates that validation and the first verification of a project can be undertaken by the same VVB. But the subsequent verification shall be undertaken by a different VVB. CTI has conducted the verifications for this project for the following monitoring periods:

1. CDM verification (15/06/2015 – 31/10/2015)
2. CDM verification (01/11/2015 – 30/11/2016)
3. Gap validation for the conversion from CDM to VCS
4. VCS verification (01/12/2016 – 31/07/2018)
5. VCS verification (01/08/2018 – 21/09/2021, the current verification)

In the same clause of the VCS standard, it also indicates that “The gap validation of a project registered under an approved GHG program may be disregarded when assessing adherence to these requirements.”. Therefore, the VVB has only conducted verification for this project and hence this rule is satisfied.

According to Section 4.1.20 (2), VVB may not verify more than six consecutive years of a project’s GHG emissions reduction or removal. It is noted that CTI is verifying the GHG emissions reduction of this project since 15/06/2015 – 21/09/2021, i.e. 6 years 99 days. However, the project proponent has successfully applied for exemption from Section 4.1.20 (2) of the VCS standard /49/. Therefore, CTI was exceptionally allowed to conduct the verification of GHG emission reduction for this project that are covering the period beyond the 6 years limit. This clause of the VCS standard is exempted.

3 VALIDATION FINDINGS

This project was originally developed as a CDM project. It was registered as a VCS project activity in 2019. The VCS gap validation had been conducted in previous VCS verification. According to section 3.1 and 3.2 of the validation report “GAP Validation and VCS Verification of “Heqing Solar Cooker Project II” /47/, this project fulfilled all the VCS criteria and hence registered as a VCS project.

3.1 Participation under Other GHG Programs

This project was originally developed as a CDM project. According to section 3.1 and 3.2 of the validation report “GAP Validation and VCS Verification of “Heqing Solar Cooker Project II” /47/, this project fulfilled all the VCS criteria and hence registered as a VCS project. The PP has declared in the MR and the declaration /48/ that the project’s GHG emission reduction is not included in the China ETS and the project is not the current compliance entity list under China ETS. The project is not participating or seeking to receive any form of GHG-related environmental credit other than VCS during this monitoring period.

The verification team did not identify the involvement of this project in any other GHG program (including China ETS).

3.2 Methodology Deviations

Not applicable. There is no deviation from the applied methodology.

3.3 Project Description Deviations

Not applicable. There is no deviation from the project description in the registered PDD.

3.4 Grouped Project

Not applicable. This project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

In line with the registered PDD /30/ and VCS Project Description/42/, the project activity involves installation of 49,000 parabolic type solar cookers with 910.0 W rated power per unit and the total installed capacity of 44.59 MW_{thermal}, which are all located in the rural areas of Gaotai county and Linze county of Zhangye in Gansu Province. As stated in the registered PDD, the PP planned to distribute the solar cookers to 15 townships (Shahe, Xinhua, Banqiao, Pingchuan, Liaoquan, Yanuan, Nijiaying Xiangdao, Heli, Nanhua, Xinba, Luotuo Cheng, Xuanhua, Heiquan, and Luo Cheng) in Gansu Province. Through on-site interview with the PP /i/ and document review /24/ /25/, the verification team confirms that all the solar cookers of the project activity are located in Gaotai county and Linze county of Zhangye in Gansu Province and the total number of solar cookers is 49,000, as confirmed from the Participation agreement between the solar cooker user and PP and equipment receiving records /10/ and monitoring records /14/ /15/ which are consistent with the registered PDD.

As per the VCS standard, the project start date is defined as “the date on which the project began generating GHG emission reductions or removals”. This project was first a registered CDM project, the project started to generate GHG emissions reduction during its first monitoring period since 22/09/2011 which can be confirmed from the first verification report /49/ available on CDM website. Therefore, the project start date is confirmed as 22/09/2011.

It is confirmed from the sales receipts provided by manufacturer of solar cookers for the purchase of 49,000 solar cookers for the project /9/. It is also further confirmed by Gaotai RES and Linze RES /ii/ for distributing 49,000 solar cookers to users in Gaotai County and Linze County /24/. It is further checked by onsite checking of 49,000 sets of distribution record for 49,000 participated users /10/. Moreover, it is confirmed by the Gaotai RES and Linze RES /ii/ during the on-site verification that there is no relocation of the 49,000 participated users during the indicating monitoring period. Thus it can be confirmed that 49,000 solar cookers were distributed to the participated users.

The technical specifications of solar cookers are confirmed from the solar cooker purchase contracts /4/ /5/, which fulfils the requirement of National standard /27/ and the solar cooker test reports /6/ /7/ which were conducted by local RES.

According to the registered PDD, the monitoring work for this project activity would be coordinated by the local government entity, RES. Before the starting of the 9th monitoring period, the project participant implemented the following measures so as to ensure fulfilling the applied monitoring methodology AMS-I.C. version 18 /32/ and the monitoring plan stated in the registered PDD.

1. Provided the VCS monitoring training to the monitoring team including the monitoring personnel from (i) RES monitoring personnel and (ii) project operator’s monitoring personnel before the monitoring period /17/ /18/;

2. Established the monitoring team /13/ and detailed monitoring manuals for Parameter A and Parameter B /22/;

3. The two sets of 79 samples (one set for parameter A and the other set for parameter B) were randomly selected using MS Excel software from the full list of 49,000 solar cooker users before each sub-period actions. Then the PP signed agreements /16/ with one set of sample users (Parameter B) for stipulating the users' obligation in cooperating with the project monitoring programme before the monitoring commenced. The sampling process records (i.e. screenshots of sampling process in Microsoft Excel software) /11/ /12/ were checked. The verification team confirms that the sampling process is correct and the samplings are valid.

As the above and document review, verification team considers that the project activity operated properly in the way complying with the implementation plan and monitoring plan stipulated in the registered PDD and the monitoring programme was performed in a transparent and comprehensive manner during the 9th monitoring period.

The project activity was a registered CDM project activity. There is no observation that the project has received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification. No evidence showing that the project has participated or been rejected under any other GHG programs since validation or previous verification.

It is concluded that the project was implemented according to the registered PDD.

Other GHG program

The PP has declared in the MR and the declaration /48/ that the project's GHG emission reduction is not included in the China ETS and the project is not the current compliance entity list under China ETS.

The verification team has checked major GHG program, i.e. Gold Standard², American Carbon Registry³. There are no observations that the project has participated in these GHG Programs. Regarding China ETS, the project activity located in Gansu Province which is not one of the 7 ETS markets in China. And the national ETS only covers electricity generation companies in the first phase. The verification has checked through the China ETS platform, it is confirmed that the project activities is not participating or seeking other GHG program.

SDG Contributions

In the MR, there are 5 SD contributions identified by the PP. The verification team has confirmed all of them via desktop review, on-site observation and interview with the solar cooker users.

² <https://registry.goldstandard.org/projects?q=&page=1>

³ <https://acr2.apx.com/myModule/rpt/myrpt.asp?r=111>

SD Target	SDG Indicator	Contribution over project lifetime	Verification comment
1.2	Number of households with increased income, and the increased amount of income	The usage of solar cooker reduced the expenditure on purchasing coal, which is equivalent to the increase of income for the 49000 rural households involved in the project. The increased amount of income over project lifetime is CNY 946.6 million (CNY 19,319 per household).	As per Appendix 1, the verification team confirms the calculations of the expenditure that can be saved by the project as CNY 946.6millions (CNY19,319 per household) over the lifetime of this project. The calculations were based on the coal price of the Gansu region which is deemed reasonable for the estimation. The verification confirms this SDG contribution.
3.9	Number of households and number of years exposed to household air pollution (HAP) caused by burning coal using inefficient cookstoves	According to World Health Organization (WHO), each year close to 4 million people die prematurely from illness attributable to household air pollution (HAP) from inefficient cooking practices. HAP causes noncommunicable diseases including stroke, ischaemic heart disease, chronic obstructive pulmonary disease (COPD) and lung cancer. Close to half of deaths due to pneumonia among children under 5 years of age are caused by particulate matter (soot) inhaled from HAP. The project reduced HAP for 49,000 low-income rural households for 10 years, which consequently reduced their likelihood of illness and death from HAP.	During the on-site visit, the kitchen of the solar cooker users is enclosed space with mostly poor ventilations. The soot and smoke may be retained in the kitchen and hence impact the health of the household families. With the use of the solar cooker, the interviewed households expressed the opinions that it was a fast, economy, and clean alternative to the conventional coal cookstoves. Whenever there was sunshine, they must use solar cooker as far as possible. The interviewed households like the solar cooker that it saved a lot of coal consumption which was substantiating the contribution to reduced time of exposure to HAP. The verification confirms this SDG contribution.
7.1	Number of households that get access to affordable and reliable clean energy	The project enabled 49,000 low-income rural households to get access to affordable and reliable clean energy.	During the on-site visit, the interviewed households expressed that solar cooker is a fast, economy and clean alternative to conventional coal stove. In addition, the solar cooker is very durable as supported by the monitoring findings that over 97% of the solar cookers were well maintained and stay operational after years of use. The verification confirms this SDG contribution.

10.1	Number of households with increased income, and the increased amount of income.	The usage of solar cooker reduced the expenditure on purchasing coal, which is equivalent to the increase of income for the 49000 rural households involved in the project. The increased amount of income over project lifetime is CNY 946.6 million (CNY 19,319 per household). The project is in Gansu province where the average income is in the bottom 1.8% of the entire host country. Therefore, it is reasonable to conclude that the income of the households involved in the project are in the bottom 40% of the host country.	The total no. of solar cooker users (i.e. 49,000) is confirmed by checking the solar sales receipt /8/ and participation agreement /9/. And as per Appendix 1 of the MR, the amount of saving per household for the whole project lifetime has been confirmed as reasonable estimated. In addition, it is further confirmed with the interviewed household during the on-site visit that the solar cooker help reduce their cost on purchasing coal for cooking. The households use the solar cooker to boil water, cook corn, soup, congee, etc. The verification team confirms this SDG contribution.																						
13	Tonnes of greenhouse gas emissions avoided or removed	By installing solar cookers to the rural households, the project prevented the release of 1,472,102 tonnes of CO2 into the atmosphere over project lifetime.	As confirmed from CDM registry and VERRA, the total amount of GHG emission reduction is sum up to 1,472,102 tonnes of CO2e. <table><tr><td>Verification</td><td>amount of emission reduction achieved (tCO2e)</td></tr><tr><td>1st (CDM)</td><td>143,956</td></tr><tr><td>2nd (CDM)</td><td>150,705</td></tr><tr><td>3rd (CDM)</td><td>89,023</td></tr><tr><td>4th (CDM)</td><td>116,247</td></tr><tr><td>5th (CDM)</td><td>63,580</td></tr><tr><td>6th (CDM)</td><td>153,545</td></tr><tr><td>7th (VCS)</td><td>154,035</td></tr><tr><td>8th (VCS)</td><td>102,557</td></tr><tr><td>9th (current VCS verification)</td><td>498,454</td></tr><tr><td>Total</td><td>1,472,102</td></tr></table> The verification confirms this SDG contribution.	Verification	amount of emission reduction achieved (tCO2e)	1 st (CDM)	143,956	2 nd (CDM)	150,705	3 rd (CDM)	89,023	4 th (CDM)	116,247	5 th (CDM)	63,580	6 th (CDM)	153,545	7 th (VCS)	154,035	8 th (VCS)	102,557	9 th (current VCS verification)	498,454	Total	1,472,102
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Total	1,472,102																								

4.2 Safeguards

4.2.1 No Net Harm

The project activity is the dissemination of solar cooker to participating household. There is no fuel used in the operations of the solar cooker. There is no environmental and socio-economic impacts identified.

4.2.2 Local Stakeholder Consultation

This project was a registered CDM project which had conducted local stakeholder consultation in 2010.

It is reported in the MR that local stakeholders engagement continued through out this monitoring period by keeping the communication channels opened. During the on-site visit to the household users, they expressed that they were satisfied with the solar cookers. In case there were any problems with the solar cookers, they would report to PP through local RES officers. The verification team has crosschecked the Project monitoring records /15.1/ /15.2/ /15.3/ /15.4/ which have the records of the households reporting issues with their solar cookers. For examples, missing micro mirrors, call for maintenance, etc. The verification team has interviewed the management representative from the PP /i/ regarding the maintenance of the solar cookers. He explained that whenever they received reports from the household users during the monitoring periods, technician was sent to carry out the fixes. According to the maintenance records /21.1/ /21.2/ /21.3/ /21.4/, PP had completed maintenance tasks in this monitoring periods. Therefore, the verification team confirmed the communications were active during the monitoring period.

As per the communications record, there were 2 minor comments received from the household users:

1. Suggested the project team to wear mask and use hand sanitizer when they carry out the maintenance work
2. Use video call or phone call to assist the household users in case access to the household home is not possible due to restrictions

The PP has adopted relevant measures as per the suggestions. Based on the above findings, the verification team concluded that there was no major comment received during the monitoring period that have changed the project implementation. The communication channels were confirmed opened to provide necessary supports to the household users during the monitoring period.

4.3 Accuracy of GHG Emission Reduction and Removal Calculations

The accuracy of GHG emission reductions and removals, including accuracy of spreadsheet formulae, conversions and aggregations, and consistent use of the data and parameters:

Verification of monitoring parameters:

As per AMS-I.C. / version 18 and section B.7.1. of the registered PDD, there are four monitoring parameters to be monitored in each monitoring sub-period for estimating the emission reductions.

1. n: number of solar cookers in operation in the proposed project (monitoring parameter A)

Monitored value: 49,000

According to the registered PDD, for monitoring the number of solar cookers in operation, VCS monitoring team A has been set up to track the number of operating solar cookers. The RES as government officials assisted the PP to perform the monitoring since they are familiar with the rural villager habit and the living/cooking style. This is consistent with the registered PDD in which the monitoring work for this project activity will be coordinated by the RES, with PP's arrangement of project implementation issues and training.

In line with the registered monitoring plan, the maximum value of this parameter was determined by the solar cooker purchase contract /4/ /5/, sales receipts /9/ and distribution records /10/. 49,000 solar cookers were distributed to participating users, i.e. each user got one solar cooker. Then this parameter was monitored, recorded and archived annually.

For this monitoring period, the monitoring team checked 79 sampled users randomly selected for each sub-period, and confirmed the operational status of solar cookers. The random selection of 79 samples from the whole population of 49,000 participated users is fully in compliance with the monitoring plan in the registered PDD.

Thus the sampling results can be projected to the whole population for each sub-period and it is concluded that majority of solar cookers were in operation in this monitoring period.

Sub-period (SP)	SP1	SP2	SP3	SP4
No. of projected operational solar cookers	49,000	48,380	48,380	47,759

Prior to the operation of the project activity, RES signed an agreement /3/ with project operator for project operation, management and monitoring as an independent third party. Thus after the project registration, the RES implemented the agreement and started relevant works for the project operation, management and monitoring. RES is an official governmental organization in charge of rural energy including solar energy in Gaotai county and Linze county of Zhangye. As a government organization, RES has sufficient official authority and abundant rural working network/resources/experiences. The personnel from RES are familiar with local administrative boundary/delineation and are able to make good communication with local households by using dialect and hand-on experiences for the management of various rural households' affairs. Thus the RES is considered to be the suitable entity to assist the PP for the coordination of the monitoring work as per the monitoring plan in the registered PDD.

The RES carried out the coordination work for the arrangement of on-site monitoring work. Monitoring team A was established for this monitoring period. The monitoring group consisted of one person from Gaotai RES, one person from Linze RES and one person from project operator. In each sub-period, all team members received the training for monitoring this parameter including up-to-date procedure, guidance, data management, missing/damaged data handling and etc. /17/ before the monitoring work.

The random selection of 79 samples from the whole population of 49,000 participated users is fully in compliance with the monitoring plan in the registered PDD.

Considering the rural residents live together in villages, it only took a short time for the monitoring group to monitor the solar cooker in operation through visual observation and verbal confirmation from the households. As confirmed by the PP and RES, there was no migration of participating users found in this monitoring period.

Moreover, the verification team checked the monitoring records for parameter A, in which the monitoring records were endorsed and approved by the RES /14/.

Thus the verification team considers that the monitoring work was reliable and the monitoring was conducted within a reasonable time period. Thus the verification team considers the monitoring records and data are valid and credible.

As per the registered PDD, the value of this parameter is determined by annual monitoring results. For the monitoring of this parameter, the name list of all sampled users are grouped by address (township/village level) and printed out as checklist for recording along with corresponding name and address of the solar cooker users.

The monitoring data are recorded in the checklist as per the registered PDD. The dates of on-site monitoring are also recorded. All records of solar cooker status are confirmed by two members in the same team (one from RES and one from project operator) with their signatures together.

The household names of the solar cookers and corresponding list of participating solar cooker users were kept by the project operator for tracking the number of system in operation. The monitoring data is recorded in the table as per the registered PDD.

For the sake of conservativeness, if the solar cookers were found damaged or lost, or if the participating user was found moved from previous place during monitoring, it will be counted as zero. This approach is documented in the monitoring manual by project operator /22/ and checked by the verification team.

After the monitoring finished, all monitoring data obtained on-site by the monitoring team A for this parameter are checked internally by RES and examined by the supervisors in the RES for the confirmation of monitoring procedures. Then the monitoring data was reported to the project operator. The data were aggregated to calculate the final results of this parameter for each sub-period of this monitoring period.

As the verification team checked the reporting data, which are reported at least annually, thus it is confirmed that the reporting frequency is in compliance with the registered PDD and monitoring records /14/ for this monitoring period.

No monitoring equipment is used for monitoring this parameter. The number of operating solar cooker is counted and determined by on-site visual observation by the trained monitoring team.

The reported data are cross-checked with solar cooker purchase contract /4/ /5/ and their sales receipts /9/ as well as the equipment receiving records /10/.

- As checked from the training records /17/, before commencing the monitoring works of each sub-period. All the members of monitoring team A have received training regarding the monitoring parameter A including up-to-date procedure, guidance, data management, missing/damaged data handling and etc.

- The monitoring was conducted by monitoring team A. The monitoring team A consisted of two persons, among them one was from project operator and the other one from Gaotai RES and Linze RES, i.e. from the independent governmental entity to ensure the collected data has been crosschecked by each other.
- The solar cookers were maintained by the project operator within the project lifetime. As checked from the maintenance record /21/, it is found that repair and maintenance were done in this monitoring period by the PP in order to keep good condition and smooth use of the solar cookers, such as lubricating the handgrip of the solar cookers.
- QA/QC procedures for handling missing or damaged data are documented in the monitoring manual /22/ for this parameter. The supervisors of RES are responsible to check and confirm the completeness, accuracy and validity of the monitoring data according to QA/QC procedure. After checking, they signed on the monitoring records /14/. It is found that no missing or damaged data happened in the 4 sub-period.
- The reported data were double-checked by the project operator to ensure correct transfer and conversion of data from written record to electronic data for ER calculation.
- All monitoring data would be archived in paper and electronic form and kept for at least 2 years after the whole crediting period as per the monitoring manual /22/.

The verification team checked the monitoring procedure, monitoring records and further interviewed the relevant monitoring personnel and confirmed that the reported data for this monitoring parameter is deemed reliable and credible. The data management (from monitoring equipment to emission reduction calculation) can be ensured for correct transfer of data and reporting of emission reductions and necessary QA/QC processes were in place.

2. ti: the monthly operating time of each solar cooker (monitoring parameter B)

As per the monitoring plan in the registered PDD, considering the population of the solar cooker user is 49,000 and the situation of the participating users are similar to each other, simple random sampling was applied for the target population. This approach has been approved in the registered PDD.

By interviewing the managing representative /i/ and document review of the sampling records /12/, it is verification team's opinion that the sampling approach is in line with the registered PDD.

In the registered PDD, it is indicated the data will be measured daily and reported monthly, it is confirmed by the verification team through document review the daily measurement records and monthly monitoring records /15/.

As verified in the previous section, the on-site monitoring work was assisted by the RES. The monitoring team B was set up with the monitoring team members from Gaotai RES and Linze RES /ii/. The team consisted of 2 persons. Before commencing the monitoring works of each sub-period, all team members received the training for monitoring this parameter including up-to-date procedure, guidance, data management, missing/damaged data handling and etc. /18/.

79 samples were randomly selected from 49,000 participating users for each sub-period. The project operator then signed the monitoring agreement with the sampled users individually /16/, so that the sampled users agreed to cooperate with the monitoring team for the monitoring of parameter B. The sampled users of each sub-period were all trained by RES, and understood the procedure of monitoring this parameter, and finally endorsed in the agreement with their signature.

The sampled users reported to RES the daily usage time for the solar cooker. When the solar cooker started to be used, the time was counted by them via timing tools such as clock, watches, phone-clock etc. Every evening, the time was accumulated (accurate to minutes) by the households as the total usage time for solar cooker for one day. At the end of every day, the sampled users reported to the monitoring team members from RES, for the daily solar cooker operational time of solar cooker through phone call/SMS. The daily usage hours were recorded by 2 RES monitoring team members, and they also filled the monitoring record form in paper format as the original data records.

For each sub-period, the monitoring form contains the name list of all 79 sampled users grouped by name and address (township/village level). All original records of daily solar cooker usage hours in the monitoring form are confirmed by the monitoring personnel with their signatures on the monitoring form. The set of original data /15/ were checked by the verification team as complete for this monitoring period.

Therefore, the verification team considers that measurement frequency complies with the requirements in the registered PDD, the monitoring had been carried out in accordance with registered monitoring plan in the PD, i.e., the monitoring team collected and recorded the data reported by the sampled users that were selected by the sampling survey and the monitoring data are reliable.

In the registered PDD, it is indicated the data will be measured daily and reported monthly, it is confirmed by the verification team through document review the daily measurement records and monthly monitoring records /15/.

The supervisor from the RES conducted an internal checking on the filled monitoring forms each month to verify any missing or wrong data. Then the RES provided the verified data to project operator with signature for the confirmation of data reliability. The project operator monitoring staff would then cross-check if there was any missing or wrong data in the monitoring form. Then the data will be input as computerized electronic data every month.

Statistical analysis was done and average monthly operation hour of each solar cooker was calculated and demonstrated in the ER spreadsheet for each sub-period/2/. The monthly operation hour (accuracy to minute) of solar cookers from 79 sampling users was collected for the sub-period (SP1, SP2, SP3, SP4), sum-up and then divided by 79 (i.e. the total number of sampling users B) to compute an average monthly operation hour of each solar cooker in that period. This complies with the monitoring plan of the registered PDD.

Household timing tools (e.g. clock, watch, phone-clock and etc.) were used for monitoring this parameter. As the timing tools are simple general timing device for households, the accuracy is not required to be specified and the time record would just limit to minutes. The verification team checked that there is also no such requirement in accuracy in the applied methodology and registered PDD. Considering the general timing device can already fulfill the time recording purpose, the verification team also considers that the common timing tool can be in good condition and it did not affect greatly on the accuracy of ER calculation.

The calibration is not required or specified in the PD or the applied methodology. The applied value is verified though checking the original records from RES /15/.

- Before commencing monitoring works for each sub-period, all the members of monitoring team B have received training regarding the monitoring parameter B including up-to-date procedure, guidance, data management, missing/damaged data handling and etc. /18/.
- The monitoring for this monitoring parameter was independently conducted by personnel from RES. The project operator is only responsible for data check, computerization and archiving. It avoids the unintended or intended manipulation or loss of the measured data.
- QA/QC procedures for handling missing or damaged data are documented in the monitoring manual /22/. It is consistent with the description in the monitoring report. The most conservative estimation, i.e. zero will be applied for emission reduction calculation.
- If some individual data reported by the user are abnormally higher than normal range compared with other users in the same area, the monitoring personnel would ask for the specific reasons. If it is confirmed that the higher usage hours were due to irregular activities such as holiday celebration, wedding/funeral and family/friends gathering, the value would be double-confirmed by the solar cooker households and recorded by the monitoring personnel. The verification team also checked for those abnormal data record as double-confirmed by RES after direct communication with the sampled user. Then the value would be still considered as valid data. Otherwise, zero value is used for conservativeness. Thus the verification team considers that the QA/QC process is in place for ensuring the data management approach as per the monitoring plan in the registered PDD.
- The reported data was double-checked by the project operator VCS department to ensure correct transfer and conversion of data from written record to electronic data for ER calculation.
- All monitoring data was archived in paper and electronic form and kept for at least 2 years after the whole crediting period as per the monitoring manual /22/.

The verification team checked the monitoring procedure, monitoring records and further interviewed the relevant monitoring personnel and confirmed that the reported data for this monitoring parameter is deemed reliable and credible. The verification team also checked for those abnormal data record as double-confirmed by RES after direct communication with the sampled user. The data management (from monitoring equipment to emission reduction calculation) can ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes are in place.

3. R_i: monthly solar irradiance rate in project region

Jan	408.7 W/m2
Feb	503.4 W/m2
Mar	635.1 W/m2
Apr	738.5 W/m2
May	799.7 W/m2
Jun	814.4 W/m2
Jul	829.2 W/m2
Aug	767.8 W/m2
Sep	696.3 W/m2
Oct	537.1 W/m2
Nov	410.8 W/m2
Dec	363.0 W/m2

It is sourced from official latest available data from 1996-2011 records from Gansu Meteorological Service Center released on 25/11/2013, which confirmed to be the latest available information to be applied in the whole monitoring period through document review by verification team /26/. The data is from an official source. No additional QA/QC procedure is necessary.

4. EF_{FF,CO2}: baseline emission factor of Coal

Monitored value: 94.6 CO₂e/TJ

It is confirmed from IPCC 2006 report /28/, which is also in accordance with the applied methodology AMS-I.C. / version 18. The data come from an official source (latest information from IPCC). There is no updated data available. No additional QA/QC procedure is necessary.

Verification of the monitoring parameters by sampling

For the two monitoring parameters applied sampling, a step-wise approach is applied for assessment as below.

1. n: Number of solar cookers in operation in the proposed project (monitoring parameter A)

(i) Sample size check

According to the monitoring plan in the registered PDD, the monitoring team monitored 79 sampled users (A) for each sub-period and recorded the no. of operational solar cookers as a result of on-site inspection.

(ii) Reliability check

79 sampled users were monitored for each sub-period of this monitoring period. A reliability check was done in the monitoring report by PP, through assessment of the reliability check, it is confirmed that the calculation is correctly applied as per “Best Practices Examples Focusing on Sample Size and Reliability Calculations” (EB67, Annex 6), the relative precision is correctly calculated in the MR /1/, in which it is within the 10% precision level as specified in the registered PDD /42/ for applying confidence/prevision level of 90/10. Therefore, the verification team is of the opinion that the sample size meets the 90/10 confidence/precision required by the “Standard for sampling and surveys for CDM project activities and programme of activities” /33/ and is considered to be reliable.

(iii) Parameter value check

According to the monitoring plan in the registered PDD, the PP monitored 79 sampled users. According to “Sampling and surveys for CDM project activities and programme of activities” /33/, the verification team may use acceptance sampling approach in order to verify the monitored record. By using verification team’s own professional judgment and referring to the abovementioned Standard, the verification team conducted acceptance sampling.

For this monitoring period, the verification team thus conducted acceptance sampling by randomly selecting 25 household users from the 79 PP’s sampled users (A) for each sub-period. Please note these 79 samples households were randomly sampled for monitoring purpose from the total 49,000 of participating solar cooker households to represent the population as described in the monitoring plan. Then the verification team conducted the on-site visit and interviews with the 25 households /iii/ respectively for each sub-period. The physical existence and normal working condition of solar cookers were confirmed by visual observation by the verification team.

Furthermore, the name of solar cooker user and logo of Heqing I project marked on cement back plate of the solar cooker were recorded and compared with the name and corresponding address documented in the signed participation agreement and equipment receiving records /10/ to confirm whether the solar cooker was involved in this project activity. It is confirmed that all the solar cookers were involved in this project activity and operated in good condition within this monitoring period.

For this monitoring period, the monitoring team checked the results of sampled users (for parameter A) based on desktop review.

SP	SP1	SP2	SP3	SP4
No. of operational solar cooker among the 79 samples reported in MR	79	78	78	77
Verified from record /14/	79	78	78	77

During the on-site visits, as per the verification plan described in section 2.1 above, the verification team has randomly selected 25 households out of the 79 sampled households for each sub-period. The verification team visited the households and inspected if the solar cooker is in place and operational as per PP's sampling records. It is found that there is no discrepancies between verification team's sampling and the PP's records /14/.

SP	SP1	SP2	SP3	SP4
Households visit	25	25	25	25
No. of discrepant records	0	0	0	0

Based on the verification results, the no. of discrepant records for each of the 4 sub-periods are less than the Acceptance number (i.e. 1). PP's sampling records of all the sub-periods are therefore fully accepted in accordance with clause 33 of Sampling and surveys for CDM project activities and programmes of activities /33/. Thus PP's sampling results can be projected to the whole population for each SP which are consistently reported in the MR and applied in the ER calculations:

SP	SP1	SP2	SP3	SP4
% of operational solar cooker	79/79= 100%	78/79= 98.7%	78/79= 98.7%	77/79= 97.4%
No. of projected operational solar cookers	49,000	48,380	48,380	47,759

The result of VVB's observation for 25 solar cookers are consistent with PP's monitoring records /14/. No discrepancy occurred. Thus according to the result of VVB's sampling, it is confirmed that the PP's records are acceptable and valid.

2. ti: The monthly operating time of each solar cooker (monitoring parameter B)

(i) Sample size check

According to the monitoring plan in the registered PDD and applied methodology, simple random sample method was used. The sample size was *ex-ante* determined as 79 households. Thus 79 sample users (B) were selected from 49,000 households randomly using MS Excel.

(ii) Reliability check

It is requested in clause 10 of the Sampling and surveys for CDM project activities and programme of activities /33/ that:

“Where there is no specific guidance in the applicable methodology, project proponents shall use 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities”.

For the project activity, 90/10 confidence/precision is applied as small-scale type and no specific guidance in AMS-I.C. version 18.

It is calculated according to “Guidelines for sampling and surveys for CDM project activities and programme of activities” /38/. The standard error of the mean and the t-value are calculated based on the sample size of 79, the population of 49,000, the sample variance, the confidence level of 90%.

By checking the ER calculation sheet /2/, it is confirmed that the precision is calculated as less than 10% for each month and also for overall data in the monitoring period, thus the data is within the required specification of 10% precision. Therefore, the verification team is of the opinion that the sample size meets the 90/10 confidence/precision required by the Sampling and surveys for CDM project activities and programme of activities /33/ and is considered to be reliable.

(iii) Parameter value check

The Clause 24 of “Sampling and surveys for CDM project activities and programme of activities” mentions: “When a sampling approach is applied by the project proponents, the VVB may use acceptance sampling...as part of validation/verification activities...”.

For the above procedure of data collecting described in section 3.3.1 and the registered PDD, the usage time which was the historical data directly reported by the user to the RES’s monitoring teams, was recorded by the RES on daily basis, thus these original data records from RES constituted the original data record for the solar cooker usage time. Moreover, it is deemed irrational for the solar cooker users to recall the daily usage time on a specific date over this past monitoring period during the verification team’s on-site interview with user households. Due to the historical nature of monitored data and conservative approach, the verification team then decided to verify all the RES’s original data of this parameter with the PP’s applied electronic record instead of any sampling approach. The verification team also considered that it would be more reliable and conservative to verifying all RES’s original data compared with other sampling approach.

Considering the local living condition and living habit of solar cooker users which are at very preliminary level, it would be unrealistic for the solar cooker users to keep continuous records management by themselves without the help from a third party, i.e. RES. Thus the data are reported by the sampled users daily and systematically collected and recorded by the RES monitoring team.

In order to verify the monitored data and determine whether the data applied is acceptable for ER calculation, the verification team therefore checked ALL the original monitoring data of ALL 79 households recorded by the RES /15/ for each sub-period, which were the original data from the credible third party. Since these were historical data recorded and confirmed by the monitoring team of RES /15/, the verification team then verified the validity of the data by checking the procedures and approaches applied during the monitoring and these procedures and approaches were found to be in accordance with the monitoring plan in the PDD. The monitoring data were cross-checked with the Irradiation Rate and sunshine hours for Zhangye 1996-2011 provided by Gansu Provincial Meteorological Service Center /26/, which is the latest available official document that provides the local monthly average sunlight hours. By comparing with this official document, the actual monthly average cooker usage time from the monitoring records /15/ are within and below the monthly average sunlight hours which shows the reasonability. Moreover, during the on-site visit, the verification team interviewed with the solar cooker users /iii/ about their normal usage time on the solar cooker for cross-checking. The monitoring data were further cross-checked with “Explanation on solar cooker usage time and cooking habits” (footnote 15 on page 18 of PDD), an official document by local government regarding the solar cooker usage time, the actual average usage time in the monitoring records were in line with the data provided in this document. In addition, the sampled users and monitoring team were adequately trained, has the capability and the right attitude to properly report and record the usage hours. It is concluded that the original monitoring data (for parameter B) of ALL 79 households recorded by the RES /15/ are in the normal range for daily use. As indicated in the previous sections, the monitoring is confirmed to be complied with the monitoring plan in the registered PDD.

According to the registered PDD, the baseline emissions are calculated as:

$$BE_y = n * \sum [910.0 * (R_i / 700) * t_i * (3.6 \times 10^{-9})] * EF_{FF,CO_2} / \eta_{BL,thermal}$$

Where

n The total number of solar cookers installed by the proposed project (i.e. monitoring parameter A)

R_i The actual solar irradiance rate in month i in W/m² (monitoring parameter since the ex-post approach is selected)

t_i The usage time of each solar cooker in month i in hour (i.e. monitoring parameter B)

EF_{FF,CO₂} The CO₂ emission factor per unit of coal (monitoring parameter since the ex-post approach is selected)

η_{BL,thermal} The efficiency of the stove using fossil fuel (i.e. 14.6%) that would be used in the absence of the project activity

There are four monitoring parameters, i.e. i) n: number of solar cookers engaged in the proposed project; ii) t_i: the monthly operating time of each solar cooker; iii) R_i: monthly solar irradiance rate in project region; and iv) EF_{FF,CO₂}: baseline emission factor of coal. The data are referenced to the monitoring report /1/, registered PDD and the monitoring records /14/ /15/.

$$ER_y = BE_y - PE_y - L_y$$

The verification team has confirmed that the calculation of the emission reductions is correct. As verified above, the PE_y and L_y are 0, Thus, the emission reductions for the project in the period 01/08/2018 – 21/09/2021 are accounted as follows:

	Period	BE_y (tCO ₂ e) Baseline emissions	PE_y (tCO ₂ e) Project emissions	L_y (tCO ₂ e) Leakage emissions	ER_y (tCO ₂ e) Net GHG emissions reductions
SP1	01/08/2018 – 31/07/2019	153,394	0	0	153,394
SP2	01/08/2019 – 31/07/2020	165,551	0	0	165,551
SP3	01/08/2020 – 31/07/2021	155,025	0	0	155,025
SP4	01/08/2021 – 21/09/2021	24,484	0	0	24,484
Total		498,454	0	0	498,454

Comparison with the estimated and achieved GHG emissions reduction

According to the section 5.4 of the MR, the achieved GHG emissions during this monitoring period was 9.47% higher than the ex-ante estimation. As per the PDD/30/, the ex-ante estimated GHG emissions can be calculated as follows:

	Period	Ex-ante estimation (tCO ₂ e)	Achieved emissions (tCO ₂ e)	% difference compared with the ex-ante estimation
SP1	01/08/2018 – 31/07/2019	143,762	153,394	6.70%
SP2	01/08/2019 – 31/07/2020	143,762	165,551	15.15%
SP3	01/08/2020 – 31/07/2021	143,762	155,025	7.84%
SP4	01/08/2021 – 21/09/2021	24,055 ⁴	24,484	1.78%
	Total	455,341	498,454	9.47%

As per Section B.6.3 of the PDD, the annual estimated GHG emissions reduction is 143,762tCO₂e. In particular to Aug and Sep the estimated emissions reductions are 14,688 tCO₂e and 13,381tCO₂e respectively. When it is compared with the achieved emissions reduction for each sub-period of the monitoring period, the differences are ranging from +1.78% to +15.15%.

⁴ Ex-ante estimation of emission reduction for SP4 is calculated: $14,688 + (13381/30) * 21 = 24,055 \text{ tCO}_2\text{e}$

There are two factors that will affect the achieved ER: the monitored % of operational solar cooker (Parameter A) and the monitored usage time (Parameter B). The former one is quite consistent in SP1-SP4 which is not the main actor. The monitored usage time is the key factors to the varying GHG emissions reduction achievement.

Firstly, regarding SP4, the difference is +1.78%, which is very close to the *ex-ante* estimation. It is considered as a reasonable variation.

For SP1, SP2, SP3, the achieve emission reductions were 6.7%, 15.15%, 7.84% higher than the *ex-ante* estimations. It is explained in the MR that the increased time of usage were two folded: 1.) household users realized the benefits of the solar cooker after years of use. They have got familiar with the operations and hence tended to maximize the usage; 2.) due to the impact of the outbreak of CoVID 19 corona virus in China in the monitoring period (SP2). People were asked to stay at home in order to help stop spreading the virus.

For the first justification, the verification team cannot judge the correlation with the usage time. However, the verification team observed the trend of increasing achieved GHG emissions reduction by the project since the 7th monitoring period. According to the verification reports of the 7th and 8th monitoring periods /52.1/ /52.2/, the achieved emissions reduction were respectively 7.15% and 5.24% higher than the *ex-ante* estimation. The results have shown similar trend for SP1 (+6.7%) and SP3 (+7.83%) of the current monitoring period.

Regarding the second justification, the verification team considers the impact of pandemic to the people's living in China a reasonable cause to the increase of the achieved GHG emissions in 2020. Since the outbreak of the corona virus, there were strict local lockdowns in cities of China that people were barely allowed to step outside of their home. Due to the uncertainty of catching the virus, people in China were very cautious to prevent this disease and followed the recommendations by their local government. Despite in rural area of Gansu Province, local government still had implemented restrictions to prevent the spread of the virus. On 26 Jan 2020, Zhangye (where the project located) Corona Virus Prevention and Control Department issued a government order /51/ to prohibit the followings (excerpted):

1. Public gathering, dinning event. All the hotels, teahouses, and restaurants, etc. shall not open for operation. The restaurants should refund fully to any booked banquet events.
2. All schools including kindergarten shall not open. All scheduled activities should be stopped.
3. ... all public facilities are temporally closed. Entertainment facilities ... shall be closed.
10. ...Control checkpoints should be set up at the entrance of each community. Any entrees should conduct a temperature testing. Those who refuses to cooperate with the testing/ refuses to be isolated will be handled by the enforcement department according to the regulations.

Based on the above, the verification team agrees that the impact of the disease control has general positive impact to the usage of solar cooker in 2020. Because the household users spent majority of their time at home, and hence the time of using solar cooker was then increased. This justified the significant increase of solar cooker usage time in SP2..

While the above qualitative justifications are not fully conclusive for the increase in SP1, SP2, SP3, the verification team take additional cross-checking process to conduct the reality check of the monitored data.

1. cross check the original data records against the weather conditions

During the on-site visit, the users expressed that whenever there was enough sunshine, they would use solar cooker for boiling water, cookings, etc. The length of solar cooker usage time might be closely related to the weather conditions, i.e. the better the weather the longer time of usage.

The verification team conducts spot check on the weather conditions of the project areas. The weather conditions of specific days are sourced from regional meteorology database for Linze County /50.1/ and Gaotai County /50.2/. The recorded time of usages /15.1/ /15.2/ /15.3/ /15.4/ are then cross checked with the weather conditions of the days. Those months with higher usage time are checked, including:

2018: October, November

2019: March, April

2020: January, February, March

2021: April, May, Jul

The verification team finds out that the pattern of solar cooker usage time generally follows the pattern of the weather conditions. For examples, from 22/01/2020 – 31/01/2020, there were 10 consecutive sunny days according to the meteorology records /50.1/ /50.2/. For that period, the average time of usage was 5.86 hours per day per household, which is higher than the average usage time of SP2 (4.94hours). Another example, in the month of April 2021 there were 6 days with rains. The average usage hours of these days were 0.73 hour, which is much lower than the SP3 average (4.62 hours). It is observed that the length of solar cooker usage time was closely related to the weather conditions, the better the weather the longer time of usage. The cross-checking results do not reveal any major discrepancies contradictory to this observation.

2. Cross check the monitoring and data processing process

The monitoring team of RES /ii/ were interviewed. They confirmed the same monitoring processes for parameter B was conducted as per the MR (refer to the next section for details). Besides, the quality of the monitoring data was confirmed by RES station chief before passing on to the PP for data processing. The monitoring processes and data quality assurance are deemed reliable. The verification team confirmed that the monitoring of usage time was conducted in accordance with the monitoring plan. There has no observation revealing any issues with the reliability of the monitoring data.

The achieved GHG emissions were 9.47% higher than the estimated emissions reduction. Based on the above findings, the verification team concludes that the extra emissions reduction were due to the actual time of usage which were longer than the assumption applied in the PDD for estimation. The monitoring data are reliable and accurately input into the ER calculations. Hence the percentage difference between the estimation and achieved emissions reduction is justified.

CTI concludes that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.4 Quality of Evidence to Determine GHG Emission Reductions and Removals

During OSV, the project operator demonstrated the VCS monitoring organization of the project which was the same as Section B.7.2 of the registered PDD /30/ and MR /1/. It can be classified into 4 categories as following.

- 1) The project operator, is in-charge of the VCS project monitoring and management.
- 2) Clean Air Trade Inc, which is responsible for providing consultation services on VCS validation and verification of the project, including preparation of PD, monitoring report and so on;
- 3) Project Operator monitoring staff, including (i) data checker, (ii) data analyst and (iii) data recording for the management of all monitoring data & records and (iv) monitoring team for monitoring parameters.
- 4) Gaotai RES and Linze RES, the governmental organization in charge of the rural energy affairs in Gaotai County and Linze County of Zhangye, which assisted the Project operator in the coordination of monitoring data collection of Parameter A and Parameter B. All the original monitoring data were independently and fully collected by RES monitoring personnel from the solar cooker users in this project. All the monitoring records of original data have been checked by RES and confirmed valid by signatures of RES monitoring members.

Moreover, the verification team also interviewed the following personnel:

- 1) Project operator's monitoring team; they were responsible for monitoring of parameters A and B.
For parameter A, the PP /i/ confirmed that their monitoring team also participated the on-site checking along with the monitoring team of RES. They were clear with the monitoring process for parameter A.
For parameter B, they handled data management and statistics.
- 2) Monitoring team of RES /ii/, they were responsible for monitoring of parameters A and B.
For parameter A, they participated the on-site checking along the monitoring team of project operator. They were clear with the monitoring process for parameter A.

For parameter B, they confirmed their responsibility including (i) users' reporting time and methods; (ii) process of recording the daily usage hours of responsible sampling users; (iii) procedures of handling missing or damaged data (remark: no missing data happened during this monitoring period).

Based on the interview results and the monitoring organization chart provided by project operator /13/, the verification team confirms that the monitoring responsibility of each monitoring personnel was handled according to the monitoring plan of registered PDD and the responsible personnel were clearly aware of monitoring procedures and were capable to work on their responsibilities.

Regarding to the monitoring parameters by sampling, the 2 sets of 79 samples (1 set for parameter A and the other set for parameter B) were randomly selected using MS Excel software from the full list of 49,000 solar cooker users before conducting the monitoring of each sub-period /11/ /12/. Then the PP signed agreements /16/ with these sampling users (Parameter B) for stipulating the users' obligation in cooperating with the project monitoring programme before the monitoring commenced. The sampling process records (i.e. screenshots of sampling process in Microsoft Excel software) /11/ /12/ were checked. The verification team confirms that the sampling process is correct and the sampling is valid.

The sampled users (for parameter B) would report to RES the daily usage time for the solar cooker for each monitoring sub-period. When the solar cooker started to be used, the time was counted by them by timing tools such as clock, watches, phone-clock etc. Every evening, the time was accumulated (accurate to minutes) by the households as the total usage time for solar cooker for one day. At the end of every day, the sampled users reported to the monitoring team members from RES, for the daily solar cooker operational time of solar cooker through phone call/SMS. The daily usage hours were recorded by 2 RES monitoring team members, and they also filled the monitoring record form in paper format as the original data records.

For each sub-period, the monitoring form contains the name list of all 79 sampled users (for parameter B) grouped by name and address (township/village level). All original records of daily solar cooker usage hours in the monitoring form are confirmed by the monitoring personnel with their signatures on the monitoring form. The set of original data /15/ was checked by the verification team as complete for this monitoring period.

CTI confirms the sufficiency of quantity, and appropriateness of quality, of the evidence used to determine the GHG reductions and removals.

4.5 Non-Permanence Risk Analysis

Non-permanence risk analysis is only applicable to AFOLU project and hence not applicable to this project activity.

5 VERIFICATION CONCLUSION

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions that have been reported for the VCS project activity “Heqing Solar Cooker Project II” in China for the period 01/08/2018 - 21/09/2021. The project activity was correctly implemented according to selected monitoring methodology and monitoring plan. The monitoring sampling was carried out in a proper manner, while collected monitoring data are allowed to verify the amount of achieved GHG emission reductions.

The verification is based on the baseline and monitoring methodology AMS-I.C. (Version 18), the validated CDM PDD (Version 9 dated 03/08/2011) and the 9th monitoring report (Version 2.3 dated 06/10/2022) the VCS PD Version 01 dated 04/12/2018. The verification consisted of four phases: i) desk review of the project design and the baseline and monitoring plan; ii) on-site visit and follow-up interviews with project participants and relevant stakeholders; iii) Gap validation; iv) issuance of the final verification report.

It is CTI’s responsibility to provide an independent verification statement on the reported GHG emission reductions for the project. Based on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported GHG emission reductions are fairly stated. Based on the VCS Verification conducted, CTI is of the opinion that the project complies with the Verification criteria for projects set out in VCS Version 4.2, including any qualifications or limitations. Therefore, CTI is pleased to issue a positive verification opinion.

CTI confirms that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI confirms that the VCU generated from the “Heqing Solar Cooker Project II” in China during the period 01/08/2018 - 21/09/2021 amount to 498,454tCO₂e.

Verificaiton Period: 01/08/2018 – 21/09/2021

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01/08/2018 – 31/12/2018	57,206	0	0	57,206
01/01/2019 – 31/12/2019	156,029	0	0	156,029
01/01/2020 – 13/12/2020	164,383	0	0	164,383

01/01/2021 – 21/09/2021	120,835	0	0	120,835
Total	498,454	0	0	498,454

APPENDIX 1: REFERENCES

No.	Author		Title	References to the document	Provider
/1/	Beijing Harmonious Energy Development Co., Ltd. (BHED)		Monitoring report for Heqing Solar Cooker Project II	Version 1.0 dated 24/09/2021 Version 2.3 dated 06/10/2022	Project participants
/2/	/2.1/	Beijing Harmonious Energy Development Co., Ltd. (BHED)	Emission reduction calculation spreadsheet for SP1	-	Project participants
	/2.2/		Emission reduction calculation spreadsheet for SP2	-	
	/2.3/		Emission reduction calculation spreadsheet for SP3	-	
	/2.4/		Emission reduction calculation spreadsheet for SP4	-	
/3/	Beijing Harmonious Energy Development Co., Ltd. (BHED) and Gaotai Rural Energy Station (RES)		Service Agreement for project operation, management and monitoring	17/09/2010	Project participants
/4/	Beijing Harmonious Energy Development Co., Ltd. (BHED) and Linze Rural Energy Station (RES)		Service Agreement for project operation, management and monitoring	17/09/2010	Project participants
/5/	/5.1/	BHED and Huining County Yongming Solar Cooker Co.,	Solar Cooker Purchase Contract	24/10/2011	Project participants

		Ltd.			
	/5.2/	BHED and Lanzhou Juren Solar Energy Co., Ltd.	Solar Cooker Purchase Contract	24/10/2011	Project participants
/6/	Gaotai County Rural Energy Station		Solar Cooker Testing Report	06/06/2011 (Product Manufacturer : Huining County Yongming Solar Cooker Co., Ltd.)	Project participants
/7/	Gaotai County Rural Energy Station		Solar Cooker Testing Report	06/06/2011 (Product Manufacturer : Lanzhou Juren Solar Energy Co., Ltd.)	Project participants
/8/	Shengjing Bank		Payment receipt of Shengjing Bank for confirmation of PP paid to the manufacturer for the purchase of cooker	04/07/2011	Project participants
/9/	BHED and 2 signed solar cooker manufacturers		49,000 Solar Cookers' sales receipts from 2 signed solar cooker manufacturers	-	Project participants
/10/	BHED and solar cooker users		Participation agreement and equipment receiving records (49,000 sets)	-	Project participants
/11/	/11.1/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter A by using MS Excel for this monitoring period on 16/07/2018	-	Project participants
	/11.2/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter A by using MS Excel for this monitoring period on 15/07/2019	-	Project participants
	/11.3/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter A by	-	Project participants

			using MS Excel for this monitoring period on 13/07/2020		
	/11.4/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter A by using MS Excel for this monitoring period on 12/07/2021	-	Project participants
/12/	/12.1/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter B by using MS Excel for this monitoring period on 16/07/2018	-	Project participants
	/12.2/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter B by using MS Excel for this monitoring period on 15/07/2019	-	Project participants
	/12.3/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter B by using MS Excel for this monitoring period on 13/07/2020	-	Project participants
	/12.4/	BHED	Screenshot of random sampling process for random selection of sampling users for parameter B by using MS Excel for this monitoring period on 12/07/2021	-	Project participants
/13/	BHED		Project Monitoring Organization Chart of management and monitoring personnel	-	Project participants
/14/	/14.1/	RES and BHED	Project monitoring records for monitoring parameter A which is to measure the numbers of solar cookers engaged in the project covering SP1 (Gaotai County and Linze County)	21/06/2019 – 29/06/2019	Project participants
	/14.2/		Project monitoring records for monitoring parameter A which is to measure the numbers of solar cookers engaged in the project covering SP2 (Gaotai County and Linze County)	22/06/2020 – 29/06/2020	
	/14.3/		Project monitoring records for monitoring parameter A which is to measure the numbers of solar cookers engaged in the project covering SP3 (Gaotai County and	23/06/2021 – 30/06/2021	

			Linze County)		
	/14.4/		Project monitoring records for monitoring parameter A which is to measure the numbers of solar cookers engaged in the project covering SP4 (Gaotai County and Linze County)	25/08/2021 – 31/08/2021	
/15/	/15.1/	RES	Project monitoring records for monitoring parameter B which is to measure the average operating hour of each solar cooker covering SP1 (Gaotai County and Linze County)	01/08/2018 – 31/07/2019	Project participants
	/15.2/		B which is to measure the average operating hour of each solar cooker covering SP2 (Gaotai County and Linze County)	01/08/2019 – 31/07/2020	
	/15.3/		B which is to measure the average operating hour of each solar cooker covering SP3 (Gaotai County and Linze County)	01/08/2020 – 31/07/2021	
	/15.4/		B which is to measure the average operating hour of each solar cooker covering SP4 (Gaotai County and Linze County)	01/08/2021 – 21/09/2021	
/16/	/16.1/	BHED and sampling users	Monitoring agreement for 79 sampling users B for SP1 (Gaotai County and Linze County)	19/07/2018 – 26/07/2018	Project participants
	/16.2/		Monitoring agreement for 79 sampling users B for SP2 (Gaotai County and Linze County)	19/07/2019– 25/07/2019	
	/16.3/		Monitoring agreement for 79 sampling users B for SP3 (Gaotai County and Linze County)	16/07/2020– 23/07/2020	
	/16.4/		Monitoring agreement for 79 sampling users B for SP4 (Gaotai County and Linze County)	15/07/2021– 23/07/2021	
/17/	/17.1/	BHED	VCS monitoring training for RES's and BHED's monitoring personnel regarding monitoring parameter A for SP1 (Gaotai County and Linze County)	20/06/2019	Project participants
	/17.2/		VCS monitoring training for RES's and BHED's monitoring personnel regarding monitoring parameter A for SP2 (Gaotai County and Linze County)	19/06/2020	

	/17.3/		VCS monitoring training for RES's and BHED's monitoring personnel regarding monitoring parameter A for SP3 (Gaotai County and Linze County)	22/06/2021	
	/17.4/		VCS monitoring training for RES's and BHED's monitoring personnel regarding monitoring parameter A for SP4 (Gaotai County and Linze County)	24/08/2021	
/18/	/18.1/	BHED	VCS monitoring training for RES's monitoring personnel regarding monitoring parameter B for SP1 (Gaotai County and Linze County)	18/07/2018	Project participants
	/18.2/		VCS monitoring training for RES's monitoring personnel regarding monitoring parameter B for SP2 (Gaotai County and Linze County)	17/07/2019	
	/18.3/		VCS monitoring training for RES's monitoring personnel regarding monitoring parameter B for SP3 (Gaotai County and Linze County)	15/07/2020	
	/18.4/		VCS monitoring training for RES's monitoring personnel regarding monitoring parameter B for SP4 (Gaotai County and Linze County)	14/07/2021	
/19/	/19.1/	BHED	List of sampled household by PP for parameter A for SP1 (Gaotai County and Linze County)	-	Project participants
	/19.2/		List of sampled household by PP for parameter A for SP2 (Gaotai County and Linze County)	-	
	/19.3/		List of sampled household by PP for parameter A for SP3 (Gaotai County and Linze County)	-	
	/19.4/		List of sampled household by PP for parameter A for SP4 (Gaotai County and Linze County)	-	
/20/	BHED		Heqing Solar Cooker Project II maintenance and repair method	May 2018	Project participants
/21/	/21.1/	BHED	Repair and maintenance records (covering SP1) (Gaotai County and Linze County)	Aug 2018 – July 2019	Project participants
	/21.2/	BHED	Repair and maintenance records (covering SP2) (Gaotai County and Linze County)	Aug 2019 – July 2020	Project participants
	/21.3/	BHED	Repair and maintenance records	Aug 2020 – July	Project

			(covering SP3) (Gaotai County and Linze County)	2021	participants
	/21.4/	BHED	Repair and maintenance records (covering SP4) (Gaotai County and Linze County)	Aug 2021 – Sep 2021	Project participants
/22/	BHED		Monitoring Manual (including monitoring scheme, method, working process, responsibility and etc.)	May 2018	Project participants
/23/	BHED		Product Quality Control, Inspection Procedures and Standards	Feb 2010	Project participants
/24/	/24.1/	RES	Confirmation letter from Gaotai County RES for distribution of 49,000 solar cookers for the project and confirmation of provision of training to participated users, Gansu Energy Bureau (2013)	04/02/2013	Project participants
	/24.2/	RES	Confirmation letter from Linze County RES for distribution of solar cookers	04/02/2013	Project participants
/25/	Huining County Yongming Solar Cooker Co., Ltd.		Declaration from Huining County Yongming Solar Cooker Co., Ltd. for the confirmation of solar cooker preliminary contract in June 2011 and receipt of first payment from PP in July 2011	05/02/2013	Project participants
/26/	Gansu Provincial Meteorological Service Center		Irradiation Rate and sunshine hours for Zhangye 1996-2011	25/11/2013	Project participants
/27/	China National Standard		Focusing type solar cooker standard (NY/T219- 2003)	2003	Others
/28/	IPCC		Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories	Table 2.5, Page 2.22, Chapter 2, Volume 2	Others
/29/	-		Documents of previous verifications (Monitoring report, verification report, ER calculation sheet)	-	Others
/30/	-		Registered PDD for CDM project “Heqing Solar Cooker Project II”, Registration No. 5106, version 9, 03/08/2011	-	Others
/31/	-		Validation report for CDM project “Heqing Solar Cooker Project II”, version 01.3, 04/08/2011	-	Others

/32/	UNFCCC	Approved monitoring methodology: AMS-I.C. “Thermal energy for the user with or without electricity”, version 18	-	Others	
/33/	UNFCCC	Sampling and surveys for CDM project activities and programme of activities (version 09.0)	-	Others	
/34/	UNFCCC	CDM validation and verification standard for project activities (version 03.0)	-	Others	
/35/	UNFCCC	Best Practices Examples Focusing on Sample Size and Reliability Calculations” (EB67, Annex 6)	-	Others	
/36/	UNFCCC	CDM project standard for project activities (Version 02.0)	-	Others	
/37/	UNFCCC	Guidelines on the application of Materiality in Verifications (Version 02.0)	-	Others	
/38/	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities (version 04.0)	-	Others	
/39/	VCS	VCS Standard, Version v4.2	20/01/2022	VCS	
/40/	VCS	Registration and Issuance Process, v4.1	20/01/2022	VCS	
/41/	VCS	Template - Verification report, v4.1	20/01/2022	VCS	
/42/	Clean Air Trade, Inc.	VCS Project Description, Version 01	04/12/2018	Project proponent	
/43/	Clean Air Trade, Inc.	VCS Monitoring Report, Version 01	07/01/2019	Project proponent	
/44/	Clean Air Trade, Inc.	The DEED of REPRESENTATION	07/01/2019	Project proponent	
/45/	Clean Air Trade, Inc.	Emission Reduction Transfer Agreement	10/01/2018	Project proponent	
/46/	VCS	Template – Verification Representation, v4.1	09/04/2020	VCS	
/47/	CTI	GAP Validation and VCS Verification of “Heqing Solar Cooker Project II”	28/01/2019	CTI	
/48/	Clean Air Trade, Inc.	Declaration – no participation to other GHG program	04/06/2022	Project proponent	
/49/	TUV Rheinland (China) Ltd.	Verification Report for the 1 st CDM verification <u>CDM: Heqing Solar Cooker Project II (unfccc.int)</u>	04/03/2013	Others	
/50/	/50.1/	-	Linze County Weather Records	-	Others

			http://tianqihoubao.com/lishi/linze.html		
	/50.2/	-	Gaotai County weather Records http://tianqihoubao.com/lishi/gaotai.html	-	
/51/	-		Government Notice: “Zhangye City Covid pandemic control notice (no. 2)” https://m.thepaper.cn/newsDetail_forward_5647379?share_token=465D489B-2708-4FF6-AD17-C5F5B7D25FBA&tt_from=weixin&utm_source=weixin&utm_medium=toutiao_ios&utm_campaign=client_share&wxshare_count=1	26/01/2020	Others
/52/	/52.1/	CTI	Verification Report for the 7 th monitoring period	27/01/2019	CTI
	/52.2/	CTI	Verification Report for the 8 th monitoring period	28/01/2019	CTI