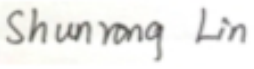




**Validation report for
GS4GG project activities
(Gold Standard for the Global Goals)**

BASIC INFORMATION

Title of the project activity	Nanyang Danjiang River Solar Cooker Project Phase I	
GS Reference Number	GS1378	
Version number of the validation report	3.0	
Completion date of the validation report	30/01/2024	
Version number of the PDD to which this report applies	04	
Project developer	Sirreon Technology and Development (Beijing) Co., Ltd.	
Project Representative	Sirreon Technology and Development (Beijing) Co., Ltd.	
Project Participants and any communities involved	Project owner: Sirreon Technology and Development (Beijing) Co., Ltd.	
Host Party	P. R. China	
Applied methodologies and version number	AMS-I.C "Thermal energy production with or without electricity" (Version 22.0)	
Mandatory sectoral scopes linked to the applied methodologies	1	
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A	
Scale of the project activity	☐ Micro scale ☒ Small Scale ☐ Large Scale	
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A	
Project Cycle	☐ Regular ☒ Retroactive	
SDG Impacts	Affordable and Clean Energy (SDG 7)	Number of beneficiaries: 43,200 households

	Decent Work and Economic Growth (SDG 8)	30 full-time jobs created (16 female and 14 male employees)
	Climate Action (SDG 13)	Amount of GHGs emissions avoided or sequestered 81,184 t GS VERs/year
Name of the VVB	VVB Name: CTI Certification Co., Ltd (CTI)	
Name, position and signature of the approver of the validation report	 Lin Shunrong Technical Reviewer/Approver	

SECTION A. Executive summary

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The purpose of the project activity is to provide access to clean and affordable energy to the rural households in China. This project activity involves the distribution and installation of 48,000 sets of solar cookers for rural households. The project activity involves dissemination of solar cooker in Xichuan County, Henan Province, China. The total rated installed capacity of the project activity is 37.128 MW_{th}.

The project activity enables rural households to efficiently substitute fossil fuel used in daily cooking and water boiling by solar energy and therewith avoid CO₂ emission that would have been generated by fossil fuel consumption, finally provides the affordable and clean energy to rural households in China.

The estimated emission reduction from the project is 81,184 tCO₂e per year during the 2nd renewable 5-year crediting period.

Scope of Validation

The scope of the services provided by the CTI Certification Co., Ltd for the project is to perform Design Certification Renewal for the project. The scope of Design Certification Renewal is to assess the claims and assumptions made in the project design document (PDD) for the 2nd certification cycle against the GS4GG criteria, CDM applied methodology and other relevant rules and requirements established for GS4GG project activities.

The project applied under Gold Standard for the Global Goals and the Gold Standard Reference No. is 1378.

The project completed the registration in CDM on 02/05/2012 with a fixed crediting period which is from 02/05/2012 to 01/05/2022. The project completed the registration in GS on 13/08/2013 and the start date of the first crediting period of the project is defined as 02/05/2012. The project has completed the transition to GS4GG with the product of GS VER on 04/09/2023/4/.

According to para. 6.5.1 of GHG Emissions Reduction & Sequestration Product Requirements (version 2.2)/31/, "the transition project, PoA/CPAs shall follow GS4GG certification cycle for crediting period renewal (e.g., 5 years) in order to issue or convert issued emission reductions to GS VERs under GS4GG."

This project has completed the transition with seek to issue the GS VER, so this project shall follow GS4GG certification cycle for crediting period renewal.

While, as per para. 4.1.7 of Community Services Activity Requirements (Version 1.2)/29/, "Design Certification Renewal in the case of CSA projects is mandatory every 5 years as per the Principles & Requirements."

This project meets the General Eligibility Criteria set out in the "Community Services Activity Requirements (Version 1.2)" which has been verified in previous verification, so the design certification renewal is mandatory every 5 years.

The project crediting period start date is 02/05/2012 and the emission reductions achieved as of 2020 has already been issued, and therefore, if the GS VERs achieved from 01/01/2021 to 01/05/2022 apply for issuance, the crediting period renewal is needed which is defined from 02/05/2017 to 01/05/2022.

So for this project, the starting date of the crediting period is 02/05/2012, then the 1st crediting period is from 02/05/2012 to 01/05/2017 under GS4GG. And the 2nd crediting period is from 02/05/2017 to 01/05/2022 which is verified as in line with the above GS4GG requirements for the transition project activities.

The estimated annual emission reductions in the 2nd crediting period from 02/05/2017 to 01/05/2022 are 81,184 tCO₂e, the total estimated emission reductions in the 2nd crediting period are 405,920 tCO₂e.

The objective of this design certification renewal is the review by a VVB whether the project is compliant with the applicable sections of:

- the Gold Standard for the Global Goals Principles and Requirements/27/,
- the Gold Standard for the Global Goals Safeguarding Principles & Requirements/28/,
- the Gold Standard for The Global Goals Community Services Activity Requirements/29/,
- GS4GG GHG Emissions Reduction & Sequestration Product Requirements/31/,

- the Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements/30/,
- the applied CDM Methodology AMS-I.C “AMS-I.C Thermal energy production with or without electricity ” (Version 22.0)/23/,
- the Gold Standard for the Global Goals Validation and Verification Standard/32/,
- Any other decision taken by the Technical Advisory Committee of GS (GS-TAC);
- other relevant rules, including the host country legislation

As per the requirements of the Gold Standard for the Global Goals Principles and Requirements/27/, the validation is based on

- the GS4GG PDD/1/,
- the Emission Reduction Calculation Spreadsheet/2/,
- the SDG Impact Tool table of this project/3/,
- further supporting documents made available to the validator as well as
- information collected through performing on-site interviews.

Furthermore, publicly available information, such as the host country legislation, was considered as far as available and required.

Validation Process and Methodology

The validation has been performed as described in the Gold Standard for the Global Goals Principles and Requirements/27/ as below process,

- a) Desk review of GS PDD (version 01 dated 20/09/2023)/1/ and the relevant documents submitted by the project developer in context of GS4GG criteria
- b) On-site assessment (24/10/2023~27/10/2023) conducting site visit, interview or interactions with the representative of the project owner, operation staffs, end-users
- c) Issuance of draft validation report, reporting audit findings with respect to clarifications (CLs) and non-conformities(CARs)
- d) Resolution of the raised CARs and CLs, close all findings
- e) Issuance of the final validation report
- f) Independent technical review of the final validation report and final/revised documentation (e.g., PDD, corresponding ER sheet and evidences)
- g) Reporting and closure of TR comments/findings and final approval for the decision made
- h) Issuance of final validation report to contracted PD (or authorized representatives) and submission of request for design certification, as appropriate.

Conclusion

CTI has performed the design certification renewal of the GS PA “Nanyang Danjiang River Solar Cooker Project Phase I” having GS Ref. Number GS1378. The actual project design is consistent with the PDD which will create estimated emission reduction from the project is 81,184 tCO₂e during the 2nd renewable 5-year crediting period from 02/05/2017 to 01/05/2022.

In CTI’s opinion, PDD, SDG Impact Tool, supporting documentation and subsequent follow up actions have provided with sufficient evidence to determine the fulfilment of stated GS4GG criteria. CTI confirmed that each SDG Impacts for the 2nd certification cycle were estimated correctly on the basis of the approved AMS-I.C “Thermal energy production with or without electricity ” (Version 22.0) and the Global Goals Principles and Requirements. Therefore, this is being submitted for request for design certification renewal, as per GS procedures as applicable.

SECTION B. Validation team, technical reviewer and approver**B.1. Validation team member¹**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader &	IR	Yu	Jia	CTI	√	√	√	√
2.	Validator	IR	Feng	Tian	CTI	√	√	√	√

B.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer/Approver	IR	Lin	Shunrong	CTI
2.	Technical expert for TR	IR	Zhou	Lu	CTI

¹ Same VVB has conducted the last verification of this project as well, but the different audit teams have conducted CP renewal audit and verification which is in line with the GS requirement.

SECTION C. Means of validation

C.1. Desk review

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Desk review of all documents provided by PD and publicly available documents relevant for the design certification renewal including Key Project Information & project Design Document (PDD)/1/, emission reduction calculation spreadsheet/2/, SDG Impact Tool/3/, applied methodology and applicable tools in particular attention to the project design, re-determination of baseline and monitoring plan and other relevant supporting documents was conducted by CTI.

The main documents are listed below:

- (i) the GS4GG PDD Version 1 dated 20/09/2023/1/,
- (ii) the emission reduction calculation spreadsheet related to this monitoring period Version 01 dated 20/09/2023/2/,
- (iii) SDG Impact Tool of the project/3/

Other supporting documents, such as publicly available information and background information were also reviewed.

The list of documents reviewed during the validation is provided under Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 24/10/2023~27/10/2023 ²				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	No.109 of Zhongzhou Road, Nanyang City Henan Province, P. R. China	24/10/2023	Yu Jia Feng Tian
2.	On-site inspection Interview with PP Representative, Operation Staff and randomly selected end users	Jingziguan, Siwan, Xihuang, Maotang, Dashiqiao, Shangji and Jinhe town, Xichuan County, Nanyang City, Henan Province, P. R. China	24/10/2023~25/10/2023	
3.	Documents check	No.109 of Zhongzhou Road, Nanyang City Henan Province, P. R. China	27/10/2023	
4.	Finding Summary	No.109 of Zhongzhou Road, Nanyang City Henan Province, P. R. China	27/10/2023	
5.	Close Meeting	No.109 of Zhongzhou Road, Nanyang City Henan Province, P. R. China	27/10/2023	

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Jiang	Peng	Sirreon Technology & Development (Beijing) Co., Ltd / Business Manager	24/10/2023~27/10/2023	- General aspects of the project - Changes since validation / previous verifications - Project implementation status - Quality management system - Involved personnel and responsibilities - Training and practice of the monitoring personnel	Yu Jia Feng Tian

² On-site together with Phase II (GS1588), opening meeting, doc check and close meeting conducted together with phase II.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
					- Baseline - Additionality - Monitoring plan - Procedural aspects of the design renew validation - Environmental aspects	
2.	Rong	Xiang	Sirreon Technology & Development (Beijing) Co., Ltd / Staff	24/10/2023	- Data survey - Data collection - Data record - Data check - Data management	
3.	Qiu	Shan'e				
4.	Shi	Taoming				
5.	Shen	Wenqiong	Local women's federation/Staff	24/10/2023	- local stakeholder comments	
6.	Cao	Lei	Bureau of Ecology and Environment in Nanyang City	24/10/2023	- Benefit to Woman - Environmental Impacts	
7.	Wang	Zhongmin	Local farmers who participated the stakeholder meeting	24/10/2023	- local stakeholder meeting - Any comments - Benefit to local person - Environmental Impacts	
8.	Liu	Yanfeng				
9.	You	Fang	FengYing Village, Jingziguan Town/end user sample	25/10/2023	- General Information - Solar Cooker using situation - Project implementation	
10.	Du	Mengyue	ShangZhuang Village, Jingziguan Town/end user sample	25/10/2023		
11.	Zong	Yan	DianZi Village, Jingziguan Town/end user sample	25/10/2023		
12.	Kong	Mao	LongQuanGuan Village, Jingziguan Town/end user sample	25/10/2023		
13.	Fu	Yancheng	QingLiangSi Village, Siwan Town/end user sample	25/10/2023		
14.	Ji	Xingyu	SanQuanGou Village, Siwan Town/end user sample	25/10/2023		
15.	Ge	Fengpeng	BoGeYu Village, Siwan Town/end user sample	25/10/2023		
16.	Ma	Jianchao	DuJiaYao Village, Siwan Town/end user sample	25/10/2023		
17.	Fan	Qing	LongGang Village, Xihuang Town/end user sample	24/10/2023		
18.	Yao	WenRen	DaiHe Village, Xihuang Town/end user sample	24/10/2023		
19.	Pan	Xin	MeiChi Village, Xihuang Town/end user sample	24/10/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
20.	Hua	LiangQing	QiKeShu Village, Xihuang Town/end user sample	24/10/2023		
21.	Yu	MinShan	ZhangNan Village, Xihuang Town/end user sample	24/10/2023		
22.	Yu	XiangLian	LiWan Village, Xihuang Town/end user sample	24/10/2023		
23.	Sun	YinLan	XiaoQuanGou Village, Maotang Town/end user sample	25/10/2023		
24.	Ge	Bei	MaGou Village, Maotang Town/end user sample	25/10/2023		
25.	Qu	Cui	YaoGou Village, Maotang Town/end user sample	25/10/2023		
26.	Bai	Long	DaQuanGou Village, Maotang Town/end user sample	25/10/2023		
27.	Tang	Ke	DongHe Village, Maotang Town/end user sample	25/10/2023		
28.	Pei	JinBao	ZhiFangGou Village, Maotang Town/end user sample	25/10/2023		
29.	Qi	ChunYun	QingFengLing Village, Dashiqiao Town/end user sample	25/10/2023		
30.	Xue	QiZhen	LiuJiaGou Village, Dashiqiao Town/end user sample	25/10/2023		
31.	Qian	WenYuan	LiuJiaQuan Village, Dashiqiao Town/end user sample	25/10/2023		
32.	Yu	HangXin	SunTai Village, Dashiqiao Town/end user sample	25/10/2023		
33.	Wei	Qing	BiJiaTai Village, Dashiqiao Town/end user sample	25/10/2023		
34.	Hua	JiangCai	DongWan Village, Dashiqiao Town/end user sample	25/10/2023		
35.	Shu	HaoShun	DongGou Village, Shangji Town/end user sample	24/10/2023		
36.	Lian	ZhiJian	JiaGou Village, Shangji Town/end user sample	24/10/2023		
37.	Bai	JingCe	WeiLing Village, Shangji Town/end user sample	24/10/2023		
38.	Wu	Lu	ZhangYing Village, Shangji Town/end	24/10/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			user sample			
39.	Xue	GuangShi	BeiGang Village, Shangji Town/end user sample	24/10/2023		
40.	Ming	RuiDan	YangJia Village, Jinhe Town/end user sample	25/10/2023		
41.	Yun	Yuan	BeiGou Village, Jinhe Town/end user sample	25/10/2023		
42.	Luo	MingAn	DuWan Village, Jinhe Town/end user sample	25/10/2023		
43.	Qin	Hui	HeiShui Village, Jinhe Town/end user sample	25/10/2023		
44.	Li	Mengnan	Reach Fellow with Tongji University Low-Carbon& Development Center/ Consultant	24/10/2023~27/10/2023	- Data management - Data collection - Data uncertainty and residual risks - PDD preparing - GHG emission reduction calculation	

***The site visit was conducted in the Jingziguan Township, Siwan Township, Xihuang Township, Maotang Township, Dashiqiao Township, Shangji Township and Jinhe Township, Xichuan County, Nanyang City, Henan Province, China where the project located**

Type of Questions asked by the audit team:

During the site visit, the audit team has randomly selected staffs, field surveyors from project implementer and end users samples as above table to confirm that the continuous implementation of the project and information reported by the PD in the PDD.

The questions asked were basically based on requirements of the GS4GG and PDD description.

a. Questions asked to end user samples:

The households who have the solar cookers using situations were asked the following questions;

1. General information of households
 - a. Interviewee Name
 - b. ID No.
 - c. Household location
 - d. Mobile No.
2. Solar Cooker using situation
 - a. Solar cooker serial No.
 - b. Using status till the end of the 2nd crediting period
 - c. If any saving comparing with old cooking method

Feedback Received through the Interview:

The feedback from Household interviewees are listed as below:

All the interviewees provided the general information of the households,

For the using of solar cookers, all the households confirmed they used the solar cookers commonly till the end of the 2nd crediting period, all the households have provided the general information when they started using the solar cooker and the unique serial No. has been verified by cross-check the User information registration form/11/ and the Solar cookers usage agreements/12/.

All the households confirmed they have participated the solar cooker publicity and how to use training sessions, and they all confirmed that the distributor come to their home to do the follow up checking the use of the solar cooker.

All the households confirmed they use solar cookers very frequently.

All the households confirmed that solar cooker is cleaner than the old stove without smoke and saves fuel and money.

c. Questions asked to staffs

The staff representatives were asked the following questions:

- a. General info of interviewee, name, gender, ID No. Age, Education, Location, Mobile, Position
- b. When joined the company
- c. How to obtain this job
- d. What is the main work
- e. What about the working condition
- f. Salary level, if satisfied

Feedback Received through the Interview

All the staffs provided the general information, position, join time, join method, main work, all the staffs agreed that the working condition is well and satisfied with the salary level.

C.4. Sampling approach

Following “Guideline of Sampling and surveys for CDM project activities and programmes of activities” version 04.0/24/, the audit team conducted the sampling methods to check the continuous implementation of the project in 2nd crediting period with the following steps:

The project provides 48,000 solar cookers to local residents, so in order to confirm the using status of solar cookers in local households, VVB has chosen a simple random sampling approach to select the households randomly for site visit and gather related information, which is found to be appropriate as the end users are homogenous.

Based on the Sample size calculation with Simple Random Sampling in “Guideline of Sampling and surveys for CDM project activities and programmes of activities” version 04.0/24/, the formula is confirmed as below,

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

Where

- | | |
|-------|--|
| n | Sample size |
| N | Total number of target population (48,000 solar cooker end users) |
| P | Our expected proportion |
| 1.645 | Represents the 90% confidence required |
| 0.1 | Represents the 10% relative precision ($0.1 \times 0.5 = 0.05 = 5\%$ points either side of p) |

P is determined as 90% by considering the 90% of the samples taken shall comply with the project requirements based on the previous verification report survey result.

So the final result n is calculated as $1.645^2 \times 48,000 \times 0.9 \times (1-0.9) / \{(48,000-1) \times 0.1^2 \times 0.9^2 + 1.645^2 \times 0.9 \times (1-0.9)\} = 31$

Hence before the site visit, VVB has randomly selected 35 (which is higher than the calculated size for conservative) end user's name in the User information registration form/11/ and conducted check of the solar cookers usage status and interview with these end users in the site visit period.

Via site visit, CTI verified that all the sampled end users used the solar cookers normally now and by interview with them, they confirmed the solar cookers were used normally in the 2nd crediting period for cooking or boiling.

Therefore, VVB confirmed that the project was in normal continuous implementation and the contributions to the SDG targets have been achieved in the 2nd crediting period.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	CAR 01	-
Key project information assessment	-	-	-
Description of project activity	CL 01	-	-
Application and selection of methodology			
- Selected approved methodology(ies) and methodological tools	-	-	-
- Application of methodology(ies) and tools	-	CAR 02	-
- Project boundary, sources and GHGs	-	-	-
- Re-definition of Baseline scenario	-	-	-
- Demonstration of additionality	CL 02	-	-
- Estimation SDG impacts	CL 03	CAR 03	-
- Monitoring plan	-	CAR 04	-
Start date, crediting period type and duration	-	-	-
Safeguarding principles and gender sensitive assessment	-	-	-
Local stakeholder consultation (LSC) assessment	-	-	-
Discussion on continuous input / grievance mechanism	-	-	-
Total	3	4	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	A draft PDD and SDG impact tool was submitted to the validation team by the PD. By means of the GS website it has been checked whether the latest applicable PDD template “Key Project Information & Project Design Document (PDD)” and SDG impact tool template have been used. Further it has been checked whether the latest instructions for filling out the PDD template (TGuide-PreReview_V1.5-Project-Design-Documents) have been followed. Every section has been checked against the respective guidance.
Findings	CAR 01 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The PD used the latest version of the GS PDD form/25/ for the PDD completion. And PD used the latest version of the SDG impact tool template for the SDG impacts completion. It is confirmed that the latest instructions(TGuide-PreReview_V1.5-Project-Design-Documents)/26/ for filling out the PDD have been followed. It is confirmed that the SDG impacts have been correctly provided in the SDG impact tool of the project and consistent with the information given in the PDD.

D.2. Key Project Information assessment

Means of validation	Via on-site investigation, CTI confirmed that the project involves distribution and installation of 48,000 sets of solar cookers for rural households. The project activity involves dissemination of solar cooker in Xichuan County, Henan Province, China. The total rated installed capacity of the project activity is 37.128MW _{th} . The project activity enables rural households to efficiently substitute fossil fuel used in daily cooking and water boiling by solar energy and therewith avoid CO ₂ emission that would have been generated by fossil fuel consumption, finally provides the affordable and clean Energy to rural households in China. The implementation and technology of the project have been verified as actual by on-site inspection and checking the design in the PDD/1/. The activity requirements applied is Community Services Activities. The project completed the registration in CDM on 02/05/2012 with a fixed crediting period which is from 02/05/2012 to 01/05/2022. The project completed the registration in GS on 13/08/2013 and the start date of the first crediting period of the project is defined as 02/05/2012. The project has completed the transition to GS4GG with the product of GS VER on 04/09/2023/4/. The estimated annual emission reductions in the 2 nd crediting period from 02/05/2017 to 01/05/2022 are 81,184 tCO ₂ e, the total estimated emission reductions in the 2 nd crediting period are 405,920 tCO ₂ e. The project applied CDM approved methodology AMS-I.C “Thermal energy production with or without electricity ” (Version 22.0)/23/ which is verified as the latest version. Product Requirements applied is GHG Emissions Reduction & Sequestration.
Findings	N/A
Conclusion	The validation team confirms that the process undertaken to describe the key information of the project is described above. The information of the project is justified from the terms mentioned in Key project information form in PDD which has been assessed by the validation team, and CTI confirms that the GS project activity qualifies the eligibility criteria for GS4GG project activities.

D.3. Description of project activity

Means of validation	A draft PDD was submitted to the validation team by the project developers prior to the start of the validation activities. Section A has been checked against the GS4GG Principles& Requirements/27/ as below, <i>i. Purpose and general description of project</i> Via on-site investigation, CTI confirmed that the project involves distribution and
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installation of 48,000 sets of solar cookers for rural households. The project activity involves dissemination of solar cooker in Xichuan County, Henan Province, China. The total rated installed capacity of the project activity is 37.128MW_{th}.

The project activity enables rural households to efficiently substitute fossil fuel used in daily cooking and water boiling by solar energy and therewith avoid CO₂ emission that would have been generated by fossil fuel consumption, finally provides the affordable and clean Energy to rural households in China.

The solar cookers are distributed and implemented on 13/12/2010. The project completed the registration in CDM on 02/05/2012 with a fixed crediting period which is from 02/05/2012 to 01/05/2022. The project completed the registration in GS on 13/08/2013 and the start date of the first crediting period of the project is defined as 02/05/2012. The project has completed the transition to GS4GG with the product of GS VER on 04/09/2023/4/.

According to para. 6.5.1 of GHG Emissions Reduction & Sequestration Product Requirements (version 2.2)/31/, "the transition project, PoA/CPAs shall follow GS4GG certification cycle for crediting period renewal (e.g., 5 years) in order to issue or convert issued emission reductions to GS VERs under GS4GG."

This project has completed the transition with seek to issue the GS VER, so this project shall follow GS4GG certification cycle for crediting period renewal.

While, as per para. 4.1.7 of Community Services Activity Requirements (Version 1.2)/29/, "Design Certification Renewal in the case of CSA projects is mandatory every 5 years as per the Principles & Requirements."

This project meets the General Eligibility Criteria set out in the "Community Services Activity Requirements (Version 1.2)" which has been verified in previous verification, so the design certification renewal is mandatory every 5 years.

The project crediting period start date is 02/05/2012 and the emission reductions achieved as of 2020 has already been issued, and therefore, if the GS VERs achieved from 01/01/2021 to 01/05/2022 apply for issuance, the crediting period renewal is needed which is defined from 02/05/2017 to 01/05/2022.

So for this project, the starting date of the crediting period is 02/05/2012, then the 1st crediting period is from 02/05/2012 to 01/05/2017 under GS4GG. And the 2nd crediting period is from 02/05/2017 to 01/05/2022 which is verified as in line with the above GS4GG requirements for the transition project activities.

The estimated annual emission reductions in the 2nd crediting period from 02/05/2017 to 01/05/2022 are 81,184 tCO₂e, the total estimated emission reductions in the 2nd crediting period are 405,920 tCO₂e.

The implementation and technology of the project have been verified as actual by on-site inspection and checking the design in the PDD/1/ and comparing with the previous validation report/5/ and verification reports/6/.

ii. Eligibility of the project under GS

The project activity meets the eligibility criteria "Gold Standard for The Global Goals Community Services Activity Requirements" (Version 1.2)/29/ as below demonstration,

Eligibility Requirements as per GS4GG Community Services Activity Requirements	Assessment for this project
Types of Project: Pre-identified CSA project types are noted below. Project Developers may submit new project types to Gold Standard for approval following the Principles & Requirements. (The items are omitted)	Via on-site inspection and check the PDD/1/, CTI confirmed that the project involves distribution and installation of 48,000 sets of solar cookers for rural households. Hence, it belongs to type (b): End-use energy efficiency
Project area, boundary and scale: Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements.	Via on-site inspection and check the PDD/1/, CTI confirmed that the project area and boundary are correctly defined which is not

	The definition of scale is the same for all Projects, except Microscale which is defined as: (a) CSA Project issuing emission reductions less than or equal to 10,000 tCO₂eq per annum (b) CSA Project seeking any Gold Standard Certified Impact or Product other than emission reductions and meeting one of the following criteria: • Installed capacity less than equal to 2 MW_{el} /6 MW_{th} that employs renewable energy as the primary technology • Energy savings at a scale of no more than 20 GWh per year where energy efficiency is the primary activity • Achieve GHG emissions reductions at a scale of no more than 20,000 tCO₂eq per annum where project activity type is not included in the above two criteria. (c) For the purpose of applying UNFCCC methodologies for quantification of GHG reductions, 'small scale' is defined as in CDM Modalities and Procedures for three projects types; Renewable Energy, Energy Efficiency and Others. Please refer to the GHG Emission Reductions and Sequestration Product Requirements for more information on the definition of 'small scale'.	changed since the validation to 1st crediting period. The project is located in rural area of 7 towns (Jingziguan, Siwan, Xihuang, Maotang, Dashiqiao, Shangji and Jinhe) of Xichuan County, Henan Province, China. Via verified result in the previous validation and verification process, it is confirmed that the maximum energy saving of the project is no more than 85.96MW_{th}, which is less than 180 GW_{th} limit of small-scale project. As per section 5.1.2 and 5.1.4 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.2)/34/, the project is a small-scale GS VER project.
	Certain Impact Quantification methodologies allow projects to account Suppressed Demand scenario when establishing a baseline. In such cases, the application of Suppressed Demand baseline is limited to Small Scale and Microscale Projects. Where a Suppressed Demand baseline is applied, it is not possible to 'stack' Gold Standard Certified Impact Statements or Products as the definition of the baseline may be contradictory.	N/A This project is a greenfield project and the baseline scenario is not need to account Suppressed Demand scenario.
	Legal ownership: (a) Projects involving the distribution of a large number of devices for services such as heating, cooking, lighting, electricity generation, water treatment technology such as water filter, etc. shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain. In line with the FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided. (b) The transfer of Product ownership shall be discussed during local stakeholder consultations for projects.	As per the transition request form (TRF)/4/ and previous validation/5/ and verification reports/6/, it is confirmed that project owner distributed the solar cookers to local households and by checking the solar cooker using agreement/12/, CTI verified that the project owner has the legal ownership of the emission reductions generated by the project activity under Gold Standard Certification. Furthermore, via checking the transition request form (TRF)/4/, it is confirmed that the confirmation of the Product ownership is also discussed during local stakeholder consultations for projects and all

		solar cooker users are notified and aware that the project owner has the legal ownership of the emission reductions generated by the project activity.
The project activity meets the eligibility criteria of the GS4GG as per GS4GG Principles & Requirements/27/ as below demonstration,		
	Requirements as per GS4GG Principles & Requirements	Assessment for this project
	Types of Project: Eligible projects shall include physical action/implementation on the ground. Pre-identified eligible project types are identified in the Eligibility Principles and Requirements section.	Via on-site inspection and check the PDD/1/ and TRF/4/, CTI confirmed that the project involves distribution and installation of 48,000 sets of solar cookers for rural households. Hence the project type is eligible for Gold Standard Certification.
	Location of Project: Projects may be located in any part of the world.	Via checking the PDD/1/ and on-site inspection, CTI confirmed that the project is located in Henan Province, China which is an eligible country.
	Project Area, Project Boundary and Scale: The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements. In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature, the project shall demonstrate that there is no double counting of impacts at design and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of impacts amongst projects).	Via checking the PDD/1/ and on-site inspection, CTI confirmed that the project is located in Henan Province, China. Project Area and Boundary has been assessed in the section D.4.3 of this report, which has been verified as defined in line with the applicable requirements. Furthermore, based on validation team's local expertise, China has a cap & trade scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO ₂ e/year which has been verified in the public website/40/, and CTI confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/41/. Besides, via checking the other carbon schemes/36/,/37/,/38/,/39/, CTI confirmed that project does not apply for emission reduction credits or labels under any other schemes other than GS and the emission reductions will not be double counted. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occur. Via verified result in the previous validation and verification process, it is confirmed that the maximum energy saving of the project is no more than 85.96MW _{th} , which is less than 180 GW _{th} limit of small-scale project. As per section 5.1.2 and 5.1.4 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.2)/34/, the project is a small-scale GS VER project.

		Via checking the PDD/1/ and on-site inspection, it is confirmed that the project can be identified through its GPS coordinates which is unique to the project and has been verified as correct to the project by site inspection. Hence it is confirmed that the Project Area do not overlap with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature. Hence, the project satisfied this eligibility requirement.
	Host Country Requirements: Projects shall be in compliance with applicable Host Country's legal, environmental, ecological and social regulations.	Via on-site inspection, CTI confirmed that the project is located in China which is an eligible host country. Via verified result in the previous validation process, it is confirmed that the project has been approved by the local government, CTI confirmed that the project is supported by the local government since it benefits the local residents and is in compliance with applicable Host Country's legal, environmental, ecological and social regulations and there is no impacts to the project apply design renew.
	Contact Details: As part of the Project Documentation the Project Developer shall provide (i) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted.	The PP's name, contact details and legal registration details have been checked in the Appendix 2 of the PDD which verified as correct by comparing the business license of PP/7/. Furthermore, through checking the company information in National Enterprise Credit Information Publicity System/43/, CTI confirmed that PP is in good standing and legally operated and allowed to operate within the required jurisdiction, the financial health is verified. And by checking the website, CTI confirmed that PP never have been suspected of insolvency or legal/criminal notices placed against it or any of its Directors.
	Legal Ownership: Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example carbon credits) shall be demonstrated. Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and informed consent (FPIC).	The project was invested by project owner Sirreon Technology and Development (Beijing) Co., Ltd., project owner purchased the solar cookers from manufacturer/8/ and distributed them to households for free. Furthermore, as per the transition request form (TRF)/4/ and previous validation/5/ and verification reports/6/, it is confirmed that project owner distributed the solar cookers to local households and by checking the solar cooker using agreement/12/, CTI verified that the project owner has the legal ownership of the emission reductions generated by the project activity under Gold Standard Certification.

	Note that for certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising.	Besides, via checking the transition request form (TRF)/4/, it is confirmed that the confirmation of the Product ownership is also discussed during local stakeholder consultations for projects and all solar cooker users are notified and aware that the project owner has the legal ownership of the emission reductions generated by the project activity. Hence the project owner has full and uncontested legal ownership of the credits that will be generated under Gold Standard Certification and has legal rights concerning changes in use of resources required to service the Project for solar energy, which is completely free for all and CTI confirmed that the legal ownership of the project is uncontested and there is no changed in the 2nd crediting period of the project.
	Other Rights: As well as legal title and ownership, the Project Developer shall also demonstrate where required uncontested legal rights and/or permissions concerning changes in use of other resources required to service the Project (for example, access rights, water rights etc.). Any known disputes or contested rights must be declared immediately to Gold Standard by the Project Developer and resolved prior to further project implementation in affected areas.	As above assessment, it is confirmed that the project is in line with national regulations and the ownership is clear. Furthermore, the use of solar energy is completely free for all in China confirmed based on local expertise of VVB, and no any other energy resources are involved in the project activity. In conclusion, the project does not involve any activity that causes alteration of any resource, or contested legal rights and other disputes, therefore the need for acquiring any specific legal right is not applicable.
	Official Development Assistance (ODA) Declaration: All Project Developers applying for project activities located in a country named by the OECD Development Assistance Committee's ODA recipient list and seeking Gold Standard Certification for carbon credits shall declare the Official Development Assistance (ODA) support. The Project Developer shall follow the GHG Emissions Reduction & Sequestration Product Requirements and submit the declaration at the time of Design Certification.	Via checking the previous validation reports/5/ and verification reports/6/, it is verified that the Project Developer has followed the GHG Emissions Reduction & Sequestration Product Requirements and submitted the declaration at the time of Design Certification and no ODA is provided.
	The validation team therefore concluded project compliance with eligibility requirements in GS4GG Principles & Requirements document, version 1.2/27/ and GS4GG Community Services Activity Requirements, version 1.2/29/, hence the project is eligible under GS4GG. iii. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project	

The project was invested by project owner Sirreon Technology and Development (Beijing) Co., Ltd., project owner purchased the solar cookers from manufacturer/8/ and distributed them to households for free.

Furthermore, as per the transition request form (TRF)/4/ and previous validation/5/ and verification reports/6/, it is confirmed that project owner distributed the solar cookers to local households and by checking the solar cooker using agreement/12/, CTI verified that the project owner has the legal ownership of the emission reductions generated by the project activity under Gold Standard Certification.

Besides, via checking the transition request form (TRF)/4/, it is confirmed that the confirmation of the Product ownership is also discussed during local stakeholder consultations for projects and all solar cooker users are notified and aware that the project owner has the legal ownership of the emission reductions generated by the project activity.

Hence the project owner has full and uncontested legal ownership of the credits that will be generated under Gold Standard Certification and has legal rights concerning changes in use of resources required to service the Project for solar energy, which is completely free for all and CTI confirmed that the legal ownership of the project is uncontested and there is no changed in the 2nd crediting period of the project.

iv. Location of project

The project is located in 7 towns of Xichuan County, Henan Province, China.

Details of the project location are given in table D-1 below:

Table D-1: Project Location

No.	Project Location		
Host Country	P. R. China		
Region:	Henan Province		
Project location address:	7 townships (Jingziguan, Siwan, Xihuang, Maotang, Dashiqiao, Shangji and Jinhe) of Xichuan County		
	Township	Longitude	Latitude
	Jingziguan	110.9790°E - 111.0313°E	33.2323°N - 33.2513°N
	Siwan	111.1273°E - 111.1651°E	33.1588°N - 33.1651°N
	Xihuang	111.1390°E - 111.1713°E	33.2393°N - 33.2461°N
	Maotang	111.2805°E - 111.4480°E	33.1502°N - 33.2697°N
	Dashiqiao	111.2509°E - 111.2592°E	33.0524°N - 33.0575°N
	Shangji	111.4803°E - 111.4878°E	33.1289°N - 33.1352°N
	Jinhe	111.3979°E - 111.4020°E	33.1024°N - 33.1030°N

The project location has been clearly provided in section A.2 of the PDD, which has been verified by on-site inspection and the detailed coordinates have been provided respectively which have also been verified by GPS APP during on-site visit and the information is correct and confirmed not changed since the 1st crediting period.

v. Technologies and/or measures

By means of an in-depth review of the PDD and the checks carried out during the on-site inspection, an assessment has been carried out whether the equipment has been changed and if the project has been implemented in line with the PDD. The following has been checked: implemented technology and project equipment.

Further CTI has checked if relevant technical equipment of the project activity has been changed or modified in PDD/1/ since the last crediting period.

The validator has performed an on-site inspection of the solar cookers and conducted interview with sampled end users, in addition checked all the provided evidence as listed in Appendix 3, CTI found that there is no change of the project technology since last crediting period which is verified by site inspection of the solar cookers.

PP has provided detailed specification of solar cooker in the PDD section A.3. Validation team herewith confirms that the specification of solar cooker are same as provided in the PDD/1/ by checking the solar cookers testing report/10/ and comparing with the previous Validation Report/5/ and verification reports/6/.

Basic technical details of the project are summarized in below table.

Parameters	Unit	Requirements of National Standard	Test Results
Focus	mm	600~750	667 ~ 684
Aperture area	m ²	≥1.7	1.75 ~ 1.82
Rated Power	W _{th}	≥773.5	815.7 ~ 823.5
Thermal Efficiency	%	≥65%	65.5% ~ 68.7%
The area with temperature over 400°C	cm ²	50~200	73 ~ 105
Maximum operational height	m	0.7-1.25	1.13 ~ 1.19
Maximum operational distance	m	≤0.8	0.67 ~ 0.73
Technical life of equipment	year	No less than 10 years	

vi. Scale of the project

Via verified result in the previous validation and verification process, it is confirmed that the maximum energy saving of the project is no more than 85.96MW_{th}, which is less than 180 GW_{th} limit of small-scale project. As per section 9.1.2 of GS4GG GHG Emissions Reduction & Sequestration Product Requirements (Version 2.2)/31/, the project is a small-scale GS VER project.

vii. Funding sources of project

Via checking the previous validation report/5/ and verification reports/6/, it is verified that project owner purchased the solar cookers from manufacturer/8/ and distributed them to households for free, there is no public funding involved.

Besides, the project will generate no financial and economic benefits other than GS-VER revenues and the continuous implementation of the project will be financially sustainable through the sale of carbon credits which has been confirmed by site interview with the project owner.

As above assessment of ODA, it is verified that no ODA is provided under the condition that the credits generated by the project will be transferred, either directly or indirectly, to the donor country providing ODA support.

Findings

CL 01 was raised and resolved.
Refer to Appendix 4 in this report for detail assessment.

Conclusion

CTI confirms;

- (a) The process undertaken to validate the accuracy and completeness of the project is described above;
- (b) The project description contained in the PDD/1/ of the GS project activity is accurate and complete;
- (c) The on-site inspection was conducted by the validation team as described in this report.

CTI confirms that the type of proposed GS project activity is eligible for Gold Standard Certification.

Moreover, CTI confirms that the description of the proposed GS project activity, as contained in the PDD/1/ sufficiently covers all relevant elements, is accurate and complete and that it provides with a clear understanding of the nature of the GS project activity.

	The project was described in the PDD in accordance with requirements of Gold Standard for Global Goals Key Project Information & Project Design Document (PDD) Template v1.5/25/.
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D.4. Application and selection of methodology

D.4.1. Selected approved methodology(ies) and methodological tools

Means of validation	The PDD employs the approved CDM methodology AMS-I.C "Thermal energy production with or without electricity (Version 22.0)"/23/.
Findings	N/A
Conclusion	The validation team confirms that the applied methodology is listed completely and reference of UNCCC website have been provided.

D.4.2. Application of methodology(ies) and tools

Means of validation	The applicability condition of the methodology AMS-I.C Version 22.0 is assessed as follows:		
	Applicability Criteria as per methodology	Justification from PP	VVB Assessment
	1. This methodology comprises renewable energy technologies that supply users i.e. residential, industrial or commercial facilities with thermal energy that displaces fossil fuel use. These units include technologies such as solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass and other technologies that provide thermal energy that displaces fossil fuel.	The proposed project supplies individual households with solar cookers that allow the user to use renewable (solar) energy to displace coal used for cooking and water-boiling.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence this criteria is applicable for this project activity.
	2. Biomass-based cogeneration systems are included in this category.	The proposed project supplies individual households with solar cookers and no biomass-based cogeneration system is involved.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not involved in biomass-based cogeneration system.
	3. Emission reductions from a biomass cogeneration system can accrue from one of the following activities: (a) Electricity supply to a grid; (b) Electricity and/or thermal energy (steam or heat) production for on-site consumption or for consumption by other facilities; (c) Combination of (a) and (b).	The proposed project only supplies individual households with solar cookers and no biomass-based cogeneration system is involved.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not involved in biomass-based cogeneration system.

	4. Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category.	The proposed project only supplies individual households with solar cookers and no retrofitting or modifying and existing facility for renewable energy generation are involved.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not retrofitting or modifying and existing facility for renewable energy generation are involved.
	5. In the case of new facilities (Greenfield projects) and project activities involving capacity additions the relevant requirements related to determination of baseline scenario provided in the "General guidelines for SSC CDM methodologies" for Type-II and Type-III Greenfield/capacity expansion project activities also apply.	The proposed project is a greenfield project and the relevant requirements related to determination of baseline scenario provided in the "General guidelines for SSC CDM methodologies (Version 23.0)" are applied.	Via checking the previous validation report/5/ and verification reports/6/, it is verified that the project is a greenfield project and the baseline scenario has been demonstrated based on the "General guidelines for SSC CDM methodologies (Version 23.0)". Refer to the section of D.6 of this report for detail assessment.
	6. The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW thermal (see paragraph 9 for the applicable limits for cogeneration and trigeneration project activities).	According to the aforementioned, the calculated maximum power of a single solar cooker is $875.238 W_{th}$. Therefore, the maximum energy saving of the project is no more than $42.01 MW_{th}$ ($875.238 \times 48,000 \times 10^{-6}$), below the 45 MW_{th} limit of small-scale projects.	Via checking the Solar Cooker Test Report issued by the Nanyang Quality and Technical Supervision, Inspection and Testing Center /10/ against the National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/, it is verified that the maximum power of single solar cooker is $875.238 W_{th}$. Thus the total installed capacity of the project is calculated by $875.238 W_{th} \times 48,000 \times 10^{-6}$ which is equal to $42.01 MW_{th}$, less than $45 MW_{th}$.
	7. For co-fired systems, the total installed thermal energy generation capacity of the project equipment, when using both fossil and renewable fuel, shall not exceed 45 MW thermal.	No co-fired system is involved in the proposed project activity.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/.

			Hence, no co-fired system is involved.
	8. The following capacity limits apply for biomass cogeneration and trigeneration units: (The items are omitted)	No biomass cogeneration or trigeneration units are involved.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not involved in biomass cogeneration or trigeneration units.
	9. The capacity limits specified in paragraphs 7 to 9 above apply to both new facilities and retrofit projects. In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project shall comply with capacity limits specified in the paragraphs 7 to 9, and shall be physically distinct from the existing units.	The proposed project is a newly developed project and does not involve addition of renewable energy units at an existing renewable energy facility.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not involved in addition of renewable energy units at an existing renewable energy facility.
	10. The capacity limits specified in the above paragraphs apply to both new facilities and retrofit projects. In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should comply with capacity limits in paragraphs 4 to 6, and should be physically distinct from the existing units.	The proposed project is a newly developed project and does not involve addition of renewable energy units at an existing renewable energy facility.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, not involved in addition of renewable energy units at an existing renewable energy facility.
	11. If solid biomass fuel (e.g. briquette) is used, it shall be demonstrated that it has been produced using solely renewable biomass and all project or leakage emissions associated with its production shall be taken into account in the emissions reduction calculation.	The proposed project only supplies individual households with solar cookers and no solid biomass fuel is used.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, no solid biomass fuel is used.
	12. Where the project participant is not the producer of the processed solid biomass fuel, the	The proposed project only supplies individual households with solar cookers	This project activity involves distribution of solar cookers and access to clean energy in the rural households

	project participant and the producer are bound by a contract that shall enable the project participant to monitor the source of the renewable biomass to account for any emissions associated with solid biomass fuel production. Such a contract shall also ensure that there is no double-counting of emission reductions.	and no solid biomass fuel is used.	as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, no solid biomass fuel is used.
	13. If electricity and/or thermal energy produced by the project activity is delivered to a third party i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into that ensures there is no double-counting of emission reductions.	The heat produced by the project is captured and used by the solar cookers only, and it does not involve in delivery to other facilities within the boundary.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. The heat produced by the project is captured and used by the solar cookers only. Hence, no delivery to other facilities within the boundary involved.
	14. If the project activity recovers and utilizes biogas for producing electricity and/or thermal energy and applies this methodology on a standalone basis i.e. without using a Type III component of a SSC methodology, any incremental emissions occurring due to the implementation of the project activity (e.g. physical leakage of the anaerobic digester, emissions due to inefficiency of the flaring), shall be taken into account either as project or leakage emissions as per relevant procedures in the tool "Emissions from solid waste disposal sites" and/or "Project emissions from flaring". In the event that the biomass fuel (solid/liquid/gas) is sourced from an existing CDM project, then the emissions associated with the production of the fuel shall be accounted with that project.	There is no biogas recovery and utilization involved in the proposed project.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, no biogas recovery and utilization involved in.
	15. If project equipment contains refrigerants, then the refrigerant used in the project case shall have no ozone depleting potential (ODP).	There are no refrigerants contained in the equipment of the proposed project.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test

			report/10/ and the Solar cookers usage agreements/12/. Hence, no refrigerants contained in the equipment of the proposed project
	16. Charcoal based biomass energy generation project activities are eligible to apply the methodology only if the charcoal is produced from renewable biomass sources, provided: (The items are omitted)	The proposed project only supplies individual households with solar cookers and no charcoal biomass energy generation is involved.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, no charcoal biomass energy generation is involved.
	17. In cases where the project activity utilizes biomass, sourced from dedicated plantations, applicability conditions prescribed in the tool "Project emissions from cultivation of biomass" shall apply.	The proposed project only supplies individual households with solar cookers and no biomass is used.	This project activity involves distribution of solar cookers and access to clean energy in the rural households as verified from the solar cooker test report/10/ and the Solar cookers usage agreements/12/. Hence, no biomass is used.
	The applicability condition of the "General Guidelines to SSC CDM methodologies" (Version 23.0) is presented and assessed as follows:		
	Applicability Criteria as per Guidelines	Justification from PP	VVB Assessment
	These guidelines are applicable for the project activities and PoAs using small-scale methodologies.	The proposed project is a small-scale project activity and using the small-scale methodology AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)"	As assessment in above table, it is verified that the project is a small-scale project activity and the small-scale methodology AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)" is applicable to the project.
	This document is applicable to project participants and coordinating/managing entities who apply small-scale CDM methodologies to small-scale CDM project activities and PoAs. This document is, however, not applicable to project participants and coordinating/managing entities using large-scale methodologies for project activities and PoAs that are	The proposed project is a small-scale project activity and using the small-scale methodologies AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)"	As assessment in above table, it is verified that the project is a small-scale project activity and the small-scale methodology AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)" is applicable to the project.

	within the small-scale project activity thresholds		
	The requirements and procedures specified in the small-scale CDM methodologies have precedence over the provisions in this document unless otherwise specified.	The proposed project complies with the Applicability in small-scale methodologies AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)", which is detailed in Section B.2.	As assessment in above table, it is verified that the project is a small-scale project activity and the small-scale methodology AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)" is applicable to the project.
	For the following requirements, project participants and coordinating/managing entities shall refer to applicable provisions for project activity eligibility for small-scale project activities in the project standard: (a) Eligibility of project activities as small-scale CDM project activities; (b) Output capacity of renewable energy equipment.	The Eligibility of small-scale methodology AMS-I.C. "Thermal energy production with or without electricity" (Version 22.0)" has been detailed in Section B.2. In addition, according to the aforementioned, the maximum energy saving of the project is no more than 42.01 MW _{th} ($875.238 \times 48,000 \times 10^{-6}$), below the 45 MW _{th} limit of small-scale project.	Via checking the Solar Cooker Test Report /10/ against the National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/, it is verified that the maximum power of single solar cooker is 875.238W _{th} . Thus the total installed capacity of the project is calculated by $875.238W_{th} \times 48,000 \times 10^{-6}$ which is equal to 42.01MW _{th} , less than 45MW _{th} .
Findings	N/A		
Conclusion	CTI confirms that; - It has critically assessed each applicability condition listed in the selected methodology and the relevant information contained in the PDD against these criteria. - The selected methodology for the GS project activity is applicable. - The selected <i>General Guidelines to SSC CDM methodologies</i> for the GS project activity are applicable. - The methodology was found to be in accordance with the applicable requirements in GS4GG requirements.		

D.4.3. Project boundary, sources and GHGs

Means of validation	The project boundary basically defines the physical and geographical boundary of the project facility and it is well defined in the PDD/1/(section B.3). The project boundary includes the installation site of the 48,000 sets of solar cookers which is verified in line with the applied methodology. And the distributed area is defined as stated in section A.2.4 of the PDD and has been verified in section D.3 of this report. Therefore, it is verified that project boundary is clearly defined in the PDD as per the methodology. Emissions sources included in the project boundary have been appropriately included in the PDD. CO₂ emissions due to combustion of baseline fuel (coal) for cooking/boiling is covered for baseline scenario and the project scenario has zero emissions due to using solar energy, thus no GHGs included.
Findings	CAR 02 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The project boundary is completely determined in the PDD/1/ as per AMS-I.C Thermal energy production with or without electricity (Version 22.0)/23/ and is validated by CTI.

	Also, according to the on-site inspection and checking the solar cookers in the end users' households, validation team confirmed that the sources and gases that are accounted to be appropriate according to the context of project activity.
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D.4.4. Re-definition of Baseline scenario

Means of validation	As per the 5.1.47 of GS4GG Principles & Requirements/27/, Design Certification Renewal shall re-define the baseline scenario. As per the validation result to the 1st crediting period, the validation team confirmed that the baseline scenario is that the 48,000 households continue to cook and boil water with coal-fired stove. Via checking the section 4.1.7 of GS document "Community Services Activity (CSA) Requirements (Version 1.2)", due to it is the design Certification Renewal, for the CSA project that mandatory renew every 5 years, it is not required to re-define the baseline scenario for the first renewal. So the baseline scenario for this crediting period does not need to be updated and remain same to the 1st crediting period.
Findings	N/A
Conclusion	The validation team based on the description provided above with regard to the assessment of the requirements confirms that: The baseline scenario is no need to be updated for the first renewal and the original defined baseline scenario in 1st crediting period reasonably represents what would have occurred in the absence of the GS4GG project activity in the 2nd certification cycle.

D.4.5. Demonstration of additionality

Means of validation	Demonstration of Additionality No need to assess the additionality to the renew design. Prior Consideration Via the previous assessment, the project was registered as a Gold Standard project on 13/08/2013 and the start date of the first crediting period of the project is defined as 02/05/2012. The project has completed the transition to GS4GG with the product of GS VER on 04/09/2023/4/. Hence, VVB confirmed that the prior consideration is not applicable to the project by submission timelines and also for the renew design. Ongoing Financial Need The project is under Design Certification Renewal, as per GS4GG Principle and Requirement (version 1.2)/27/, 4.1.52 and 4.1.53 and 5.1.47 (e), the ongoing financial need should be demonstrated. As per the requirement from GS4GG, for demonstrate the ongoing financial need, below points have been assessed <i>(a) Information highlighting the key categories and amounts or relative proportions (%) of project income and outgoings, including the relative proportion of certification related cost and revenue.</i> Based on the validation and verification experiences from VVB, CTI confirmed that the cost of certification are relatively fixed and limited, and via checking the previous verification reports/6/ and CDM and GS dedicated website of the project/44/, CTI verified that the project has been verified 6 times, and a total of 534,017 tons of GS CERs have been issued for the period from 02/05/2012 to 31/12/2020, besides, the emission reduction during the period from 01/01/2021 to 01/05/2022 is seeking GS VERs issuance under GS program which means that the revenues from GS VERs are continuous. And via checking the TRF/4/, it is confirmed that the sale of carbon credits is the only financial revenue of this project which means 100% of project income is from carbon credits revenue. The project owner used financial outgoings as the maintenance fee of the solar cooker and pay the employee salaries and benefits which has been verified as actual by checking the payrolls to employees/16/ and Illustration of carbon revenue distribution/18/.
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	<i>(b) Description on how finance derived Gold Standard Certification contributes to or is being used to sustain or enhance the project.</i> As assessed above, the project issued GS CERs continuously, and the related carbon revenues have been playing an important role in helping project owner to contribute to SDGs, especially more than 70% of the revenue for hiring 30 full-time jobs position from local residents and ensuring the help to contribute SDG8, and surplus about 30% of the revenue for maintenance of the solar cooker to ensure the normal use of the solar cooker and not cause inconvenience to the user's cooking and boiling, make sure end-users can access to affordable and clean energy and decrease the expenditure for cooking and boiling, which help to contribute SDG7 and 13. So, the audit team verified that the finance derived Gold Standard Certification contributes to or is being used to sustain or enhance the project. <i>(c) Where no revenue is realised from Gold Standard certification during a given period, this would be considered a FAR for the next Issuance.</i> Not applicable as the project issued GS CERs continuously during the 1st and 2nd crediting period which is verified by checking the previous verification reports/6/. No FAR need to be raised. In conclusion, the project meets the requirements related to the additionality for the design renew from GS4GG Principle and Requirement (version 1.2)/27/, the ongoing finance from carbon revenue ensure affordable and clean energy, decrease the expenditure for cooking and boiling, welfare improvement of the employees, promote gender equality and emission reductions to cope with climate change.
Findings	CL 02 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The validation team confirms that all the documented evidence listed and reviewed during the validation process are found correct and is able to confirm that: a) The demonstration of additionality is not applicable for the design renew. b) Prior consideration is confirmed as not applicable for the design renew. c) Ongoing financial need is assessed that prove the finance derived GS certification is material to the ongoing sustainability of the project. d) As per the detailed assessment, the additionality of the project activity is justified sufficiently. Based on this validation steps it can be confirmed that the documentation assessed is appropriate to prove that the project activity is additional.

D.4.6. Estimation of SDG impacts

Means of validation	PD has selected three SDGs and targets, the demonstration is provided as below,		
	SDGs	Targets & Indicator	Validation Opinion
	SDG 7 Affordable and Clean Energy	Target: 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services Indicator: 7.1.1 Proportion of population with access to electricity	Via on-site inspection and checking the PDD/1/, previous verification reports/6/ and Solar cookers usage agreements/12/, CTI confirmed that the project activity provides solar cookers for cooking to HHs, which takes place at end users' kitchens and reduce coal fuel consumption. The project enable access to clean renewable and sustainable energy. Hence validation team confirms the project contribution to SDG 7.
	SDG 8 Decent Work and Economic Growth	Target: 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with	Via checking the previous verification reports/6/, CTI verified that project has provided paid work to local residents to both male and female which has also been confirmed during on-site interview with employees.

		disabilities, and equal pay for work of equal value Indicator: 8.5.1 Average hourly earnings of employees, by sex, age, occupation and persons with disabilities	Thus the project will achieve full and productive employment and decent work for all. Hence validation team confirms the project's contribution to SDG 8.						
	SDG 13 Climate Action	Target: 13.2 Integrate climate change measures into national policies, strategies and planning Indicator: 13.2.1 Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change.	The project reduces GHG emissions due to provided solar cookers for cooking to households, which takes place at end users' kitchens and contributes to the reduction of GHG emission by replacing coal fire stoves. Hence, the project reduces GHG emission compare to baseline condition thus to combat climate change. Hence validation team confirms the project's contribution to SDG 13.						
The validation of selected methodology(ies) or proposed approach for calculating baseline and project outcomes is tabulated as below:									
<table><tr><th>SDGs</th><th>Approaches</th><th>Validation Opinion</th></tr><tr><td>SDG 7 Affordable and Clean Energy</td><td>Target: 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services Indicator: 7.1.1 Proportion of population with access to electricity Monitoring Parameter: Usage rate of solar cookers and the number of solar cookers involved in this project Monitoring Method: User information registration form and the share of units in normal use which can be obtained in Usage Rate Survey Purpose: Aimed at gathering and analyzing the scale of households accessed to affordable and clean energy. Calculation Method: 48,000 times share of units in normal use monitored in Usage Rate Survey Baseline outcomes: 0 units Project outcomes: 48,000 households times the share of units in normal use. For ex ante, the number of households that were provided access to clean energy for domestic cooking is 48,000 household*90%=43,200 household.</td><td>SDG 7 outcome will be monitored through the parameter Usage rate of solar cookers and the number of solar cookers involved in this project by checking User information registration form/11/ and usage rate survey. By gathering and analyzing Solar Cooker end users' data and share of units in normal use monitored in Usage Rate Survey, the number of people reached by the project activity who have access to affordable and clean energy will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.</td></tr></table>				SDGs	Approaches	Validation Opinion	SDG 7 Affordable and Clean Energy	Target: 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services Indicator: 7.1.1 Proportion of population with access to electricity Monitoring Parameter: Usage rate of solar cookers and the number of solar cookers involved in this project Monitoring Method: User information registration form and the share of units in normal use which can be obtained in Usage Rate Survey Purpose: Aimed at gathering and analyzing the scale of households accessed to affordable and clean energy. Calculation Method: 48,000 times share of units in normal use monitored in Usage Rate Survey Baseline outcomes: 0 units Project outcomes: 48,000 households times the share of units in normal use. For ex ante, the number of households that were provided access to clean energy for domestic cooking is 48,000 household*90%=43,200 household.	SDG 7 outcome will be monitored through the parameter Usage rate of solar cookers and the number of solar cookers involved in this project by checking User information registration form/11/ and usage rate survey. By gathering and analyzing Solar Cooker end users' data and share of units in normal use monitored in Usage Rate Survey, the number of people reached by the project activity who have access to affordable and clean energy will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.
SDGs	Approaches	Validation Opinion							
SDG 7 Affordable and Clean Energy	Target: 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services Indicator: 7.1.1 Proportion of population with access to electricity Monitoring Parameter: Usage rate of solar cookers and the number of solar cookers involved in this project Monitoring Method: User information registration form and the share of units in normal use which can be obtained in Usage Rate Survey Purpose: Aimed at gathering and analyzing the scale of households accessed to affordable and clean energy. Calculation Method: 48,000 times share of units in normal use monitored in Usage Rate Survey Baseline outcomes: 0 units Project outcomes: 48,000 households times the share of units in normal use. For ex ante, the number of households that were provided access to clean energy for domestic cooking is 48,000 household*90%=43,200 household.	SDG 7 outcome will be monitored through the parameter Usage rate of solar cookers and the number of solar cookers involved in this project by checking User information registration form/11/ and usage rate survey. By gathering and analyzing Solar Cooker end users' data and share of units in normal use monitored in Usage Rate Survey, the number of people reached by the project activity who have access to affordable and clean energy will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.							

	SDG 8 Decent Work and Economic Growth	Target: 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value Indicator: 8.5.1 Average hourly earnings of employees, by sex, age, occupation and persons with disabilities Monitoring Parameter: total number of jobs. Monitoring Method: Fixed contracts with the employees and the payroll records. Purpose: To record the number of employees that have been employed by the project for project monitoring. Calculation Method: N/A Baseline outcomes: 0 full-time job created. Project outcomes: 30 full-time jobs (16 females and 14 males) credited.	SDG 8 outcome will be monitored through the parameter total number of jobs by checking the labour contracts/15/ signed with employees and the payroll records/16/. By checking labour contracts signed with employees/15/ and the payroll records/16/ through the project activity, the number of people participating in the project will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes.
	SDG 13 Climate Action	Target: 13.2 Integrate climate change measures into national policies, strategies and planning Indicator: 13.2.1 Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change Monitoring Parameter: Amount of GHG emissions avoided or sequestered. Monitoring Method: Ongoing data collection and storage for ER calculation; and sampling monitoring surveys, the amount of GHG emissions avoided or sequestered can be obtained by $BE_y - PE_y - LE_y$, the BE_y, PE_y and LE_y can be calculated using applied methodology. Purpose: To measure emission reductions generated from the replacement of coal-fired stoves with solar cookers. Applied Methodologies: AMS-I.C. Thermal energy production with or without electricity (Version 22.0) Baseline impact: 0 tCO₂/year Project impact: 81,184 tCO₂/year. Annual emission	SDG 13 outcome will be monitored through calculation of GHG Emission Reductions by ongoing data collection and storage for ER calculation; and sampling monitoring surveys. By measuring emission reductions generated from replacement of coal-fired stoves with solar cookers, the outcomes of project combat climate change will be determined. Thus validation team confirms selected approach is applicable to calculating the project outcomes. The methodological choices/approaches to estimate the GHG Emission Reduction Values will be assessed in below.

	reductions generated in the project.	
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Specific calculation for outcome of SDG 13:

The applied methodology AMS-I.C Version 22.0/23/ defines the methodological steps to determine the baseline emissions, project emissions and leakages and emission reductions by the project activity.

Baseline Emissions

For steam/heat produced using fossil fuels, the baseline emissions are calculated as follows:

$$BE_{thermal,CO_2,y} = (EG_{thermal,y}/\eta_{BL, thermal}) * EF_{FF,CO_2}$$

Where:

- $BE_{thermal,CO_2,y}$ Baseline emissions from thermal energy displaced by the project activity during year y in tCO₂e.
- $EG_{thermal,y}$ the net quantity of heat supplied by the project activity during the year y in TJ.
- EF_{FF,CO_2} The CO₂ emission factor of coal (tCO₂e/ TJ). IPCC default emission factor of 87.3 tCO₂e/TJ will be adopted in the proposed project.
- $\eta_{BL,thermal}$ The efficiency of the coal-fired stove that would have been used in the absence of project activity. The value adopted is 15%.

The annual net quantity of heat supplied by the project, $EG_{thermal,y}$, is the sum of 12 monthly net heat supplied, and consequently the annual baseline emission of the project, $BE_{thermal,CO_2,y}$, is the sum of 12 monthly baseline emission.

$$EG_{thermal,y} = \sum_{i=1}^{12} EG_{thermal,i}$$

$$BE_{thermal,CO_2,y} = \sum_{i=1}^{12} BE_{thermal,CO_2,i}$$

$$BE_{thermal,CO_2,i} = \left(\frac{EG_{thermal,i}}{\eta_{BL,thermal}} \right) * EF_{FF,CO_2}$$

Where

- $EG_{thermal,i}$ the net heat supplied in month i in TJ.
- $BE_{thermal,CO_2,i}$ the baseline emission in month i in tCO₂e

According to basic physics principle,

Heat = Power*Time

The monthly net heat supplied by the cooker is the product of its actual power in that month and its usage time in that month, i.e.:

$$EG_{thermal,i} = n * U_{p,y} * \sum_{i=1}^{12} P_i * t_i * 3.6 * 10^{-9}$$

Where:

- n The total number of solar cookers installed by the proposed project. The value adopted is 48,000.
- $U_{p,y}$ Usage rate of solar cookers engaged in the proposed project
- P_i the actual average power of the solar cooker in month i in W
- t_i The usage time of the solar cooker in month i in hours.

3.6×10^{-9} the conversion factor between “ $W_{th} \cdot h$ ” and “TJ”, i.e., $1 W_{th} \cdot h = 3.6 \times 10^{-9} TJ$

Hence, based on above,

$$BE_{thermal,CO_2,i} = n \cdot U_{p,y} \cdot P_i \cdot t_i \cdot (3.6 \times 10^{-9}) \cdot EF_{FF,CO_2} / \eta_{BL,thermal}$$

The actual power of the solar cooker P_i is proportional to the solar irradiance intensity under which the cooker is operated.

$$P_i = P_{solar\ cooker} \cdot (R_i / R)$$

$$P_{solar\ cooker} = R \cdot A \cdot \eta$$

Where:

$P_{solar\ cooker}$ The calculated maximum power of single solar cooker, W_{th} .

R_i The actual solar irradiance intensity in month i in W_{th}/m^2 .

R Standard solar irradiance intensity used to calculate rated power of solar cooker, W_{th}/m^2 . According to National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/, the value adopted is $700 W_{th}/m^2$.

A Solar cooker's light-collecting area (m^2). According to National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/, the value adopted is $1.7 m^2$

η Solar cooker's thermal efficiency, %. According to National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/, the value adopted is 65%.

Based on above,

$$BE_{thermal,CO_2,y} = n \cdot U_{p,y} \cdot \sum_{i=1}^{12} \left[773.5 \cdot \left(\frac{R_i}{700} \right) \cdot t_i \cdot 3.6 \cdot 10^{-9} \right] \cdot EF_{FF,CO_2} / \eta_{BL,thermal}$$

Where:

R_i The actual solar irradiance intensity in month i in W_{th}/m^2 .

t_i The usage time of the solar cooker in month i in hours.

n The total number of solar cookers installed by the proposed project. The value adopted is 48,000

773.5 $P_{solar\ cooker}$ Calculated maximum power of single solar cooker, W_{th} .

700 R , Standard solar irradiance intensity used to calculate rated power of solar cooker, W_{th}/m^2 .

$U_{p,y}$ Usage Rate of the solar cookers engaged in the proposed project in year y .

EF_{FF,CO_2} The CO_2 emission factor of coal (tCO_2e/TJ). IPCC default emission factor of $87.3 tCO_2e/TJ$ will be adopted in the proposed project.

$\eta_{BL,thermal}$ The efficiency of the coal-fired stove that would have been used in the absence of project activity. The value adopted is 15%.

Project Emissions

The implementation of the proposed project will not produce any GHG emission as per the applied methodology, i.e. $PE_y = 0$.

Leakage

The solar cookers to be used in the proposed project are purchased the solar cookers from manufacturer and distributed them to households by free which has been verified by checking the solar cooker sales contract/8/. Via checking the previous validation report/5/ and interview with PD, they make sure that only the households that do not have solar cooker have been distributed with new solar cookers, and if the recipient no longer wants to use the cooker, project owner will give to other households who do not have a cooker with returned one.

Also, PD ensures that they will never transfer the solar cookers out of the proposed project activity during the entire project life.

Thus, it is not necessary to consider the leakage in the proposed project as per the applied methodology, i.e. $LE_y = 0$

Emission Reduction

The emission reduction ER_y during a given year y is calculated as follow:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y the emission reductions produced by the proposed project during the year y in tCO₂e.

BE_y the baseline emissions from heat displaced by the project activity during the year y in tCO₂e.

PE_y the emissions produced by the proposed project during the year y in tCO₂e.

LE_y the leakage produced by the proposed project during the year y in tCO₂e.

Demonstration of Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs is tabulated as below:

Ex Ante Data and Parameters

Parameters	Value	Reference	Assessment by VT
R – SDG 13 Standard solar irradiance intensity used to calculate rated power of the solar cooker	700 W _{th} /m ²	Derived from National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)	Confirmed as reasonable for ex ante determination, data source from national standard (GB NY/T219-2003)/21/ is verified.
A – SDG 13 Solar cooker's light-collecting area	1.7m ²	Derived from test report of the solar cooker and National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)	Confirmed as correct for ex ante determination, the data source of technical specification of the solar cooker listed in the Solar cooker test report/10/ and National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/ are verified.
η – SDG 13 Solar cooker's thermal efficiency	65%	Derived from Solar cooker test report issued by Nanyang Quality and Technical Supervision, Inspection and Testing Center and cross check with the National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003) request the solar cooker's thermal efficiency should be no less than 65%	Confirmed as correct for ex ante determination, data source of Solar cooker test report/10/ is verified and National Standard of the People's Republic of China for solar cookers (GB NY/T219-2003)/21/ is cross-checked.

	$\eta_{BL,thermal}$ – SDG 13 Thermal efficiency for the traditional coal furnace	15%	Derived from Test report released by Nanyang Quality Technology Superintend Inspection Testing Center according to the GB/T 6412-2009 Test Method for Household Coal and Stoves/22/, and cross-checked with “Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations”, UNDP, 2002/45/	Confirmed as correct for ex ante determination, data source of Test report released by Nanyang Quality Technology Superintend Inspection Testing Center/10/ is verified and “Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations”, UNDP, 2002/45/ is cross-checked. Through checking the “Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations”, UNDP, 2002/45/, CTI confirmed that the common stoves throughout rural areas transfer only 5-15 percent of the fuel's energy into the cooking pot. Based on above assessment, 15% is confirmed as the conservative value.
	$EF_{FF,CO2}$ – SDG 13 Baseline emission factor of Coal	87.3 tCO ₂ /TJ	Fuel type of Coal is determined in baseline scenario. Emission Factor is derived from IPCC 2006, page 2.22, Table 2.5. Due to the local data for coal is not available, IPCC minimum default value for all types of coals is used as per the paragraph 34 of AMS-I.C. (version 22.0).	Confirmed as correct for ex ante determination. The fuel type is verified as only coal which has been assessed in the previous validation process. The emission factor of coal is confirmed as correct via checking the IPCC value/34/ against the applied methodology/23/. Furthermore, via checking the “2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories”, it is confirmed that the emission factor of coal is not updated, so the

				parameter is still sourced from IPCC 2006 which is verified as reasonable.											
	n- SDG 13 and SDG 7 Number of solar cookers distributed in the project	48,000	User information registration form	The number of solar cookers engaged in the proposed project is fixed ex ante through checking the User information registration form/11/ and the Solar cookers usage agreements/12/. CTI confirmed that the project only involved in 48,000 solar cookers and no more accumulation with the project implementation. For the usage of the solar cookers, the usage rate $U_{P,y}$ will be monitored as per the GS guideline.											
	Demonstration of Ex ante estimation of impacts linked to each of the three SDGs is tabulated as below:														
	<table><tr><th>SDGs</th><th>Ex ante estimation of impacts</th><th>VVB Assessment</th></tr><tr><td>SDG 7 Affordable and Clean Energy</td><td>Baseline outcomes: 0 units Project outcomes: 43,200 units The estimation is based on Solar cookers User information registration form and the share of units in normal use which can be obtained in usage rate survey (90% for ex ante). The ex-ante estimating net benefit: Number of beneficiaries: 43,200 Households</td><td>Baseline outcome confirmed as 0 due to no solar cookers distributed in the baseline scenario; Project outcome confirmed as 43,200 which is verified by checking the User information registration form/11/ and the ex-ante estimation of usage rate of 90% which is verified as reasonable based on the previous verification reports/6/.</td></tr><tr><td>SDG 8 Decent Work and Economic Growth</td><td>Baseline outcomes: 0 Project outcomes: 30 full-time jobs created (16 females and 14 males) The estimation is based on the number of employees that have signed the labour contracts and the payroll record. The ex-ante estimating net benefit: 30 full-time jobs created (16 females and 14 males)</td><td>Baseline outcome confirmed as 0 due to no employment created without project; Project outcome confirmed as 30 full-time jobs created (16 females and 14 males) which is verified by checking labor contracts/15/ and payroll/16/ and interview with PP and staffs.</td></tr><tr><td>SDG 13 Climate Action</td><td>Baseline outcomes: 0 tCO₂e Project outcomes: 81,184 tCO₂e GHG emissions avoided or sequestered The estimation is as below.</td><td>Baseline outcome confirmed as 0 tCO₂ due to no GHG emissions avoided or sequestered without project; Project outcome confirmed as 81,184 tCO₂ emission</td></tr></table>				SDGs	Ex ante estimation of impacts	VVB Assessment	SDG 7 Affordable and Clean Energy	Baseline outcomes: 0 units Project outcomes: 43,200 units The estimation is based on Solar cookers User information registration form and the share of units in normal use which can be obtained in usage rate survey (90% for ex ante). The ex-ante estimating net benefit: Number of beneficiaries: 43,200 Households	Baseline outcome confirmed as 0 due to no solar cookers distributed in the baseline scenario; Project outcome confirmed as 43,200 which is verified by checking the User information registration form/11/ and the ex-ante estimation of usage rate of 90% which is verified as reasonable based on the previous verification reports/6/.	SDG 8 Decent Work and Economic Growth	Baseline outcomes: 0 Project outcomes: 30 full-time jobs created (16 females and 14 males) The estimation is based on the number of employees that have signed the labour contracts and the payroll record. The ex-ante estimating net benefit: 30 full-time jobs created (16 females and 14 males)	Baseline outcome confirmed as 0 due to no employment created without project; Project outcome confirmed as 30 full-time jobs created (16 females and 14 males) which is verified by checking labor contracts/15/ and payroll/16/ and interview with PP and staffs.	SDG 13 Climate Action	Baseline outcomes: 0 tCO ₂ e Project outcomes: 81,184 tCO ₂ e GHG emissions avoided or sequestered The estimation is as below.
SDGs	Ex ante estimation of impacts	VVB Assessment													
SDG 7 Affordable and Clean Energy	Baseline outcomes: 0 units Project outcomes: 43,200 units The estimation is based on Solar cookers User information registration form and the share of units in normal use which can be obtained in usage rate survey (90% for ex ante). The ex-ante estimating net benefit: Number of beneficiaries: 43,200 Households	Baseline outcome confirmed as 0 due to no solar cookers distributed in the baseline scenario; Project outcome confirmed as 43,200 which is verified by checking the User information registration form/11/ and the ex-ante estimation of usage rate of 90% which is verified as reasonable based on the previous verification reports/6/.													
SDG 8 Decent Work and Economic Growth	Baseline outcomes: 0 Project outcomes: 30 full-time jobs created (16 females and 14 males) The estimation is based on the number of employees that have signed the labour contracts and the payroll record. The ex-ante estimating net benefit: 30 full-time jobs created (16 females and 14 males)	Baseline outcome confirmed as 0 due to no employment created without project; Project outcome confirmed as 30 full-time jobs created (16 females and 14 males) which is verified by checking labor contracts/15/ and payroll/16/ and interview with PP and staffs.													
SDG 13 Climate Action	Baseline outcomes: 0 tCO ₂ e Project outcomes: 81,184 tCO ₂ e GHG emissions avoided or sequestered The estimation is as below.	Baseline outcome confirmed as 0 tCO ₂ due to no GHG emissions avoided or sequestered without project; Project outcome confirmed as 81,184 tCO ₂ emission													

			reductions by checking the ER sheet/2/;																
	As above Emission Reduction calculation equations, $ER_y = BE_y - PE_y - LE_y$ $= BE_y = n * U_{p,y} * \sum_{i=1}^{12} \left[773.5 * \left(\frac{R_i}{700} \right) * t_i * 3.6 * 10^{-9} \right] * EF_{FF,CO_2} / \eta_{BL,thermal}$																		
	Based on the above assessment of the ex ante determined values, it is verified that the annual ex ante determined ERs calculated result is 81,184 tCO₂/y.																		
	The detail of emission reduction calculation is transparently discussed in the PDD/1/. The assessment team has checked the PDD and ER sheet/2/ for the detail calculation of all the particulars and found it to be correct.																		
	Demonstration of Summary of annual average ex ante estimates of each SDG impact over the crediting period is tabulated as below:																		
	<table><tr><th>SDG</th><th>Baseline estimate</th><th>Project estimate</th><th>Net Impact</th></tr><tr><td>7</td><td>0</td><td>Number of beneficiaries: 43,200 Households</td><td>Number of beneficiaries: 43,200 Households</td></tr><tr><td>8</td><td>0</td><td>30 full-time jobs created (16 females and 14 males).</td><td>30 full-time jobs created (16 females and 14 males).</td></tr><tr><td>13</td><td>0 tCO₂e GHG emissions avoided or sequestered</td><td>81,184 tCO₂e/yr GHG emissions avoided or sequestered</td><td>81,184 tCO₂e/yr GHG emissions avoided or sequestered</td></tr></table>	SDG	Baseline estimate	Project estimate	Net Impact	7	0	Number of beneficiaries: 43,200 Households	Number of beneficiaries: 43,200 Households	8	0	30 full-time jobs created (16 females and 14 males).	30 full-time jobs created (16 females and 14 males).	13	0 tCO ₂ e GHG emissions avoided or sequestered	81,184 tCO ₂ e/yr GHG emissions avoided or sequestered	81,184 tCO ₂ e/yr GHG emissions avoided or sequestered		
SDG	Baseline estimate	Project estimate	Net Impact																
7	0	Number of beneficiaries: 43,200 Households	Number of beneficiaries: 43,200 Households																
8	0	30 full-time jobs created (16 females and 14 males).	30 full-time jobs created (16 females and 14 males).																
13	0 tCO ₂ e GHG emissions avoided or sequestered	81,184 tCO ₂ e/yr GHG emissions avoided or sequestered	81,184 tCO ₂ e/yr GHG emissions avoided or sequestered																
Findings	CAR 03 and CL 03 were raised and resolved. Refer to Appendix 4 in this report for detail assessment.																		
Conclusion	The validation team has cross checked the parameters and values related to the emission reduction and confirmed that justification of the mentioned values is correct.																		

D.4.7. Monitoring plan

Means of validation	The monitoring plan in the PDD/1/ is correctly applied to the project activity. The monitoring plan has been found to be in compliance with the requirements of the applied methodology/23/. The monitored data and parameters are assessed as below table by validation team, Data and parameters to be monitored: <table border="1"> <thead> <tr> <th>Relevant SDG</th><th>Parameter</th><th>Monitoring frequency</th><th>Assessment</th></tr> </thead> <tbody> <tr> <td>13</td><td>t_i - The monthly operating time of each solar cooker</td><td>Once per year</td><td> The value used is 120 hours for ex-ante determination as per the previous experience of the verifications/6/. It will be monitored through the sampling survey by conducting daily measurement on the selected 313 sample users determined once per year. For each of the 313 sample users, measure and record their daily usage time, then sum up all the daily usage time in a month to get the monthly usage time of each user; Sum up the monthly usage time of all the 313 users to get </td></tr> </tbody> </table>			Relevant SDG	Parameter	Monitoring frequency	Assessment	13	t _i - The monthly operating time of each solar cooker	Once per year	The value used is 120 hours for ex-ante determination as per the previous experience of the verifications/6/. It will be monitored through the sampling survey by conducting daily measurement on the selected 313 sample users determined once per year. For each of the 313 sample users, measure and record their daily usage time, then sum up all the daily usage time in a month to get the monthly usage time of each user; Sum up the monthly usage time of all the 313 users to get
Relevant SDG	Parameter	Monitoring frequency	Assessment								
13	t _i - The monthly operating time of each solar cooker	Once per year	The value used is 120 hours for ex-ante determination as per the previous experience of the verifications/6/. It will be monitored through the sampling survey by conducting daily measurement on the selected 313 sample users determined once per year. For each of the 313 sample users, measure and record their daily usage time, then sum up all the daily usage time in a month to get the monthly usage time of each user; Sum up the monthly usage time of all the 313 users to get								

				the total monthly usage time for the 313 users. Divide the number obtained in ii) by 313 to get the average monthly usage time per user. The monitoring forms will be filled out daily to record the daily usage data of these sample users measured by clock, watch or cell phone. For the calibration of the devices, only if the clock and the device that does not automatically update the time online are used for time recording, the time calibration need to be carried out weekly according to the device that automatically updates the time online. The monitoring team members were well trained by how to measure the time of using by clock and watch before filling the forms. During the monitoring process, the monitoring personnel will be required to strictly abide by the above conservative principle in data recording, i.e., use zero values for all the missing or damaged data.
	13	R_i - Monthly solar irradiance intensity in project region	Once per year	The values used for ex-ante determination listed in the PDD as per the 2005-2011 Statistical data of Nanyang Meteorological Bureau /14/. The average of monthly R_i data from 2005-2011 was used. Due to the crediting period is the second crediting period started from 2017, but actually, the project has achieved GS CER issuance for the period of 2017-2020, and for the GS CER of 2017-2020, the ex-estimated emission reductions used in comparison with the actual achieved issuance from 2017-2020 were calculated using the average monthly R_i from 2005-2011, so this data source is verified as appropriate for the ex ante determination for the 2nd crediting period.

				Monthly solar irradiance intensity in the project region will be monitored once per year and the data will be derived from the yearly Statistical data of Nanyang Meteorological Bureau. The official source meteorological data is verified as reasonable and applicable to the project monitoring.
	7, 13	$U_{p,y}$ - Usage rate of solar cookers engaged in the proposed project	Annually	Usage rate will be determined by Usage survey and the ex-ante value is estimated as 90% as per the previous experience of the verifications/6/. Usage Survey (US) will follow the "Requirements and Guidelines: Usage Rate Monitoring (Version 2.0)"/33/ as per the GS requirement for solar cookers type. Usage rate will be monitored in line with the A. Mandatory Monitoring Requirements and B. Good Practice Monitoring Requirements. Solar cooker usage will be monitored in randomly selected representative sample of households in a minimum of 100 households for at least 90 days.
	7	Number of beneficiaries: Households	Annually	The value used is 43,200 for ex-ante determination as per the Solar Cooker end users' data times share of units in normal use monitored in Usage Rate Survey which is equal to $n \cdot U_{p,y}$. It will be monitored annually through the Solar Cooker end users' data which is 48,000 times actual share of units in normal use monitored in Usage Rate Survey.
	8	Total number of jobs	Once per year	The value used is 30 full-time jobs created (16 females and 14 males) for ex-ante determination as per the labor contracts/15/ and interview with staffs. It will be monitored once per year through the parameter total number of jobs by checking the labor contracts/15/ and cross-checked with payroll/16/.
The assessment team has confirmed that the monitoring parameters are sufficient to calculate each SDG impacts especially the emission reductions/2/ in accordance with				

the methodology/23/. The parameters will be calculated or measured as mentioned above in section D.4.8.

Sampling Plan

Sampling plan was provided by PP and has demonstrated in the PDD. The following will be monitored by sampling method.

i. Usage Survey (US) for $U_{p,y}$

Due to the project only including the 48,000 solar cookers and distributed in the same year, no more new solar cookers accumulated along the implementation, so there is no age difference for the solar cookers. Prior to a verification, representative of project solar cookers being credited would be randomly selected from the end-user databases, and the minimum total sample size is 100. The survey would be completed annually, and on time for any request of issuance. "Requirements and Guidelines: Usage rate monitoring"/33/ will be followed when conducted the usage survey, the usage survey will be conducted in 100 sample household for at least 90 days, with at least 30 samples for project technologies of each age being credited, and Level B. Good Practice Monitoring Requirements will be used for the project, including Defining stove use and non-use, Household Usage Survey, Verification checks, Field team training and supervision, End-User Training and follow up visits, Awareness campaign.

ii. Sampling survey for t_i

The project activity applies stratified sampling method and simple random sampling for monitoring the monthly operating time of each solar cooker, t_i , and the sample size is 313. A sample size calculation sheet/13/ has been provided by PP, and via checking the sheet comparing with the calculation process in the PDD, CTI confirmed that the sample size is correct which has been verified according to "Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities"(version 04.0)/24/. The sample size of each township was decided on the method of proportional distribution and the sample selection will be conducted at the beginning of each year during the crediting period, and for each monitoring period the total sample size of 313 is fixed while the sample households will be changed and selected randomly.

The sampling plan is confirmed as in line with the GS requirement, CDM sampling standard and guideline and applied methodology.

Sampling Method and selection:

The PD will apply Stratified Sampling Method and Simple Random Sampling for both $U_{p,y}$ and t_i all over the population (48,000 household with solar cookers). The samples will be chosen randomly by online number generator.

Sample Size for Parameter of Interest:

The sample size is chosen using the equation inline to CDM guidelines for Sampling and surveys for CDM project activities and programmes of activities/24/ for t_i and Requirements and Guidelines: Usage rate monitoring"/33/ for $U_{p,y}$.

In this regard, sample size calculation as stated in the PDD was checked and found correct. The complete details are given in PDD.

Implementation of Sampling Survey:

The monitoring team will be trained by PP for conducting the sampling survey and test.

The monitoring survey for $U_{p,y}$ will be carried out through 90 days monitoring activity of the 100 samples. All of the 100 samples will be changed at the beginning of each year during the credit periods.

The monitoring survey for t_i (field survey / tests) will be carried out by GS Monitoring Team through sampling investigation strictly follow the guidance and the sampling work will be conducted by the Data Survey Group. A total of 313 sample users will be selected among the seven townships. The sample size of each stratum was

	determined proportionately on the basis of the number of solar cookers distributed. The simple random sampling method will be taken in each stratum using online number generator. All of the 313 samples will be changed at the beginning of every year. QA/QC If the data reported by the team member significantly deviates from the normal range, the monitoring personnel should write down the reasons and report to the team leader, any action is forbidden before the permission. If any irrational data occurs, all the forms of this day will be found out to get at the root of the problem and replaced by the minimum value of the present day. Also, the data analysis function of Excel will be utilized to ensure the data and information is sufficiently accurate and reliable. Other elements of monitoring plan The project owner will take the overall monitoring responsibility in the whole monitoring process which has been confirmed during the interview with the project owner. Also the project owner will establish GS Monitoring Team for the villages to be monitored within the project boundary to collect and record monitoring data which has been confirmed by interview with the monitoring team members. The roles and responsibilities of the project owner and monitoring team has been defined in the monitoring plan and verified as reasonable and achievable. The procedure for Avoiding Double Counting is also confirmed as correct and the serial number of solar cookers have been verified during site visit and confirmed as consistent with the User information registration form/11/ and the Solar cookers usage agreements/12/, project users' information is also verified during site visit and confirmed as consistent with the User information registration form/11/ and the Solar cookers usage agreements/12/. It is concluded that the PP has taken method to avoid the double counting to ensure the ER calculation is conservative. Data monitoring will be conducted based on the applied methodology requirement and GS requirements, and all the data will be placed on file for at least two years after the end of crediting period. All necessary descriptions have been appropriately reflected in the PDD, the monitoring plan in the PDD is in compliance with the applied methodology and GS requirement for the usage rate, and the monitoring arrangements described in the PDD can be implemented and are feasible within the project design. Therefore, it is concluded that the PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.
Findings	CAR 04 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The validation team confirms: • The parameters which are part of monitoring plan is in line with the PDD • The monitoring arrangements described in the monitoring plan of the PDD /1/ are feasible within the project design. • The PD will be able to implement the monitoring plan.

D.5. Start date, crediting period type and duration

Means of validation	The start date of the project is 13/12/2010 which is the date of implementation of the first solar cooker under the project and it has been defined as verified in the previous crediting period. Via checking the UNFCCC website and GS link for this project, it is confirmed that the project was registered separately under CDM on 02/05/2012 (with a fixed crediting period of 10 years ending by 01/05/2022), under GS old version on 13/08/2013 and then transitioned to GS4GG in 09/2019. Up to 31/12/2020, the project had been seeking CERs issuance as well as GS-CER labeling from the start of the crediting period until 31/12/2020. According to the "GHG Emissions Reduction & Sequestration Product Requirements (version 2.2)", the project is allowed to seek labelling of issued CERs up to their maximum CDM crediting period, i.e., 10 or 21 as per Section 3.0 of Transition requirements, as a CDM project it is hence not
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	necessary to renew the fixed 10 years of crediting period. And the project has been transitioned from GS-CDM to GS-VER project in order to issue instead GS-VERs for the remaining crediting period from 01/01/2021 through 01/05/2022 and the relevant transition documents were submitted to SustainCert on 11/04/2022 before the transition was approved on 04/09/2023. Furthermore, as per Para.6.5.1 of “GHG Emissions Reduction & Sequestration Product Requirements (version 2.2)”, the transition project, PoA/CPAs shall follow GS4GG certification cycle for crediting period renewal (e.g., 5 years) in order to issue or convert issued emission reductions to GSVERs under GS4GG. Now that the project has completed GS-VER transition, it shall follow GS4GG certification cycle for crediting period renewal. As per Para. 4.1.7 of “Community Services Activity Requirements (Version 1.2)”, Design Certification Renewal in the case of CSA projects is mandatory every 5 years as per the Principles & Requirements. As the project meets the General Eligibility Criteria set out in the “Community Services Activity Requirements (Version 1.2)”, the design certification renewal is thus mandatory every 5 years. Then due to the project crediting period start date is 02/05/2012 and the emission reductions achieved as of 31/12/2020 have already been issued. Therefore, if the GS VERs achieved from 01/01/2021-01/05/2022 seek to apply for issuance, it will be essential for the crediting period of 02/05/2017-01/05/2022 to be renewed. The operational lifetime of the project is 10 years. The lifetime of the project is checked from the operational lifetime of solar cookers in the solar cooker test report/10/ and has been verified in the previous crediting period.
Findings	N/A
Conclusion	The project start date as stated in PDD/1/ has been validated as per the definition of start date given in the GS4GG Principles and Requirements/27/. - The 2nd crediting period from 02/05/2017 to 01/05/2022 is correctly defined as per GHG Emissions Reduction & Sequestration Product Requirements (version 2.2)/31/ and Community Services Activity Requirements (Version 1.2)/29/. - The expected lifetime of the project indicated in the PDD is correct.

D.6. Safeguarding principles and Gender Sensitive assessment

Means of validation	The validation team has also checked mitigation measure with respect to the nine Safeguarding Principles. The validation opinion is detailed below table D.6-1, <i>Assessment that project complies with ‘gender sensitive’ requirements</i> The justifications provided for the project complies with ‘gender sensitive’ requirements are assessed as per four mandatory questions included under Step 1 to 3 in “Gold Standard Gender Equality Guidelines and Requirements” in below table, <table border="1"> <thead> <tr> <th>Questions</th><th>Justification</th></tr> </thead> <tbody> <tr> <td>Question 1: Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?</td><td> The project being an End-Use energy saving project providing rural households with clean cooking solutions is not a gender sensitive project. Furthermore, since the project provides the solar cookers to HH for cooking, thus it mainly reduce fuel use, harmful smoke and air pollution to women who mainly work in the kitchen in China rural area. This is verified by on-site observation and interview with the end users. In addition, via checking the labor contracts/15/, it is verified that the project has employed women in the implementation of the project. </td></tr> </tbody> </table>	Questions	Justification	Question 1: Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The project being an End-Use energy saving project providing rural households with clean cooking solutions is not a gender sensitive project. Furthermore, since the project provides the solar cookers to HH for cooking, thus it mainly reduce fuel use, harmful smoke and air pollution to women who mainly work in the kitchen in China rural area. This is verified by on-site observation and interview with the end users. In addition, via checking the labor contracts/15/, it is verified that the project has employed women in the implementation of the project.
Questions	Justification				
Question 1: Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The project being an End-Use energy saving project providing rural households with clean cooking solutions is not a gender sensitive project. Furthermore, since the project provides the solar cookers to HH for cooking, thus it mainly reduce fuel use, harmful smoke and air pollution to women who mainly work in the kitchen in China rural area. This is verified by on-site observation and interview with the end users. In addition, via checking the labor contracts/15/, it is verified that the project has employed women in the implementation of the project.				

	Question 2: Explain how the project aligns with existing country policies, strategies and best practices	The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. Via comparing the labor contracts/15/ with the Labor Law of the People's Republic of China/42/, it is verified that the project respects all the rights to the women. Besides, the project has been implemented in the households where the women are the primary beneficiary as stated above. This is also verified by on-site observation and interview with the woman staffs and end users.
	Question 3: Is an Expert required for the Gender Safeguarding Principles & Requirements?	Via checking the PDD, CTI confirmed that the project is an End-Use energy saving project providing rural households with clean cooking solutions is not a gender sensitive project. Oppositely, the project gives women more access to or control resources, the project benefits to the women who stay in kitchen all year round especially. Via checking the labor contracts/15/ and payroll/16/, it is verified that project did not set up any barriers to the employment of women and has generated income and jobs opportunities for women. Besides, via checking the labor contracts/15/, CTI confirmed that all employees have benefits based on pregnancy, maternity/paternity leave, or marital status according to the Labor Law of the People's Republic of China/42/. Thus no gender experts will be required for the Gender Safeguarding Principles & Requirements.
	Question 4: Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	Via checking the PDD, CTI confirmed that the project is an End-Use energy saving project providing rural households with clean cooking solutions is not a gender sensitive project, thus no experts are required to assist with Gender issues at the Stakeholder Consultation. Furthermore, PP has invited at least 50% of women to attend LSC meetings or participate in the stakeholder feedback which has been stated in the TRF/4/.
Findings	N/A	
Conclusion	The Safeguarding principles assessment is carried out according to the relevance to the project activity. Project developers discuss any possibilities in Safeguarding Principles of the GS4GG. The validation team considers the Safeguarding principles assessment has been based on the accurate local situation and the corresponding information has been included in the PDD. It is analyzed in the PDD that it would create no risks of	

relevance to the project activity in all aspects of Safeguarding principles assessment. The validation team also considers that no mitigation measures are required for the project activity.

Table D.6-1 Safeguarding Principles Assessment

No	Safeguarding principles	Assessment of relevance to the project	Would the project potentially involve or lead to	Potentially involve?	Mitigation measure	Validation Opinion
P.1	Human Rights					
	P.1.1.1 Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights? Is the project involved or complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights? P.1.1.2 Have local communities or individuals raised human rights concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)? P.1.1.3 Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights? Does this project undermine national or regional measures for the realisation of the right to development?	No	P.1.1.1 adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalised groups? P.1.1.2 inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups, including persons with disabilities? P.1.1.3 restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalised individuals or groups, including persons with disabilities P.1.1.3 exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	No	Not required	After China's reform and opening up in 1992, China formally established modern social development, basic human rights protection system and social insurance system reform, live in a clean and healthy environment is the fundamental right to all citizens in China which is verified based on local expertise of the validation team and checking the public source/46/. Via site inspection, it is confirmed that the project pursues to safeguard this fundamental right by availing the clean cooking solutions to the households, hence it is verified that no impact of the human existence to this kind of project and human right is preserved. Furthermore, via searching the public sources of China/47/,/48/,/49/,/50/,/51/, CTI confirmed that China government has signed and ratified a series of basic human rights principles established under international law and to implement human rights-

						related standards in national law. Via site inspection, CTI confirmed that the project does not discriminate on gender, race, religion, sexual orientation or any other aspect, every person involved in the project can equally participate and benefit from the project. The stakeholders interviewed by the validation team, had a positive opinion on the project and are welcome to such projects. And the distribution of solar cookers completely obeys the nation and local laws. There is no risk of violence or abuse of human rights in this project.
P.2	Gender Equality and Women's Empowerment					
	P.2.1.1 Have women's groups/leaders raised gender equality concerns regarding the project, (e.g., during the stakeholder engagement process, grievance processes, public statements)? P.2.1.2 Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work? P.2.1.2 Does the project prevent men and women from having equal opportunities to participate in identified tasks and activities, whether through paid work, volunteer work, or	No	P.2.1.1 adverse impacts on gender equality and/or the situation of women and girls? P.2.1.1 exacerbation of risks of gender-based violence? For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc. P.2.1.2 reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits? P.2.1.2 limitations on women's ability to use, develop and protect	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. The validation team has observed that the project decreases the burden on women by reducing coal consumption and hence save time spending for fuel purchasing. The validation team has verified that the project gives women more access to or control resources. Hence, the project benefits to the women who stay in kitchen all year round especially.

	community contributions, as appropriate? P.2.1.2 Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status? P.2.1.2 Is information about project objectives being communicated in a way that is inappropriate for the local context and not tailored to the methods of understanding of both women and men, which could hinder their participation? P.2.1.3 Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment? P.2.1.4 Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment?		natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well-being.			Via checking the labor contracts/15/ and payroll/16/, it is verified that project did not set up any barriers to the employment of women and has generated income and jobs opportunities for women. Besides, via checking the labor contracts/15/, CTI confirmed that all employees have benefits based on pregnancy, maternity/paternity leave, or marital status according to the Labor Law of the People's Republic of China/42/. Thus it is concluded that the project apply the principles of nondiscrimination, equal treatment, and equal pay for equal work. Via checking the business license of the PP/7/, CTI confirmed that the company is legally registered in China, thus it has to considers country's national gender strategy and comply with the Labor Law of the People's Republic of China/42/. Via checking the TRF/4/, it is verified that no opinions and recommendations of an Expert Stakeholder(s) provided due to safeguarding principle related to Gender Equality as Women's Rights is not triggered during the project design and implementation
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						by considering the type of the project.
P.3	Community Health and Safety					
	P.3.1.1 Does the project involve potential risks to the health and safety of affected communities during its life cycle? P.3.1.2 Does the project involve any potential risks to the workers' safety and health?	No	P.3.1.1 construction and/or infrastructure development (e.g., roads, buildings, dams)? P.3.1.2 air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation? P.3.1.2 harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)? P.3.1.2 risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health? P.3.1.2 transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., explosives, fuel and other chemicals during construction and operation)? P.3.1.2 adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g., food, surface water purification, natural buffers from flooding)?	No	Not required	The project distributed solar cookers free for cooking and boiling to people which takes place at end users' kitchens. The validation team has observed that the project decreases the risks involved in cooking, including less smoke resulting in better indoor air quality, thus the project reduces the risks involved in cooking by reducing their exposure to air pollution thereby improving their health.
P.4	Cultural Heritage, Indigenous Peoples, Displacement and Resettlement					
	P.4.1 Sites of Cultural and Historical Heritage					
	P.4.1.1 Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage?	No	P.4.1.1 activities adjacent to or within a cultural heritage site? P.4.1.1 significant excavations, demolitions, movement of earth, flooding or other environmental changes? P.4.1.1 alterations to landscapes and natural	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens where not involved in damage or removal of any sites, objects or structures of

			features with cultural significance? P.4.1.1 adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts) P.4.1.2 utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes? P.4.1.2 If answer to question above is "YES" or "POTENTIALLY" - are the communities made aware of their right under the law, scope and nature of proposed development and its potential consequences? P.4.1.3 If answer to question above is "YES" - does the project provide equitable sharing of benefits from commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions? P.4.1.4 If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? P.4.1.4 If answer to question above is "YES", has project design been changed,			significant cultural heritage. The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens which does not utilize Cultural Heritage, including the knowledge, innovations, or practices of local communities. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.
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		modified, updated considering opinions and recommendations of an Expert Stakeholder?			
P.4.2 Forced Eviction and Displacement					
P.4.2.1 Does the project involve any risks related to involuntary relocation of people?	No	P.4.2.1 risk of forced evictions or involuntary relocation of people? P.4.2.2 temporary or permanent and full or partial physical displacement (including people without legally recognisable claims to land)? P.4.2.2 economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)? P.4.2.2 If answer to question above is “YES” or “POTENTIALLY”, has the project developed Resettlement Action Plan or Livelihood Action Plan in consultation and agreement with affected individual, group or community? has the project integrated Resettlement Action Plan or Livelihood Action Plan into the Project design? P.4.2.3 If answer to question above is “YES” - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? P.4.2.3 If answer to question above is “YES”, have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens where does not involve and not be complicit in the involuntary relocation of people. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.

4.3 Land Tenure and other rights					
P.4.3.1 Does the project involve any risks related to identifying and managing legitimate tenure rights that may be affected by the project?	No	P.4.3.1 impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources? P.4.3.1 uncertainties with regards to land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights. P.4.3.2 Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations? P.4.3.2 Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders? P.4.3.3 Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary? P.4.3.4 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? P.4.3.4 If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder? P.4.3.5 Have project developer in consultation with stakeholders established a	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens where does not require any change to land tenure arrangements and/or other rights such as legal rights, resource access rights, community-based property rights and customary rights. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.

		functioning mechanism to receive, process, resolve, communicate and record grievances?			
P.4.4 Indigenous people					
P.4.4.1 Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project?	No	P.4.4.1 affect areas where indigenous peoples are present (including project area of influence) P.4.4.1 affect areas, land and territory claimed by indigenous peoples? P.4.4.1 impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples? P.4.4.7 If answer to above questions is "YES" or "POTENTIALLY", see request in the PDD P.4.4.3 risk of forcibly removing indigenous people from their lands and territories? P.4.4.4 utilisation and/or commercial development of natural resources on lands and territories claimed by indigenous peoples? P.4.4.5& P.4.4.6 If answer to above questions is "YES" or "POTENTIALLY", see request in the PDD P.4.4.8 Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives? P.4.4.8 Has a grievance mechanism not been established at the beginning of programme or project implementation with due consideration given to customary dispute settlement mechanisms among the Indigenous Peoples concerned and will it remain operational	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens where indigenous people will not be affected directly or indirectly in a negative way. Oppositely, indigenous People have the same and equal access to the project as other community members as both workers of the project or the end users. This is verified by on-site inspection. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.

			throughout the project cycle? P.4.4.9 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design? P.4.4.9 If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?			
5	P.5 Corruption					
	P.5.1.1 Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects?	No	N/A	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens and not involved in any corruption activities.
	P.5.1.1 Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior?	No	N/A	No	Not required	During on-site inspection, it is confirmed that the project takes place at end users' kitchens and not involved in any risk of encouraging bribery, kickbacks, or other unethical behavior.
6	P.6 Economic Impacts					
	6.1 Labour Rights and working conditions					
	P.6.1.1 Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor? P.6.1.1 Does the project violate any labor or health and safety laws, international obligations, or ILO conventions?	No	P.6.1.1 use of forced labour? P.6.1.1 working conditions that do not meet national labour laws and international commitments? P.6.1.1 working conditions that may deny freedom of association and collective bargaining? P.6.1.1 absence of documented working agreements with all individual workers P.6.1.1 use of migrant workers?	No	Not required	Via checking the labor contracts/15/, it is verified that the employees are hired according to Labor Law of the People's Republic of China/42/ and following the relevant ILO conventions/52/. Hence no any form of forced or compulsory labor.

			P.6.1.1 having no arrangements for basic services for workers?			
	P.6.1.2 Does the project violate the principles of equal opportunity and fair treatment in its employment decisions?	No	P.6.1.2 any form of discrimination or harassment based on factors unrelated to job requirements, such as gender, race, nationality, ethnicity, social or indigenous origin, religion or belief, disability, age, or sexual orientation? P.6.1.2 any form of discrimination in any aspect of employment, such as recruitment, compensation, working conditions, training, job assignment, promotion, termination, or discipline? P.6.1.2 harassment, intimidation, and/or exploitation, especially in regard to women?	No	Not required	Via checking the labor contracts/15/, it is verified that the employees are hired according to Labor Law of the People's Republic of China/42/. 30 full-time jobs have been created including 16 females and 14 males as per the labor contracts/15/, equal pay has been provided to same position verified by payrolls to employees/16/ and interview with staffs. Hence, it is verified that project does not violate the principles of equal opportunity and fair treatment in its employment decisions.
	P.6.1.3 Does the project violate national laws, if available regarding non-discrimination in employment?	No	P.6.1.3 discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment?	No	Not required	Via checking the labor contracts/15/, it is verified that the employees are hired according to Labor Law of the People's Republic of China/42/. 30 full-time jobs have been created including 16 females and 14 males as per the labor contracts/15/, equal pay has been provided to same position verified by payrolls to employees/16/ and interview with staffs. Hence, it is verified that project following the national law and has no discrimination in employment.
	P.6.1.4& P.6.1.5 Does the project allow child labor?	No	P.6.1.4 use of child labour? (including third-party engaged workers)	No	Not required	Via checking the labor contracts /15/, it is verified that the

			P.6.1.4 inadequate and verifiable mechanisms for age verification?			employees are hired according to Labor Law of the People's Republic of China/42/. 30 full-time jobs have been created including 16 females and 14 males as per the labor contracts/15/, and via checking the employee information listed in the contracts, it is confirmed that no child labor involved in this project. Hence, it is verified that project following the national law and has no discrimination in employment.
	P.6.1.7& P.6.1.8 Does the project have insufficient processes and measures in place to ensure the safety and health of project workers?	No	P.6.1.7 no processes and measures in place for the safety and health of project workers? P.6.1.7 No provision of safety and health training provisions, including on the proper use and maintenance of personal protective equipment conducted by competent persons and the maintenance of training records? P.6.1.7 No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths? P.6.1.8 occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	No	Not required	Via checking the labor contracts /15/, it is verified that the employees are hired according to Labor Law of the People's Republic of China/42/. 30 full-time jobs have been created including 16 females and 14 males as per the labor contracts/15/. Via site interview with the staffs, it is confirmed that PD has established safety management regulations for all the staffs and the regular trainings and physical inspections are provided to ensure safety and health of the employees which has been confirmed by checking the training records/17/.
	P.6.1.9 Does the project have insufficient measures to safeguard and	No	P.6.1.9 No measures to protect vulnerable project workers from harassment, exploitation, and	No	Not required	Via checking the labor contracts/15/, it is verified that contract specify working hours (8

support vulnerable project workers, such as women, people with disabilities, migrant workers, and young workers, and to prevent any kind of harassment, abuse, bullying, or exploitation, including gender-based violence (GBV)?		gender-based violence (GBV)? This includes women, people with disabilities, migrant workers, and young workers.			hours per day, 5 days per week), tasks and payments. All employees have benefits based on social security, pregnancy, maternity/paternity leave, or marital status which has been verified consistent with the request in Labor Law of the People's Republic of China/42/. Besides, the employees also have the right to establish labour unions and to carry on labour union activities in accordance with the PRC Labour Union Law and other applicable laws and regulations. Furthermore, there doesn't exist any kind of discriminations towards the vulnerable over the recruitment course and the number of female employee's accounts for the vast majority as per the labor contract/15/. And the project owner as necessary is willing to and ready to provide work opportunities to those disabled. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.
P.6.1.10 Does the project have no grievance mechanism available for workers to voice	No	P.6.1.10 No grievance mechanism available for workers to voice workplace concerns. P.6.1.11 No measures for due diligence and	No	Not required	Via site interview with staffs, they confirm that they can access to the responsible person of the project owner

	workplace concerns? Is information about this mechanism not provided to workers at the time of recruitment, or is it not easily accessible?		the establishment of policies and procedures to manage and monitor the performance of third-party employees in the project?			and/or further appealing to local work union/women's federation / labour law enforcement department etc. to voice their concerns or any potential infringement of rights directly without PD's intervening, which means that the project have grievance mechanism available for workers.
	P.6.2 Negative Economic Consequences					
	P.6.2.1 Is there a risk of project failure during implementation or after project certification due to a lack of financial resources? P.6.2.2 Does the project have potential negative impacts or pose a risk to the local economy? P.6.2.2 Are there any potential risks or negative impacts this project may have on vulnerable or marginalised social groups, despite the benefits it may bring?	No	P.6.2.2 economic impacts (negative/detrimental) to the local economy? P.6.2.2 negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	No	Not required	Via checking the previous validation report/5/ and verification reports/6/ and interview with the PD, it is verified that PD creates the financial sustainability of the Project by receiving carbon finance within the project lifetime. Via site inspection and checking the labor contracts/21/, it is verified that the project has positive economic benefits due to the reduced cost of coal for cooking and water boiling and furthermore is beneficial to local economy by create jobs for local people and there is no any potential risks or negative impacts on vulnerable or marginalised social groups.
7	P.7 Climate and Energy					
	P.7.1 GHG Emissions					
	P.7.1.1 Does the project have a risk of increasing greenhouse gas	No	P.7.1.1 increase greenhouse gas emissions over the Baseline Scenario?	No	Not required	Via checking the ER sheet/2/, it is confirmed that the project uses solar cooker for cooking

	emissions over the Baseline Scenario?					and water boiling, which does not generate any emissions and decrease GHG emissions comparing with the baseline scenario.
	P.7.2 Energy Supply					
	P.7.2.1 Does the project pose a risk to the availability and reliability of energy supply to other users?	No	P.7.2.1 negative impact on the availability and reliability of energy supply to other users?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. The validation team has verified that the project decreases coal usage with solar power comparing with the baseline scenario. Thus the project will not pose a risk to the availability and reliability of energy supply to other users.
8	P.8 Water					
	P.8.1 Impact on Natural Water Patterns/Flows					
	P.8.1.1 Does the project increase water usage to a level that will not allow for the maintenance of environmental flows? P.8.1.1 Does the project result in the discharge of wastewater that does not meet the required standard for beneficial reuse and could therefore negatively impact the environmental flow? P.8.1.1 Does the project have the potential risk to exceed the rate of recharge for the groundwater source? P.8.1.1 Does the project involve any processes or activities that could	No	P.8.1.1 affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity? P.8.1.1 Wastewater discharge of quality that does not meet the required standard for beneficial reuse? P.8.1.1 significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction P.8.1.2 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve any use of water, groundwater and not result in the discharge of wastewater. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.

	contaminate the groundwater and render it unsuitable for use?		included in the project design?			
8.2 Erosion and/or Water Body Instability						
	P.8.2.1 Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed?	No	P.8.2.2 - P.8.2.5 negatively impact on the catchment area? If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary. P.8.2.6 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve any use of catchment. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.
9	P.9 Environment, ecology and land use					
	P.9.1 Landscape Modification and Soil					
	P.9.1.1 – P.9.1.3 Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project?	No	P.9.1.4 production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities? P.9.1.4 if answer to above question “yes” or “potentially”, does project adopt appropriate and culturally sensitive sustainable resource management practices?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve any soil resource degradation or loss of ecosystem services provided by soils and any production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities.
	P.9.2 - Vulnerability to Natural Disaster					

P.9.2.1 Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project?	No	P.9.2.2 any potential risks that require emergency preparedness and response planning? P.9.2.2 if answer to above question “yes” or “potentially”, did the project developer disclose appropriate information about emergency preparedness and response to affected communities?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users’ kitchens. Via on-site inspection, it is verified that the project does not be susceptible to or lead to increased vulnerability to natural or man-made hazards as the solar cooker using the solar energy and no risks of the device and energy.
P.9.3 Biosafety and Genetic Resources					
P.9.3.1 Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity?	No	P.9.3.1 the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology P.9.3.1 If answer to above question is “yes” has a risk assessment by a competent Expert stakeholder been carried out P.9.3.2 If answer to above question is “yes” has any risks identified in the risk assessment? P.9.3.3 Forestry (for example Afforestation /Reforestation) involving GMO planting?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users’ kitchens. Via on-site inspection, it is verified that the project does not involve any transfer, handling, and use of genetically modified organisms/living modified organisms.
P.9.4 Release of pollutants					
P.9.4.1 Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances?	No	P.9.4.1 any potential risk of pollutant release that cannot be avoided? P.9.4.3 If answer to above question is “Yes” or “potentially”, has the project identified all potential pollution sources that may degrade the quality of soil, air, surface, and groundwater in the project area?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users’ kitchens. Via on-site inspection, it is verified that the project does not involve any release of pollutants as the clean solar energy is used and

			P.9.4.2 If answer to above question is “Yes” or “potentially”, do the pollution prevention and control technologies and practices applied during the project life cycle align with national regulations or international best practices? P.9.4.3 If answer to above question is “Yes”, is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected?			releasing no pollutants to the environment.
P.9.5 Hazardous and Non-hazardous Waste						
P.9.5.1 Does the project involve the generation of waste materials (both hazardous and non-hazardous)? P.9.5.3 Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use? P.9.5.5 Does the project involve the use of any chemicals or materials subject to international bans or phase-outs?	No	P.9.5.1 the generation and management of waste materials? P.9.5.1 treatment, destruction, or disposal of waste material? P.9.5.1 If answer to above question is “Yes”, does the project involve an environmentally friendly method that includes appropriate control of emissions and residues resulting from the handling and processing of waste material? P.9.5.3 risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use? P.9.5.3 If answer to above question is “yes”, does project has measures in place to address health risks? P.9.5.4Involve manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-outs due to their high toxicity to living organisms, environmental	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users’ kitchens. Via on-site inspection, it is verified that the project does not involve generation of waste materials (both hazardous and non-hazardous) and release of hazardous materials, and chemicals or materials subject to international bans or phase-outs.	

		persistence, potential for bioaccumulation, or potential for depletion of the ozone layer			
P.9.6 - Pesticides & Fertilisers					
P.9.6.1 Does the project involve the use of chemical pesticides? P.9.6.5 Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous) P.9.6.6 Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment?	No	P.9.6.1 chemical pesticides use for pest management? P.9.6.4 If answer to question above is “yes” or “potentially”, does project has documented Chemical Pesticides Policy in place? P.9.6.5 purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides? P.9.6.5 If answer to question above is “yes” or “potentially”, does project has appropriate controls on manufacture, procurement, or distribution and/or use of these chemicals?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve any use of pesticides and fertilisers.
P.9.7 Harvesting of Forests					
P.9.7.1 Does the project have a risk of unsustainable forest management, including timber harvesting? P.9.7.1 Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken? P.9.7.1 Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible?	No	N/A	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens to replace coal consumption. Via on-site inspection, it is verified that the project does not involve any timber harvesting of forests.
P.9.8 Food Security					
P.9.8.1 Does the project involve the risk of negatively influencing access	No	P.9.8.1 modification of the quantity or nutritional quality of food available such as	No	Not required	The project distributes solar cookers free for

to and availability of food for people affected?		through crop regime alteration or export or economic incentives?			cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve the risk of negatively influencing access to and availability of food for people affected.
P.9.9 Animal husbandry					
P.9.9.1 Does the project involve any risks to animal welfare? P.9.9.2 Does the project involve any potential risk of excessive or inadequate use of veterinary medicines? P.9.9.4 Does the project involve the risk of administering synthetic growth promoters, including hormones?	No	P.9.9.1 animal husbandry or harvesting of fish populations or other aquatic species? P.9.9.1 limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.? P.9.9.3 inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases? P.9.9.5 inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement. P.9.9.6 inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering? P.9.9.7 inappropriate spacing per animal and stocking rates per land unit? P.9.9.8 inadequate measures to address the specific needs of aquatic animals? P.9.9.9/10 primary production of living natural resources such as animal husbandry, aquaculture, and fisheries?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Via on-site inspection, it is verified that the project does not involve animal husbandry or harvesting of fish populations or other aquatic species.
P.9.10 High Conservation Value Areas and Critical Habitats					

P.9.10.1 Does the project have the risk of negatively impacting HCV areas and/or critical habitats? P.9.10.2 Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	No	P.9.10.1 identified habitats as HCV areas and or Critical habitats? P.9.10.1 If answer to above question is “yes”, does the project have any risks that could negatively impact the catchment, project success, and surrounding HCV and ecological assets, as well as any measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting that biodiversity? P.9.10.1 If answer to above question is “yes”, is a robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan absent which will make the project unable to achieve net gains of those biodiversity values for which the critical habitat was designated? P.9.10.2 Does the project area or area of downstream impacts have native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas? P.9.10.2 If the answer to the above question is “yes”, will the project have any adverse effects on these areas? P.9.10.3 If the answer to above question is “yes”, does the project has opportunities to minimise unwarranted conversion or degradation of the habitat and to enhance	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users’ kitchens which will not result in any negatively impacting to high conservation value areas and critical habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas.
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			the habitat as part of its development? P.9.10.4 Is the project applying Land Use & Forest Activity Requirements and managing a minimum 10% of the project area to protect or enhance the biological diversity of native ecosystems following HCV approach as per the given requirements? P.9.10.5 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?			
P.9.11 Endangered Species						
P.9.11.1 Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species?	No	P.9.11.2 distortion of habitats of endangered species? P.9.11.2 If answer to the above question is “yes”, does the project plan to protect and enhance them? P.9.11.2 Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	No	Not required	The project distributes solar cookers free for cooking and boiling to people which takes place at end users' kitchens. Hence there is no considerable change in the ecosystem which project may lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species. This has been assessed by Expert Stakeholder(s) from local government during the stakeholder consultation process.	

D.7. Local stakeholder consultation assessment

Means of validation	This is the design certification renewal, during the previous certification cycle, the project has been consulting the local stakeholder and detail of consultation process has been described in the related files for 1st crediting period. Via checking the related files for 1st crediting period, it is confirmed that stakeholder consultation physical meeting failed to be held as early as in 2013 when the stakeholder consultation was conducted, hence it was held before the crediting period renewal started in 2023.
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	The stakeholder consultation meeting has been conducted on 30/06/2023 in the meeting room of the Taohe Township, Xichuan County, Nanyang City, Henan Province. Before the meeting, the PP had invited the stakeholders as many as possible including local residents and official representatives, official representative of Chinese DNA, GS NGO supporters. This is verified by checking the email, posting the notification, and individual invitation and interview etc/19/. The consultation meeting was attended by 30 local stakeholders including local residents and experts from local government and received comments for project which has been verified by checking the meeting records/19/. During the meeting the project owner introduced the project activity and its social and environmental impacts in detail, published input & grievance mechanism, discussed and confirmed the ownership of GS emission reduction with stakeholder. Most of participates held positive attitude towards the project and believe that it will have a continuous positive impact on the local area and local residents, respondents sent clear message that the project has far more positive effects than negative ones. During the meeting, there are 3 concerns regarding the solar cooker cost, impact and advantages of using were raised by the participants. The PP provide the feedbacks to each question with participants' agreement. Since all the questions are related to the solar cooker cost, impact and advantages of using etc., not relevant to the environment, social and economic impacts, thus it is verified that there is no need to change the project continuous implementation. The validation team was able to verify above by conducting the site visit and interviewing with the local stakeholders, checking the records/19/. The 2-month-feedback round is from 16/04/2013 to 15/06/2013 during the period of transition to GS previous version with GS CER which has been verified in the related files for 1st crediting period. Based on the above assessment, the validation team hereby confirms that the Project fulfills the relevant criteria of the GS4GG Stakeholder Consultation.
Findings	N/A
Conclusion	It is verified that no further comments were received from the local stakeholders regarding to the impact to the sustainability development by the project. Therefore, overall, the PD did not need to alter the continuous implementation of the project activity for 2nd certification cycle.

D.8. Discussion on continuous input / grievance mechanism

Means of validation	As confirmed through the onsite visit and interview with the users, it is verified that the continuous inputs/grievances mechanism has been designed by PD. As per onsite checking the grievance book put in each visited village ³ /20/ and telephone number, internet/email address which has been provided in PDD and interview with PP and local stakeholders, it is verified that these mechanisms are in place and effective, local stakeholders have access to provide issues or comments through given methods.
Findings	N/A
Conclusion	Validation team could confirm the current arrangement of capturing grievances is adequately implemented and correctly communicated to stakeholders which can be used for 2 nd certification cycle.

SECTION E. Internal quality control

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³ FengYing Village, ShangZhuang Village, DianZi Village, LongQuanGuan Village, QingLiangSi Village, SanQuanGou Village, BoGeYu Village, DuJiaYao Village, LongGang Village, DaiHe Village, MeiChi Village, QiKeShu Village, ZhangNan Village, LiWan Village, XiaoQuanGou Village, MaGou Village, YaoGou Village, DaQuanGou Village, DongHe Village, ZhiFangGou Village, QingFengLing Village, LiuJiaGou Village, LiuJiaQuan Village, SunTai Village, BiJiaTai Village, DongWan Village, DongGou Village, JiaGou Village, WeiLing Village, ZhangYing Village, BeiGang Village, YangJia Village, BeiGou Village, DuWan Village, HeiShui Village

The final validation report was undergone a technical review by a qualified independent reviewer before requesting design certification of the project activity. The technical review was performed by a technical reviewer qualified in accordance with CTI's qualification scheme for GS validation and verification that meets the criteria of GS guidelines for qualification.

SECTION F. Validation opinion

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CTI Certification Co., Ltd (CTI) has conducted the Design Certification Renew validation of the GS4GG project activity “Nanyang Danjiang River Solar Cooker Project Phase I”. The validation was performed on the basis of rules and requirements defined by GS4GG Principles and Requirements.

The validation is based on the baseline and methodology AMS-I.C, “Thermal energy production with or without electricity ” Version 22.0, the SDG Impact Tool, and the final version of PDD. The validation consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up on-site visit and interviews with project participants and local stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report.

In the course of the validation 4 Corrective Action Requests (CARs), 3 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided the CTI with sufficient evidence to validate the fulfilment of the latest valid GS4GG requirements.

In detail the conclusions can be summarized as follows:

- the project meets all eligibility criteria set by GS4GG.
- the project does not violate any of safeguarding principles set by GS4GG.
- the baseline scenario is correctly defined as per the GS requirement;
- the project additionality including on-going financial need is sufficiently justified in the PDD;
- all data and information used for ex-ante calculation of SDG impacts is of projected and/or hypothetical nature;
- the monitoring plan of SDG parameters in the validated PDD is transparent and adequate;
- the project does not result in diversion of ODA.
- the project meets the stakeholder consultation requirements.
- the project contribution to SDG is determined.
- The calculated annual emission reductions of 81,184 tCO₂e are most likely to be achieved within the 2nd renewable certification cycle from 02/05/2017 to 01/05/2022 with estimated total 108,097 tCO₂e GS VERs will be certified.

The conclusions of this report show, that the project, as it was described in the PDD, is in line with all criteria applicable for the Design Certification Renew against the GS4GG requirements without any qualifications or limitations.

Therefore, the project is recommended to GS Sustain CERT for the submission of the validation report of Design Certification Renew.

Appendix 1. Abbreviations

Abbreviations	Full texts
BAU	Business-as-usual
BE	Baseline Emission
CAR	Corrective Action Request
CCER	Chinese Certified Emission Reduction
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon dioxide
CP	Crediting Period
CTI	CTI Certification Co., Ltd
DNA	Designated National Authority
EB	Executive Board
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GS4GG	Gold Standard for the Global Goals
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation
MoV	Means of Validation
MP	Monitoring Plan
ODA	Official Development Assistance
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PP	Project Participants
QC/QA	Quality control/Quality assurance
SCR	SDG Impact Tool
SD	Sustainable Development
SDG	Sustainable Development Goals
SFR	Stakeholder Feedback Round
tCO ₂ e	Tonnes of Carbon di oxide equivalent
TRF	Transition request form
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VER	Voluntary Emission Reduction
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Ms. Jia Yu

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	-	-

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN

Wu Lin

Technical Competent Manager

Shenzhen, 25/10/2022

Mr. Tian FENG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification					
GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
√	√	√	√	-	-

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 8: Mining/mineral production	TA 8.1: Mining/mineral production
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Shunrong Lin

Shunrong LIN

Technical Competent Manager

Shenzhen, 20/05/2023

Ms. Shunrong LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation
SS 15: Agriculture	TA 15.1: Agriculture

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN

Wu Lin

Technical Competent Manager

Shenzhen, 25/10/2022

Mr. Lu ZHOU

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 2: Energy distribution	TA 2.1: Electricity distribution
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN

Wu Lin

Technical Competent Manager

Shenzhen, 01/01/2021

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1.	PD	GS4GG Project Design document of “Nanyang Danjiang River Solar Cooker Project Phase I”	- Version No. 01, dated 20/09/2023 - Version No. 02, dated 30/11/2023 - Version No. 03, dated 12/01/2024 - Version No. 04, dated 12/01/2024	PD
2.	PD	Emission Reduction Calculation spreadsheet of “Nanyang Danjiang River Solar Cooker Project Phase I”	- Version No. 1, dated 25/09/2023 - Version No. 2, dated 16/11/2023	PD
3.	PD	SDG Impact Tool of “Nanyang Danjiang River Solar Cooker Project Phase I” for 2 nd crediting period	- Version No. 01, dated 25/09/2023 - Version No. 02, dated 16/11/2023	PD
4.	PD	Transition request form of “Nanyang Danjiang River Solar Cooker Project Phase I”	Version No. 01, dated on 25/07/2023	PD
5.	VVBs	Previous Validation report to GS CERs	Validation report to GS CER	GS website
6.	VVBs	Previous Verification reports to GS CERs	Periodical verification reports to GS CERs	GS website
7.	Beijing City Administrative Bureau for Industry and Commerce	Business License	Business License of Sirreon Technology & Development (Beijing) Co., Ltd issued on 2010-09-03 valid to 2030-09-02	PD
8.	PD & Nanyang City Jinlong Solar Technology Co., Ltd	Solar cookers sales contract	Solar cookers sales contract signed dated 28/05/2011	PD
9.	PD	Invoice of the solar cookers	Invoice of the solar cookers	PD
10.	Nanyang City Quality and Technology Supervision and Testing Centre	Testing report of solar cookers	Testing report of focus type solar cookers issued dated 10/08/2021	PD
11.	PD	User information registration form	User information registration form	PD
12.	PD & local residents	Solar cookers usage agreements	Solar cookers usage agreements signed dated 31/05/2011	PD
13.	PD	Sample size calculation sheet	sample size calculation sheet	PD
14.	Nanyang Meteorological Bureau	Monthly solar irradiance intensity	Monthly solar irradiance intensity, dated 07/11/2013 covering the year from 2005 to 2011	PD
15.	PD and employees	Labor contracts	Labor contracts signed with 30 employees for implementation of this project	PD
16.	PD	Payroll of the employees	Monthly Payroll for employees	PD

17.	PD	Training records	Training records to employees including field work, monitoring method, safety and health regulation, etc.	PD
18.	PD	Illustration	Illustration of carbon revenue distribution	PD
19.	PP	Local Stakeholder Consultation Records	Local stakeholder consultation records 1. Invitation records 2. Meeting records and photo	PD
20.	VVB	Photos	Photo taken by validation team during on-site inspection of households, solar cookers, grievance books, etc.	VVB
21.	National Standard	GB NY/T219-2003	National Standard of the People's Republic of China for solar cookers	Public Website
22.	National Standard	GB/T 6412-2009	Test Method for Household Coal and Stoves	Public Website
23.	UNFCCC	CDM Approved Methodology AMS-I.C	"AMS-I.C Thermal energy production with or without electricity " (Version 22.0)	UNFCCC website
24.	UNFCCC	Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities	Version 04.0	UNFCCC website
25.	GS	GS4GG PDD template	Gold Standard for the Global Goals Key Project Information & Project Design Document (PDD) Template, version 1.5, 29/06/2023	GS Website
26.	GS	TGuide	TGuide-PreReview_V1.5-Project-Design-Document)	GS Website
27.	GS	Gold Standard for the Global Goals Principles and Requirements	Version 1.2	GS Website
28.	GS	Gold Standard for the Global Goals Safeguarding Principles & Requirements	Version 1.2	GS Website
29.	GS	Gold Standard for the Global Goals Community Services Activity Requirements	Version 1.2	GS Website
30.	GS	Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements	Version 1.2	GS Website
31.	GS	GS4GG GHG Emissions Reduction & Sequestration Product Requirements	Version 2.2	GS Website
32.	GS	Gold Standard for the Global Goals Validation and Verification Standard	Version 1.0	GS Website
33.	GS	Requirements and Guidelines: Usage Rate Monitoring	Version 2.0	GS Website
34.	IPCC	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories	Public Website

35.	Gold Standard Organization	Gold Standard	http://www.goldstandard.org/	Website
36.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Website
37.	VERRA	VCS	http://www.v-c-s.org/	Website
38.	IREC	IREC	https://www.irecstandard.org/	Website
39.	China CER	CCER	http://cdm.ccchina.org.cn/	Website
40.	Ministry of Ecology and Environment of China	China cap & trade scheme	http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html	Public Website
41.	Ministry of Ecology and Environment of China	Enforced company list	http://mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/W020201230736907682380.pdf	Public Website
42.	National Government of China	Labor Law of the People's Republic of China	http://www.mohrss.gov.cn/wap/zc/fgwj/201601/t20160119_232110.html	Public Website
43.	State Institution	National Enterprise Credit Information Publicity System	http://www.gsxt.gov.cn/	Public Website
44.	UNFCCC and GS	CDM and GS dedicated website of the project	https://registry.goldstandard.org/projects/details/701 https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1335494252.18/view	Public Website
45.	UNDP	Stove efficiency issued by UNDP	Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations https://rael.berkeley.edu/wp-content/uploads/2015/04/RAEL_UNDP_Biomass_CDM.pdf	Public Website
46.	State council information office of China	Right to all citizens in China	http://www.scio.gov.cn/zfbps/32832/Document/1613514/1613514.htm	Public Website
47.	National government	"International Covenant on Civil and Political Rights"	https://www.mfa.gov.cn/web/ziliao_674904/wjs_674919/2159_674923/200011/t20001107_7950071.shtml	Public Website
48.	National People's Congress	International Covenant on Economic, Social and Cultural Rights	https://www.humanrights.cn/html/2014/2_0711/1365.html	Public Website
49.	International	International Charter of Human Rights	https://www.sis.pku.edu.cn/researchmanagement6/keyan1082/1303900.htm#:~:text=%E2%80%9C%E5%9B%BD%E9%99%85%E4%BA%BA%E6%9D%83%E5%AE%AA%E7%AB%A0%E2%80%9D%E7%94%B1%E3%80%8A,%E4%BA%BA%E6%9D%83%E6%B2%BB%E7%90%86%E8%A7%84%E5%88%B6%E7%9A%84%E6%A0%B8%E5%BF%83%E3%80%82	Public Website
50.	State council information office of China	National Human Rights Action Plan (2009-2010), the National Human Rights Action Plan (2012-2015), and the National Human	https://www.humanrights.cn/html/special/20180306/	Public Website

		Rights Action Plan (2016-2020)		
51.	State council information office of China	"International Convention on the Elimination of All Forms of Racial Discrimination", "the Convention on the Elimination of All Forms of Discrimination against Women", and the " The Convention Relating to the Status of Refugees"	http://www.scio.gov.cn/ztk/dtzt/90/10/Document/1255201/1255201.htm	Public Website
52.	ILO	ILO conventions	https://www.ilo.org/global/lang-en/index.htm	Public Website

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. FAR from preliminary & Transition review

FAR ID	01	Section No.	-	Date : 06/11/2023
Description of FAR				
The VVB shall check and confirm the monitoring period does not exceed the fixed crediting period i.e. 02/05/2022.				
Project developer response				Date : 16/11/2023
The monitoring period (01/01/2021-01/05/2022) falls in the crediting period (02/05/2012-01/05/2022), hence doesn't exceed the fixed 10 years of crediting period.				
Documentation provided by project developer				
-				
VVB assessment				Date: 22/11/2023
VVB has conducted the verification to the last monitoring period and confirmed that the monitoring period does not exceed the fixed crediting period i.e. 02/05/2022. FAR 01 is closed.				

FAR ID	02	Section No.	-	Date : 06/11/2023
Description of FAR				
The VVB shall check avoidance of double counting with the CDM and other market mechanisms (if any).				
Project developer response				Date : 16/11/2023
The project has so far been registered with CDM and GS(GS-CDM/GS4GG/GS-VER) only. In addition, request for transition to A6.4 under Paris Agreement had not been submitted as well by the deadline of 31/12/2023, which suggests that, though eligible for transitioning, the PPs have waived the right under CDM with UNFCCC.				
Documentation provided by project developer				
-				
VVB assessment				Date: 22/11/2023
The procedure for Avoiding Double Counting is also confirmed as correct and the serial number of solar cookers have been verified during site visit and confirmed as consistent with the User information registration form/11/ and the Solar cookers usage agreements/12/, project users' information is also verified during site visit and confirmed as consistent with the User information registration form/11/ and the Solar cookers usage agreements/12/. It is concluded that the PP has taken method to avoid the double counting to ensure the ER calculation is conservative. Furthermore, based on validation team's local expertise, China has a cap & trade scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO₂e/year which has been verified in the public website/40/, and CTI confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/41/. Besides, via checking the other carbon schemes/36/,/37/,/38/,/39/, CTI confirmed that project does not apply for emission reduction credits or labels under any other schemes other than GS and the emission reductions will not be double counted. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occur. FAR 02 is closed.				

FAR ID	03	Section No.	-	Date : 06/11/2023
Description of FAR				
VVB shall note that the as per the APPLICABILITY OF MINIMUM SITE VISIT REQUIREMENTS BY VVB section 2.2.3 VVB cannot claim credits beyond 3 years from the date of site visit.				
Project developer response				Date : 16/11/2023
The site visit took place over 24/10-27/10/2023 and the claimed credits 01/01/2021-01/05/2022, gap of which is within 3 years.				
Documentation provided by project developer				
-				
VVB assessment				Date: 22/11/2023

The VVB has conducted the verification to the last monitoring period and confirmed that the site visit has been conducted within the 3 years of the monitoring period.
FAR 03 is closed.

FAR ID	04	Section No.	-	Date : 06/11/2023
Description of FAR				
There is no date in the Terms and conditions. PD shall submit before the next verification. VVB shall make sure.				
Project developer response				Date : 16/11/2023
Date of the Terms and Conditions has been added.				
Documentation provided by project developer				
-				
VVB assessment				Date: 22/11/2023
The VVB has checked the updated Terms and Conditions and confirmed the date has been added accordingly. FAR 04 is closed.				

Table 2. CL from this validation

CL ID	01	Section no.	A.1.1	Date : 06/11/2023
Description of CL				
For section A.1.1, 1. how the project meets the eligibility criteria of the (b) of Legal ownership of "Gold Standard for The Global Goals Community Services Activity Requirements" (Version 1.2) is not clarified. 2. how the project meets the eligibility criteria of the (c) of Project Scale of "Gold Standard for The Global Goals Principles & Requirements" (Version 1.2) is not clarified.				
Project developer response				Date : 16/11/2023
1. It has been clarified in Section A.1.1 in Version 02 of the PDD. 2. It has been clarified in Section A.1.1 in Version 02 of the PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
1. The revised PDD is checked, it is verified that the demonstration of the project meets the eligibility criteria has been provided by PD and assessed by CTI accordingly. 2. The revised PDD is checked, it is verified that the demonstration of the project meets the eligibility criteria has been provided by PD and assessed by CTI accordingly. Refer to section D.3 of this report for detail assessment of each condition. CL 01 is closed.				

CL ID	02	Section no.	B.5.2	Date: 06/11/2023
Description of CL				
The justification of ongoing financial need for the design certification renew process is not clarified as per the para 4.1.52 of the Gold Standard for the Global Goals Principles and Requirements (version 1.2).				
Project developer response				Date: 16/11/2023
It has been clarified in Version 02 of the PDD as per the para 4.1.52 of the Gold Standard for the Global Goals Principles and Requirements (version 1.2) alongside relevant evidence document.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
The revised PDD is checked, CTI confirmed that the ongoing financial need for the design certification renew process has been clarified according to the para 4.1.52 of the Gold Standard for the Global Goals Principles and Requirements (version 1.2)/27/. Refer to section D.4.5 of this report for detail assessment. CL 02 is closed.				

CL ID	03	Section no.	B.6.1	Date: 06/11/2023
Description of CL				
For formula $P_i = 773.5 * (R_i / 700)$, the figure is 773.5 is not clarified.				
Project developer response				Date: 16/11/2023
The figure of 773.5 has been clarified in Version 02 of the PDD.				
Documentation provided by project developer				

/1/ version 02	
VVB assessment	Date: 22/11/2023
The revised PDD is checked, CTI confirmed that the calculation process has been added which is verified as correct. CL 03 is closed.	

Table 3. CAR from this validation

CAR ID	01	Section no.	-	Date: 06/11/2023
Description of CAR				
The SDG impact tool is not using the latest version of the template, revision is requested.				
Project developer response				Date: 16/11/2023
The latest version of SDG impact tool has been applied and the PDD has been updated accordingly				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
The updated SDG impact tool is checked, it is confirmed that the latest version of the template has been used. It is confirmed that the SDG impacts have been correctly provided in the SDG impact tool of the project and consistent with the information given in the PDD. CAR 01 is closed.				

CAR ID	02	Section no.	B.3	Date: 06/11/2023
Description of CAR				
The description of the project boundary is missing in section B.3.				
Project developer response				Date: 16/11/2023
The description of the project boundary has been added in section B.3 in Version 02 of the PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
The revised PDD is checked, CTI confirmed that description of the project boundary is added. The project boundary basically defines the physical and geographical boundary of the project facility and it is well defined in the PDD/1/(section B.3). The project boundary includes the installation site of the 48,000 sets of solar cookers. And the distributed area is defined as stated in section A.2.4 of the PDD and has been verified in section D.3 of this report. Therefore, it is verified that project boundary is clearly defined in the PDD as per the methodology. CAR 02 is closed.				

CAR ID	03	Section no.	B.6.3	Date: 06/11/2023
Description of CAR				
In section B.6.3, the final calculation formula of ER _y is missing.				
Project developer response				Date: 16/11/2023
The final calculation formula of ER _y has been added in B.6.3.in Version 02 of the PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
The revised PDD is checked, CTI confirmed that the formula has been added accordingly which is verified in line with the other part of PDD. CAR 03 is closed.				

CAR ID	04	Section no.	B.7.1	Date: 06/11/2023
Description of CAR				
In section B.7.1, the monitoring equipment for measure the parameter t _i is missing				
Project developer response				Date: 16/11/2023
The monitoring equipment for measure the parameter t _i has been added in Section B.7.1 in Version 02 of the PDD.				
Documentation provided by project developer				
/1/ version 02				
VVB assessment				Date: 22/11/2023
The revised PDD is checked, CTI confirmed that the monitoring equipment for measure the parameter t _i is added accordingly which is verified as reasonable comparing with previous verification reports/6/. CAR 04 is closed.				

Table 4. FAR from this validation

FAR ID	01	Section No.	-	Date : 15/01/2024
Description of FAR				
Refer Site Visit and Remote Audit Requirements v.02 §3.2.2 “A physical site visit by VVB is mandatory at the first verification of a project” after design renewal certification.				
Project developer response				Date : -
-				
Documentation provided by project developer				
-				
VVB assessment				Date: 15/01/2024
Will be checked in the first verification (after design renewal certification) process.				