
VALIDATION REPORT

NINGXIA FEDERAL INTERTRADE CO.

VALIDATION OF
FEDERAL INTERTRADE
HONG-RU SOLAR COOKER
PROJECT

P.R. CHINA

REPORT NO. 01 997 9105045593

REVISION NO. 02

CDM Validation Report Template Version 5.0, November 2006
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VALIDATION REPORT

Date of first issue: 23 rd November 2007	Project No.: 01 997 9105045593	<i>TÜV Rheinland Japan Ltd.</i>
Approved by: Dr. Manfred Brinkmann	Organisational unit: Industrial Service, Energy and Engineering Technology	<i>Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama 222-0033</i>
Client: Ningxia Federal Intertrade Co.	Client ref.: C/o Mr. Jiang Wei	Certificate Number 01 997 9105045593

Project Name: Federal Intertrade Hong-Ru River Solar Cooker Project

Country: P.R. China

Methodology: AMS-I.C.

Methodology Version: 12

GHG reducing Measure/Technology: Solar

ER estimate: 35,723 tCO₂e/a

Size

- ☐ Large Scale
☒ Small Scale

Validation Phases:

- ☐ Desk Review
☐ Follow up interviews
☒ Resolution of outstanding issues

Validation Status

- ☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and submission for registration
☐ Rejected

In summary, it is TÜV Rheinland's opinion that the Federal Intertrade Hong-Ru River Solar Cooker Project, as described in the PDD of 9th March 2009, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AMS-I.C./Version 12, TÜV Rheinland thus recommends for registration of the project as a small-scale CDM project activity with the UNFCCC.

Report No.: 01 997 9105045593	Date of this revision: 10 th March 2009	Rev. No. 02
Report title: Federal Intertrade Hong-Ru River Solar Cooker Project		
Work carried out by: • Mr. WK Wong • Mr. Wilfred Chan		• Mr. Roy Fan
Work verified by: • Dr. Manfred Brinkmann		

Indexing terms

Climate Change
 Kyoto Protocol
 Validation
 Clean Development Mechanism
 Solar Cooker Project

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Abbreviations

Explain any abbreviations that have been used in the report here.

BAGST	Bureau of Agriculture, Graze, and Sciences & Technology of Pengyang County
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
ESMTC	Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region
FAR	Forward Action Request
GHG	Greenhouse Gas
GWh	Giga Watt Hours
I	Interview
IM	Interim Measures for Operation and Management of CDM projects
IETA	International Emissions Trading Organisation
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
MoV	Means of Verification
MW	Mega Watt
MWh	Mega Watt Hours
NDRC	National Development and Reform Commission
NGO	Non Government Organisation
NIST	National Institute of Standard and Technology
NXFI	Ningxia Federal Intertrade Co.
OSV	On Site Visit
PDD	Project Design Document
PDRC	Pengyang Development and Reform Commission
PRO	Project Proposal
RES	Rural Energy Station
SA	Sensitivity Analysis
SIIC	Supplier Information to Client
STHS	Stakeholder Survey
t	Tonne
UNFCCC	United Nations Framework Convention on Climate Change

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1 EXECUTIVE SUMMARY – VALIDATION OPINION

The validation team of TÜV Rheinland Japan Ltd., TÜV Rheinland Group (TÜV Rheinland) has performed a validation of the “Federal Intertrade Hong-Ru River Solar Cooker Project” in P.R. China on the basis of UNFCCC criteria for small-scale Clean Development Mechanism (CDM) projects according to Article 12 of the Kyoto Protocol and subsequent decisions of the CDM Executive Board with regard to CDM modalities and procedures and the application of approved methodologies. The validation report and the validation protocol are summarizing the findings of the validation.

The review of the project design documentation and the subsequent follow-up interviews have provided DOE with sufficient evidence to determine the fulfilment of stated criteria.

The validation was executed in the following steps so far:

- Desk review of preliminary PDD (version 02, 20th October 2008)
- Public stakeholder comment process (16th February ~ 16th March 2008)
- OSV with stakeholder interviews (30th October ~ 2nd November 2007)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol
- Desk review of the revised PDD (version 15, 9th March 2009)
- Review of proposed corrections and clarifications
- Issue of the final validation report & protocol

The host country is P.R. China. The Letter of Approval (LoA) of voluntary participation, including confirmation by China’s DNA – National Development & Reform Commission (NDRC), that the project assists them in achieving sustainable development, has been issued on February 2008.

The project activity is a bilateral CDM-project, with Netherlands identified as the Annex I party. The LoA from the Netherlands has also been issued on 25th April 2008.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards China. The term sheet of purchase of Certified Emission Reductions between Swiss Re Global Markets Limited and Ningxia Federal Intertrade Co. Ltd has indicated that NXFI will receive the advance payment for the project. The rest of the capital will be accrued by NXFI internally which was verified with the NXFI management representative and the local government official of local Rural Energy Station.

The project correctly applies AMS-I.C./Version 12 – “Thermal energy for the user with or without electricity”.

By generating renewable energy from clean solar resource, which will displace coal fired cooking, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. The China energy statistical yearbook has confirmed coal is the major energy source in Ningxia rural area. The Bureau of Agriculture, Graze, and Sciences & Technology of Pengyang County (BAGST), has confirmed that most of the rural residents use traditional coal-fired stove as their daily water boiling and cooking. It is demonstrated that the project is not a likely baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The report summarizes the results of the document review, background investigation, follow-up interviews with local stakeholders and the staff at the project site during the visit to the project. This process enabled the team to conduct a risk-based review of material issues with impact on future claims of the emission reduction from the project activity. The concerns thereof, in the form of validation findings have been registered in the Validation Protocol.

The total emission reductions from the project are estimated to be on the average 35,723 tCO₂e per year over the selected 10-year fixed crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate monitoring procedures have been implemented according to the monitoring methodology AMS-I.C./Version 12. Training plan is available and the training programme will be provided by the project developer.

The project proponent has resolved all Corrective Action Requests and Clarification Requests as stated in the Draft Validation Report and the Validation Protocol, which has resulted in a revision of the PDD. In the opinion of TÜV Rheinland the Federal Intertrade Hong-Ru River Solar Cooker Project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AMS-I.C./Version 12. Therefore, TÜV Rheinland requests the registration of the “Federal Intertrade Hong-Ru River Solar Cooker Project” as a CDM project activity.

2 INTRODUCTION

Ningxia Federal Intertrade Co. has commissioned the validation team of TÜV Rheinland to perform a validation of the Federal Intertrade Hong-Ru River Solar Cooker Project (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the small-scale CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

3 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

- /1/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): Validation and Verification Manual.
<http://www.ieta.org/ieta/www/pages/index.php?IdSitePage=394>
- /2/ UNFCCC, AMS-I.C., version 12, "Thermal energy for the user with or without electricity", 10th August 2007
- /3/ Project Design Document (PDD), version 02, 20th October 2007
- /4/ Project Design Document (PDD), version 15, 9th March 2009
- /5/ The National Development and Reform Commission of The People's Republic of China (i.e. China DNA), Letter of Approval (Ref no.:932), February 2008
- /6/ Ningxia Federal Intertrade Co. Ltd., Yulin Solar Cooker Investment Project Proposal, August 2007
- /7/ Ningxia Federal Intertrade Co. Ltd., Solar Cooker Tender document
- /8/ Ningxia Federal Intertrade Co. Ltd., Monitoring Plan, Oct 2007
- /9/ Ningxia Federal Intertrade Co. Ltd., Ningxia Federal Intertrade solar cooker project maintenance and repair method.
- /10/ Ningxia Federal Intertrade Co. Ltd., Federal Intertrade solar cooker project implementation plan, July 2007
- /11/ Ningxia Federal Intertrade Co. Ltd., Ningxia Federal Intertrade solar cooker project user training plan
- /12/ China National Standard, Concentration type solar cooker standard (NY/T219-2003), 2003
- /13/ Ningxia Meteorological Archives, Pengyang County 2000~2007 sunlight hour and solar irradiance value, 31st March 2008,
- /14/ Ningxia County Energy Station, Explanation about the solar cooker inventory and 11th

five years plan of the solar energy development, 15th November 2007

- /15/ Fang Zhi Publication, Almanac of Ningxia, 2005
- /16/ Ningxia People's Publishing House, The Encyclopaedia of Ningxia, 1998
- /17/ Federal Intertrade Co. Ltd. and Swiss Re Global Markets Ltd., Term Sheet of Certified Emission Reductions (Contract No.: UK/1399516/01), 2nd November 2007
- /18/ Pengyang County Development and Reform Commission, The notice of put on record of Ningxia Hui Autonomous enterprise investment project (Ref No.: PengFaGaiBeiAn [2007] 11), 10th October 2007
- /19/ The State Environmental Protection Administration, The registration form for the environmental impact on construction projects, 8th October 2007
- /20/ The Construction and Environmental Bureau of Pengyang County, Approval idea, 18th October 2007
- /21/ National Institute of Standard and Technology (NIST), Engineering Statistic Handbook
- /22/ Federal Intertrade Co. Ltd , The project progress chart
- /23/ China Statistics Press, China Energy Statistical Yearbook 2006, March 2006
- /24/ Energy Saving Monitoring Technical Service Center (ESMTS) of Ningxia, The & explanation about Ningxia rural stove, 2nd April 2008
- /N2/
- /25/ The Ministry of Housing, Spatial Planning and the Environment (VROM) of the Netherlands (i.e. the Netherlands DNA), Approval of Voluntary Participation in a Clean Development Mechanism Project, 25th April 2008
- /26/ Three solar cooker manufacturers (Longde County Xing Huo solar cooker factory, Pengyang County Yang Guang solar cooker factory and Shiji County Yu Yuan solar energy Co., Ltd.), Solar Cooker vendor quotes, 10th March 2007
- /27/ Keith Bradsher, New York Times, China's Rate of Inflation Is Highest in 11 Years, 11th March 2008 (<http://www.nytimes.com/17/08/03/11/business/worldbusiness/11inflation.htm>)
- /28/ Bank of China, Discount rate in December/17/07
(<http://www.boc.cn/en/common/rmbdeposit.jsp?category=1099376639100>)
- /29/ Bureau of Agriculture, Graze and Science & Technology of Pengyang County, Explanation on solar cooker usage time and cooking habits in rural Pengyang County, 3rd April, 2008
- /30/ UNDP, Clean Energy for Development and Economic Growth: Biomass and Other & Renewable Energy Options to Meet Energy and development Needs in Poorer Nations", 2002 (<http://www.undp.org/energy/publications/2002/2002b.htm>)
- /N1/
- /31/ Atlas of Ningxia Hui Autonomous Region

- /32/ NXFI, Project title and location change request letter, 27th October 2007
- /33/ Longde township water product energy station, “Xinghuo” solar cooker price explanation”, 11th December 2007
- /N3/ Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS), The explanation on the thermal efficiency measurement data of domestically-used rural coal-stove in southern mountainous region of Ningxia, 27th February 2009
- /N4/ Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS), Sampling distribution of thermal efficiency test on domestic-used coal stoves
- /N5/ Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS), Test record of thermal efficiency measurement data of domestically-used rural coal-stove in southern mountainous region of Ningxia, 6th May 2007
- /N6/ Chinese National Standard, Method for testing household coal and stoves (GB6412-86)
- /N7/ Institute for Global Health University of California and School of Public Health University of California, Improved Household Stoves in China: An Assessment of the National Improved Stove Program (NISP), September 2004

3.2 Follow-up Interviews with Project Stakeholders

Identify any personnel who have been interviewed and/or provided additional information to the presented documentation.

	Name	Organization	Title
/i/	Ms. Sun Zhiwen	Ningxia Hui Autonomous Region Development and Reform Committee	Senior Engineer
/ii/	Mr. Yang Beiqiao	Ningxia Hui Autonomous Region Rural Energy Station	General Engineer
/iii/	Mr. Ma Jingjun	Ningxia Hui Autonomous Region Rural Energy Station	Deputy Station Director
/iv/	Mr. Wang Jike	Ningxia Pengyang Town Development and Reform Bureau	Engineer
/v/	Mr. An Hengjun	Ningxia Pengyang Town Rural Energy Station	Deputy Station Director
/vi/	Mr. Yang Pingshu	Bureau of Agriculture, Graze, and Sciences & Technology of Pengyang County	Deputy Director
/vii/	Mr. Liu Xueming	Ningxia Pengyang Town Construction and Environment Protection Bureau	Engineer

/viii/	Mr. Zhang Hongwu	Ningxia Longde Town Bureau of Agriculture, Graze, and Sciences & Technology of Pengyang County	Director
/ix/	Mr. Luo Guoxuan	Ningxia Longde Town Xing Huo Solar Cooker Manufacture	Factory Director
/x/	49 villagers	Ningxia Pengyang Town Honghe Village	Farmer
/xi/	Mr. Jiang Wei	Ningxia Federal Intertrade Co. Ltd.	General Manager
/xii/	Mr. Li Xiu Ming	Pengyang Town Environmental Protection Bureau	Engineer

Table 1 Interview topics

	Date	Organization	Topic
/1/	30 th October 2007 to 2 nd November 2007	Ningxia Federal Intertrade Co. Ltd. (NXFI)	<ul style="list-style-type: none"> ➤ Project design ➤ Project related legal issues ➤ Technical equipment ➤ Sustainable development issues ➤ Additionality ➤ Crediting period ➤ Monitoring plan ➤ Training history ➤ Management system ➤ Project starting date and CDM consideration ➤ Environmental impacts ➤ Stakeholder process ➤ Approval by the host country
/2/	30 th October 2007 to 2 nd November 2007	Clean Air Trade, Inc. (consultant)	<ul style="list-style-type: none"> ➤ Project design ➤ Technical equipment ➤ Sustainable development issues ➤ Baseline determination ➤ Additionality ➤ Crediting period ➤ Monitoring plan ➤ Management system ➤ Environmental impacts ➤ Stakeholder process ➤ Approval by the host country
/3/	30 th October 2007	Pengyang Municipality & Local Community	<ul style="list-style-type: none"> ➤ Project design ➤ Project related legal issues ➤ Project status ➤ Sustainable development issues ➤ Environmental impacts ➤ Stakeholder process ➤ Issues affecting the local community ➤ Approval by the local governments

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to TÜV Rheinland validation team's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a small-scale CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the Federal Intertrade Hong-Ru River Solar Cooker Project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of small-scale CDM criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) small-scale CDM and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a small-scale CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities		
Requirement	Reference	Conclusion
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.</i>

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the small-scale PDD template, version 03 - in effect as of: 22 December 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Validation conclusion
<i>If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".</i>

Figure 1 Validation protocol tables

3.4 Internal Quality Control

The validation report including the initial validation findings underwent a technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for small-scale CDM validation and verification.

3.5 Validation Team

Role/Qualification	Last Name	First Name	Affiliation of Team Members
Team Leader MSc, BEng	Wong	Wai Kwok	TÜV Rheinland Hong Kong Ltd.
Auditor MSc, BSc	Fan	Roy	TÜV Rheinland Hong Kong Ltd.
Auditor MSc, BSc	Chan	Wilfred	TÜV Rheinland Hong Kong Ltd.
Internal Reviewer PhD	Brinkmann	Manfred	TÜV Rheinland Japan Ltd.

4 VALIDATION FINDINGS

The findings of the validation related to the revised PDD are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design shall be documented and described in the validation report, where the corresponding responses shall be reflected in the revised and resubmitted project design documentation.

4.1 Participation Requirements

The project participants are Ningxia Federal Intertrade Co. Ltd. (NXFI), from P.R. China, and SwissRe Global Markets Limited, from the Netherlands, where the host party meets all relevant participation requirements in small-scale CDM.

The Letter of Approval (LoA) /5/ has been received from the DNA of China for authorizing NXFI as project participant and confirming that the project contributes to China's sustainable development.

The proposed project is a bilateral CDM-project, with the Netherlands identified as the Annex I party. The LoA /25/ from the Netherlands has also been issued on 25th April 2008.

The validation did not reveal any public funding, according to Annex 2 of the PDD. The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) towards China. The project proponent will rise its own funding from internal accrual and advance payment from the CER buyer which stated in the Term Sheet of Purchase of Certified Emission Reduction /17/. The validation team also verified with the BAGST of Pengyang County and the Ningxia Region Energy Station officials /vi, ii, iii, v/ and confirmed that there was no ODA involved in the project.

4.2 Project Design

The "Federal Intertrade Hong-Ru River Solar Cooker Project" is located on the dry land of southern Ningxia in northwestern China. The proposed project will install 17,000 solar cookers for the rural residents. The rating power of each solar cooker is 773.5 W and the total capacity of the proposed project is 13.1 MW which shall be discussed in Section 4.6 of this report. The proposed project will enable the rural residents to efficiently substitute solar energy for a part of fossil fuel (coal) used in daily cooking and water boiling, avoiding CO₂ emission that would otherwise be generated by fossil fuel consumption. The proposed project will not generate any electricity nor connect to power grid. The proposed project will improve the indoor hygiene of rural residents and improve the living condition and quality of rural residents. There will be approximately 17,000 low-income households or 68,000 villagers directly benefited by the implementation of the proposed project. It is estimated that 35,723

tCO₂e emission reductions will be resulted per annum over the next fixed 10 years of crediting period.

The southern Ningxia is one of the most poverty regions in China according to the Encyclopedia of Ningxia /16/, which is verified by the validation team to be valid, the China Central Government decided to put Pengyang and other 3 nearby areas as a poverty alleviation area. The average annual villager income was CNY 1,518 in 2005 which indicated in the Almanac of Ningxia 2005 /15/ and verified by the validation team to be valid.

The cost of each solar cooker is around CNY 300, which indicated according to the quotes /26/ from 3 solar cooker manufacturers nearby Pengyang County.

Therefore the validation team considered that the cost of solar cooker is significant portion, i.e. 19.7% of the villagers' average annual income. It is unlikely for the villagers to spend a large portion of income on a solar cooker.

During the OSV, the project location could be clearly identified according to the co-ordinates given in the PDD /4/, i.e. east longitude 106°17'-106°54' and north latitude 35°40'-35°53'. The total area of the project site is about 1163km². The stated project area is checked against the Atlas of Ningxia Hui Autonomous Region /31/ and it is confirmed to be covering the five townships involved in this proposed project, i.e. Baiyang, Gucheng, Xinji, Chengyang, Honghe. The validation team confirmed with the NXFI's management /xi/ during the OSV. The BAGST of Pengyang County official /vi/ has also confirmed that there is no other CDM solar cooker project within the boundary. The validation team aware that another small scale solar cooker project is next to the project boundary, Federal Intertrade Pengyang Solar Cooker Project (Pengyang Solar cooker project) (http://cdm.unfccc.int/Projects/Validation/DB/CKJBBD21O0L6INVMILOSD14PZX3TO8/vi_ew.html). The Pengyang project is still under validating by TUV Rheinland and not yet been submitted for registration. The Pengyang project is planning to install 13.1 MW solar cooker with 35,723 tCO₂e emission reduction per annum. According to the compendium of guidance on the debundling for SSC project activities, Annex 27 of EB36 (http://cdm.unfccc.int/EB/036/eb36_repan27.pdf), the project activity can qualify to use simplified modalities and procedures for small-scale CDM project activities when the total size of such an activity combined with the previous registered small-scale CDM project activity does not exceed the limits for small-scale CDM activities as set in paragraph 6(c) of the decision 17/CP.7¹. According to the AMS I.C version 12, thermal generation capacity shall be less than 45MW which the total generated capacity of the both projects are 13.1MW + 13.1MW = 26.2MW. Nevertheless both projects have not been registered in UNFCCC.

A CER buyer, Swiss Re Global Markets Limited, have signed the term sheet /17/ of CER purchase with the project owner on 2nd November 2007. The document is available for inspection by the validation team to be valid.

The project is considered to be contributing to sustainable development in the host country (P.R. China), by on one hand utilizing renewable solar resources available in the project region, and on the other hand eliminating the environmental pollution caused by operation of coal fuel-fired cooking. In addition to CO₂ emission reductions, the project would mitigate

¹ Limits have been revised as set in paragraph 28 of decision 1/CMP.2

other pollutants. Several more benefits would be expected by implementation of the proposed project, which includes provide rural residents with a clean, practical and convenient method for their daily cooking, and improve indoor air quality of rural residents by burning less coal. During the OSV, the validation team observed that all the cooking stoves in the region are placed into a cave or inside the house. The reduced coal consumption shall relief the financial burden of the poverty families /32/, it is confirmed by the validation team to be valid. As confirmed by the local government officials /i/ from Pengyang Development & Reform Commission during on-site interview, sustainable development in social, environmental and economic aspects can be achieved by implementation of the proposed project.

During the OSV with NXFI's management representative /xi/, it is understood that NXFI is responsible for organizing the necessary training for the operation, maintenance and monitoring of CDM implementation. The project-specific training plan /11/ is available for checking and the training programme will be started after the project is registered as CDM project according to the project master schedule /22/.

The project proposal /6/ was prepared by NXFI in August 2007, which is recorded and approved by Pengyang Development and Reform Commission (PDRC), Ningxia Hui Autonomous enterprise investment project (Ref. No.: PengFaGaiBeiAn [2007] 11) /18/ on 10th October 2007, it is verified by the validation team during the OSV and confirmed by Pengyang County's government official /i/. The Monitoring plan /8/, maintenance and repair method /9/ and the implementation plan /10/, which is prepared by NXFI, are available during OSV for inspection.

A stakeholder consultation by the means of questionnaire survey were carried out in July 2007 and March 2008 as mentioned in Section E of the PDD. It is noted from the project proponent that the installation of solar cookers shall practically start only upon successful validation at the UNFCCC. The main equipments tendering process will be started after the project registered as CDM project, where the tendering document /7/ was checked by the validation team to be valid.

According to the PDD, a fixed crediting period of 10 years is selected. The starting date of project activity is 2nd November 2007, which is the contracted date of the CER purchase term sheet /17/ between NXFI and CER buyer which is verified by the validation team during the OSV. It is noted from the project proponent that the project activity shall practically be commenced, i.e. installation of solar cookers, only upon successful registered as a CDM project at the UNFCCC. The starting date of crediting period is 1st February 2009. The expected operational lifetime of the project activity is 10 years which is confirmed by three solar cooker manufacturers' vender quotes /26/. The manufacturer had quoted the solar cooker could lasted for 10 years operation, the vender quotes were checked and verified by the validation team.

By checking the project proposal /6/ dated August 2007, it is verified by the validation team that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, and the project proponent considered that the registration as CDM project could generate the project revenue through selling of the CERs.

A full history of the project, which has been duly verified and checked by the validation team during document review and on-site interview to be valid, is provided below:

1. In August 2007, the project owner considered to distribute solar cookers in order to replace the coal-fired stove in rural area. The Yulin Solar Cooker Investment Project Proposal /6/ was prepared by NXFI on August 2007. Later on the Ningxia Federal Intertrade Yulin Solar Cooker project (<http://cdm.unfccc.int/Projects/Validation/DB/FSRV2HPP6DAORYO1BZNTQSEMIDD/CB1/view.html>) has been published on the UNFCCC website on 2nd October 2007.
2. The project title and location change request letter /32/ has submitted to the validation team on 27th October 2007. The project site and the project title have been changed. The letter has been confirmed by the validation team to be valid. During the OSV, the validation team has also confirmed with the project owner that the installed capacity and the technology of the Hong-Ru River Solar Cooker Project would be same as the Yulin Solar Cooker Project. The project owner also confirmed that the change would bring a better management because there is another similar solar cooker project, Pengyang Solar Cooker project, on the same County. In addition, the project owner confirmed that the content of Yulin validation team has confirmed with the project owner that the project proposal /6/ of Yulin project is valid for Hong-Ru River Project;
3. The Hong-Ru River project was approved by Pengyang County Development and Reform Commission (Ref No.: PengFaGaiBeiAn [2007] 11) /18/ on 10th October 2007;
4. The registration form /19/ for the environmental impact on construction projects (RFEIP) was prepared on 8th October 2007, and approved by the Pengyang County Construction and Environmental Protection Bureau (EPB) on 18th October 2007 /20/;
5. On 2nd November 2007, the Term Sheet /17/ of Purchase of Certified Emission Reductions (Ref No.: UK/1399516/01) has been signed between Swiss Re Global Markets Limited (CER buyer) and Ningxia Federal Intertrade Co. Ltd. (project proponent) which has been selected as the starting date of project activity;
6. In January 2008, the draft tender document /7/ has been prepared for the solar cooker tendering. The installation of solar cookers shall practically start only upon successful validation at the UNFCCC.

4.3 Baseline Determination

The project activity does not involve any grid-connected electricity generation through the utilization of solar resources. It applies the AMS-IC. version 12 – “Thermal energy for the user with or without electricity”, which is available to be applied since 10th August 2007.

The Bureau of Agriculture, Graze, and Science & Technology of Pengyang County (BAGST) has issued an official document /29/ in April 2008 to explain the local usual practice of daily water boiling and cooking. In the document, it reads:-

“As the governmental branch in charge of rural affairs of Pengyang county, we confirm the following:

Pengyang County has a population of 251.8 thousands, of which the rural population is 230.7 thousands.

The county consists of two regions: the northern mountainous region and the southern Hong River and Ru River region. All the rural residents in these two regions use coal as fuel for their daily cooking and water boiling (currently the rural residents use unimproved traditional stove with a thermal efficiency of less than 15%). Electricity is used for lighting only. There are limited straws in the county. Some straws are used for feeding animals and the rest are used as feedstock of paper industry. The county's dominant activity is agriculture and all the animal wastes are used for fertilizers in the fields.

According to Forestry Law and relevant regulations that close the mountain and forbid grazing, cutting and damaging forestry and vegetation is strictly prohibited. Therefore, cutting wood or vegetation as daily fuel is unlawful.

Therefore, besides coal, the rural residents in our county do not use electricity, straw, animal waste, or firewood as energy for cooking.”

During the OSV with the rural residents, the rural residents claimed that using coal-fired stoves for their daily cooking and water-boiling are the common practice. The straw of maize and other biomass residues are mainly used as feedstuff only. Soil loss and limited amount of vegetation were observed. The validation team also observed during the OSV that the local rural residents used coal as the fuel in the kitchen for their daily cooking and water-boiling.

The above official document /29/ has been confirmed by the validation team to be valid. Taking into account of this document and OSV observation, the validation team therefore confirmed that the coal fired stove is common practice for local cooking and water boiling.

Coal is the major energy source in Ningxia rural area which indicated in the China energy statistical yearbook 2006 /23/. The document has been confirmed and verified by the validation team to be valid. For the rural area, the villager mainly consumed 922.7kt coal and raw coal and 2.93×10^5 MWh electricity in 2005. Comparing with the urban area in Ningxia, it only consumed 279.4kt coal and raw coal and 7.02×10^5 MWh electricity. The coal consumption in the rural area is far more than the urban area.

Therefore the validation team is confirmed that the baseline scenario is the emission occurring due to cooking or water boiling through a coal-fired stove.

The project correctly applies the approved simplified baseline methodology for small-scale CDM project activities AMS-IC /Version 12 titled “Thermal energy for the user with or without electricity”. The use of this methodology is considered appropriate as the project activity involves solar energy to displace coal used for cooking and water-boiling for individual households or users with solar cookers. The total installation capacity is below the capacity threshold of 45MW as stated in the methodology.

The project locations are clearly shown in the PDD. The boundary is clearly defined as the project site which includes the Baiyang, Gucheng, Xinji, Chengyang, Honghe townships. For the purpose to avoid any misunderstanding on the de-bundling issue, the project proponent has identified a 1-km width belt zone adhered to the project boundary, at which the project proponent could clarify that there won't be any solar cooker being installed within this 1-km width belt zone. As observed during OSV with aid from the project proponent /xi/ and

BAGST official /vi/, the 1-km belt zone is indeed topographically a mountainous strip which is apparently not suitable for habitation. The matter is verified through confirmation with the BAGST official /vi/ that there is no other CDM solar cooker project within 1 km of the project boundary. The validation team could therefore conclude that the project is not a fragmentation of any large project activity and is not a de-bundled project.

As confirmed by the official /v/ of local Rural Energy Station of the BAGST that they will assist the project owner to select, install and monitor the participant villager. Each solar cooker will be put a serial number by the project developer for identification which is confirm by the management representative of NXFI /xi/. Therefore all solar cookers can be traced.

The baseline determination is transparent and reasonable.

The system boundary is justified transparently and is presented as below:

	GHGs involved	Description
Baseline emissions	CO ₂	Main emission source
Project emissions	--	The proposed project utilizes solar resource for heat generation where no auxiliary fuel shall be used

4.4 Additionality

The additionality of the project activity is demonstrated in the PDD by providing explanation to show that the project activity would not have occurred anyway due to the investment barrier:

Investment barrier

As mentioned in the PDD, the proposed project shall not generate any benefit throughout the entire project life if it is carried out without CDM support, and the upfront project investment of CNY 5.68 million shall obtain no return. The result of financial analysis is presented in the PDD and the separate excel calculation table. The NPV of the project without CDM subsidy is CNY -8.12 million which demonstrates that the project activity is unlikely to be financially viable without CDM support.

The following is an excerpt extracted from the PDD referenced in the investment analysis which demonstrates that the inputs values adopted for the investment analysis are in accordance with the best available market information:

According to EB38 meeting, the validation team considers that the period of time between the finalization of the project proposal /6/ (i.e. August 2007) and the investment decision /17/ (2nd November 2007) is sufficiently short that it is unlikely in the context of the underlying project activity that the input values would have materially changed. Details on how key financial input values and the IRR calculation being independently checked by the validation team are presented below:

Item	Data & Source	Remarks on Validation of Parameters
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Project life:	10 years - PDD	<p>17,000 sets of 773.5W rating power solar cooker (China national standard: NY/T219-2003) /12/</p> <p>Total power = 773.5W x 17,000 = 13.1MW</p> <p>Confirmed by OSV, i.e. checking with manufacturer and solar cooker vendor quotes document /26/.</p>
Equipment cost:	5.1 million CNY - PDD	<p>Each set of solar cooker = 300 CNY</p> <p>Total equipment cost = CNY 300 x 17,000 sets = 5.1 million CNY</p> <p>The validation team has checked with solar cooker manufacturer during the OSV and solar cooker vendor quotes document /26/ that 300 CNY per each solar cooker with transportation, installation and first three years maintenance service. The document is verified by the validation team.</p> <p>The validation team has checked with one of the solar cooker manufacturer during the OSV and the solar cooker price break down document /33/ that the unit price of CNY300 is broken down to contain CNY180 of equipment cost, and the remains be the cost for transportation fee, installation fee and 3-year after sale maintenance service. The document is verified by the validation team to be valid.</p>
Implementation Cost	510k CNY – PDD	The cost mainly uses for monitoring fee which will subcontract the monitoring procedure to Ningxia County Energy Station. The monitoring plan /8/ has been verified by the validation team to be valid.
Contribution from the user:	510k CNY – PDD	According to the project proposal /6/, each user has to pay 30 CNY, which is 1/10 of the original price of solar cooker, to cover the implementation cost which was confirmed by the PP and the BAGST official /vi/ during OSV.
Annual maintenance cost:	360k CNY - PDD	According to the solar cooker vendor quotes document /26/, the manufacturer is responsible for the first three years maintenance cost. The maintenance fee

		<p>from the fourth to tenth year will be bear by NXFI.</p> <p>NXFI assumed 20 CNY per each solar cooker annually is required with 6% inflation rate. Therefore the fourth year maintenance fee is 360k CNY and plus annual 6% inflation rate /27/ for subsequent operation years.</p> <p>The figures are checked by the validation team and with the solar cooker manufacturer to be valid. The validation team considers the quotes from 3 solar cooker manufacturers were plausible.</p> <p>Besides, it is noted by interview with the top management of project owner during OSV that the overall investment would even go beyond the stated amount due to the ever-increasing material, transportation & labour costs.</p>
Annual Inflation Rate:	6%	Based on the provided news article from New York Times /27/ which verified by the validation team, the inflation rate is higher than 6% in February 2008.
Income Tax Rate:	25%	The standard corporate income tax rate in China is 25% ² , which is confirmed by the validation team. There is no any tax benefit or exemption from the government which confirmed with the official /vi/ during OSV.
Discount Rate:	5.85%	The discount rate 5.85% /28/ for 60 years is used for NPV calculation, which is confirmed by the validation team.

It is noted in the revised PDD that the discussion of sensitivity analysis has not been carried out because the project does not generate any financial revenue except CNY 30, 1/10 of each solar cooker, is contributed by the user. The negative NPV indicates the project facing prohibited financial barrier.

As the project will not be kicked off and thereby induce any profitable revenue and tax unless subsidized by the CDM revenue, the project activity is deemed to be facing investment barrier and would not happen to be the “business as usual” scenario.

² China VAT: http://www.gov.cn/ziliao/flfg/17/07-03/16/content_554243.htm

In summary, the proposed project is demonstrated, within the documentation and the interviews, that the proposed project activity is additional and is not likely the baseline scenario nor financially attractive. It has also illustrated the project's necessity for CDM support in order to proceed further.

4.5 Monitoring

The project activity is correctly applying the Approved Monitoring Methodology AMS-I.C./Version 12 titled "Grid connected renewable electricity generation". Applicability criteria of the monitoring methodology to the project activity are met as noted in Section 4.2.

As stipulated in AMS-I.C./Version 12, if the emissions reduction per system is less than 5 tonnes of CO₂ a year, the project proponent has to i) record annually the number of systems operation and ii) estimate the annual hours of operation of an average system. As confirmed by the validation team, each of the solar cookers would expect to be reducing 2.1 tCO₂e per annum and NXFI has thus developed its monitoring plan /8/ according to the stated requirements. The calculation of emission reductions is verified by the validation team by checking the calculation sheets by an annual average reduction (35,723 tCO₂e) over total number of solar cooker (17,000 sets) to be installed.

The Hong-Ru River project monitoring plan /8/, dated Oct 2007, has clearly described the monitoring procedure in accordance with the monitoring methodology and identify the responsible parties. In the monitoring plan, NXFI is responsible for the overall monitoring management. In order to demonstrate monitoring steps are performed in a fair and independent way, the Rural Energy Section (RES), i.e. a government organization under the BAGST of Pengyang County, is responsible to execute the monitoring work which is sub-contracted by the NXFI. NXFI shall, prior to installation of solar cookers, provide appropriate training on monitoring plan /8/ to ensure the competency of the monitoring staff. Accuracy of the monitoring data shall be under surveillance by the CDM consultant, i.e. Clean Air Trade, Inc.

The number of systems operating will be recorded annually by the RES. A checklist has been prepared for data recording. The detail of the data collection procedure has been described in the monitoring plan /8/ dated Oct 2007, which is verified and confirmed by the validation team.

As accepted in the monitoring methodology, a survey method can be used to estimate the annual hours of operation of an average system. The annual hours of operation can be estimated from the total output and output per hour. The detail of the data collection procedure has been described in the monitoring plan /8/ dated Oct 2007. A 95% confidence level has been adopted by the NXFI for determining the sampling size of estimating the annual hours of operation of an average system. The adopted 95% confidence level is the most commonly used confidence limits among the different interval choices, which has been verified and confirmed by the validation team to be reasonably acceptable as refer to the

Engineering Statistic Handbook³ of National Institute of Standard and Technology (NIST), an agency of the U.S. Commerce Department's Technology Administration. The sampling method and procedure has been described in the monitoring plan. The calculation of sample size has been verified and confirmed by the validation team and the precision level (95%) of the sample size is considered reasonably appropriate for the project. A sample size of 309 has been picked for the 17,000 solar cookers. The 309 households are randomly selected by the monitoring team. Each household is required to fill in the record daily and RES will collect the record at least once a month. Then the record will be consolidated annually.

The PDD has made provisions in B.7 for monitoring the GHG emissions reduction due to the project activity.

The collected monitoring data, including i) number of solar cookers engaged in the proposed project and ii) the monthly operating time of each solar cooker, will be recorded and counter-verified against the sales contract and the sampling survey record. The monitoring plan has clearly described the overall monitoring procedure which has been verified and confirmed by the validation team.

The monitoring plan of the proposed project includes the followings:

- Monitoring Organization;
- Data Monitored
- Monitoring Method
- Data collection
- Maintenance
- QA/QC Procedures

The management team for monitoring of the project is identified in the PDD. As reported by the project proponent, the training programme shall be provided to the management team and operation team after the project has been registered for ensuring the relevant staffs are suitable and competent for carrying out the work. According to the master schedule /22/, the programme should be started in September 2007. The QA/QC Procedures procedure is also suitably described in the PDD.

Detailed monitoring procedures have been developed and the implementation of these will enable subsequent verification of the project's emission reductions.

4.6 Estimate of GHG Emissions

The GHG emissions calculations are transparently documented in the PDD and appropriate assumptions regarding expected amount of energy generated have been used to forecast the emission reductions.

³ Engineering Statistics Handbook, NIST, <http://www.itl.nist.gov/div898/handbook/eda/section3/eda352.htm>

Regarding the calculation of project emissions, since the project activity utilizes solar resource for heat generation where no auxiliary fuel shall be used, which is verified and confirmed by the validation team during the OSV, the project emission is therefore regarded as zero.

No leakage has to be considered because the solar cooker is not transferred from another activity or if the solar cooker is transferred to another activity. Serial number will be put into each solar cooker before delivery to the users for identification. The validation team confirmed with the management representative of NXFI /xi/ that the monitoring team of NXFI will confirm there is no transference of the solar cooker by verifying the serial number during the regular monitoring scheme.

According to the monitoring plan /8/, the condition of the solar cookers will be checked by the project owner and the local rural energy station and the plan is confirmed by the validation team. During the OSV, the management representative /xi/ of NXFI confirmed that the project would install newly manufactured solar cooker.

The formula below as stated in PDD is applied correctly and in accordance to the methodology AMS-I.C, version 12. The heat produced using fossil fuels the baseline emissions are calculated as follows:

$$BE_y = HG_y * EF_{CO_2} / \eta_{th}$$

- (i) The baseline emissions from steam/heat displaced by the project activity during the year y in tCO₂e, BE_y.
- (ii) The net quantity of steam/heat supplied by the project activity during the year y in TJ, HG_y
- (iii) The CO₂ emission factor per unit of energy of the fuel that would have been used in baseline plant in (tCO₂/TJ), IPCC default emission factors are used, EF_{CO₂}
- (iv) The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity, η_{th}

The formula of the estimated annual baseline emission of the project below as stated in PDD is estimated correctly. It is verified by the validation team to be valid.

The annual baseline emission of the project (BE_i) is based on the amount of annual quantity of heat supplied by the project activity, HG_i, and EF_{CO₂}, and η_{th} , the calculated as follows:

$$HG_y = \sum HG_i \quad (i = 1 \sim 12)$$

$$BE_y = \sum BE_i \quad (i = 1 \sim 12)$$

$$BE_i = HG_i * EF_{CO_2} / \eta_{th} \quad (i = 1 \sim 12)$$

Where HG_i is the net heat supplied in month i in TJ
 BE_i is the baseline emission in month I in tCO₂e

The thermal efficiency of 15% has been adopted for the traditional coal furnace (η_{th}) which is referable from the United Nations Development Programme's (UNDP) document /30/ and

confirmed by the ESMTS of Ningxia Hui Autonomous Region explanation letter /24/. Both documents have been confirmed with the validation team to be valid. The letter from ESMTS /24/ indicated that the rural villager of Pengyang County was still using the unimproved traditional stoves for their daily cooking and water-boiling which is confirmed by the validation team during the OSV, thus 15% thermal efficiency is reasonably appropriate for the project.

As per the methodology, the efficiency of the baseline units shall be determined by adopting one of the following criteria:

- a) Highest measured efficiency of a unit with similar specifications;
- b) Highest of the efficiency values provided by two or more manufacturers for units with similar specifications;
- c) Maximum efficiency of 100%.

The PDD submitted for registration indicates (section B.6.2, page 18, parameter 6) follows option a) and indicates two different sources on which the thermal efficiency of 15% for the traditional coal furnaces is based:

1. Letter dated 2008-04-02 from The Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region, a unit of Economic Commission of Ningxia and an authoritative source for energy data in the province, confirming that the stoves used by the rural families in the project site are old-style stoves whose thermal efficiency is less than 15%.
2. Publication “Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations”, United Nations Development Programme (UNDP), 2002
<http://www.undp.org/energy/publications/2002/2002b.htm>

The validation team had reviewed both of these sources for compliance with the requirements of paragraph 13 of AMS-I.C. (version 12), and indicated them as reviewed evidence documents into the reference list (Section 3.1, items /24/ and /30/). The former document was translated into English and uploaded together with the request for registration, whereas the latter is publicly available.

The following passages indicate how the methodology's requirement was validated.

Ad 1)

The explanation letter dated 2008-04-02 (Ref. /24/) from the Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS, a local energy technical entity under the Economic Commission of Ningxia Hui Autonomous Region) confirms that after ESMTS's own investigation and verification, the current practice by residents in the rural areas of Guyuan region and southern mountainous region in Ningxia (incl. Pengyang County, Haiyuan County, Longde County, Xiji County, etc.) is the use of unimproved traditional stoves. The thermal efficiency of these stoves was below 15% and the fuel used by these stoves for cooking and water-boiling was coal.

The stated figure of 15% was indeed obtained from a measurement campaign determining the thermal efficiency of domestically used rural coal-stoves in the southern mountainous region of Ningxia, performed by ESMTS between May and October 2007. ESMTS has provided a

further explanation letter dated 27th February 2009 (Ref. /N3/) for the purpose of clarifying the background and rationale of that measurement campaign. This testing series was independent from the proposed project and was originally aimed to obtain a clearer understanding on the application status of coal-stoves by rural families in southern mountainous region of Ningxia. It provided an accurate data for calculating energy consumption, which was in response to the goal of “energy saving” listed in the 11th Five-year Plan of Ningxia Hui Autonomous Region. ESMTS is the provincial authority in charge of collecting and monitoring energy usage data in Ningxia, and therefore responsible for conducting the test and on-site measurements.

100 rural families were randomly selected over seven counties (incl. Pengyang County, where the proposed project is located) for measurement of the stove efficiency. The sampling distribution and coverage is referable in the “sampling distribution table” (Ref. /N4/). The validation team has obtained and evaluated the full set of 100 original testing records. It was confirmed that

1. the measurement was performed on the basis of the relevant Chinese National Standard, i.e. “Method for testing household coal and stoves” (GB6412-86) (Ref. /N6/).
2. the measured thermal efficiency ranges from 9.6% to 15.0%, with an average of 12.3%.

These measurement results were the basis for the explanation letter dated 2nd April 2008 (Ref. /N2/), stating that the thermal efficiency of stoves in southern mountainous region in Ningxia is below 15%.

The data sheet indicating the highest measured efficiency of 15% is attached as Ref. /N5/ (note: these testing records are classified information of MSMTS and not permitted to be published; therefore only the data sheet with the highest efficiency is uploaded with this initial response).

The test report (Ref. /N3/) also states that “the coal-stoves used by the rural residents in the southern mountainous region of Ningxia are all traditional, unimproved stoves with low efficiency”.

The validation team has thus confirmed that the 15% thermal efficiency value applied in the PDD is indeed “the highest measured efficiency of a unit with similar specifications” obtained from a comprehensive measurement campaign. The requirements of paragraph 13 a) of AMS-I.C (version 12) are therefore regarded as fulfilled.

Ad 2)

The UNDP publication (Ref. /30/) states on page 8 that “*The most common method of cooking throughout rural areas of the developing world is the open hearth or three-stone fire, which typically transfers only 5-15 per cent of the fuel's energy into the cooking pot...*”. During the validation process, the validation team visited several households in order to determine the type of stoves typically used by the local population. The observed stoves fall into the category of traditional, unimproved stoves as defined in the reference source “Improved Household Stoves in China: An Assessment of the National Improved Stove Program (NISP)” /Ref. N7/. The authors of that study report stove efficiency measurements for several provinces in China, with a measured efficiency of 10-15% for traditional (unimproved) stoves (page 17).

This further supports the justification that the stoves being used in the rural areas of the proposed project location in Ningxia Region, designated as poverty alleviation area within the P.R. China, will have a thermal efficiency of at most 15%, and that this parameter is indeed conservative for the calculation of baseline emissions.

Daily solar cooker usage time has been explained by BAGST of Pengyang County which is a governmental branch in charge of rural affairs. The Explanation on solar cooker usage time and cooking habits in rural Pengyang County /29/ has stated that the rural family in Pengyang County has to spend at least 4 hours daily for cooking and water-boiling by solar cooker. The document has been confirmed by the validation team to be valid.

The monthly solar irradiance and sunlight time is obtained from the Ningxia Meteorological Archives /13/, where the data has been confirmed by the validation team. The record was managed by Ningxia Hui Autonomous Region Meteorological Archives and gave the average monthly value from 2000~2007. The range of the irradiance values are from 398.5 W/m² to 746.1 W/m² and the yearly average is 587.4 W/m². The values are correctly applied in Annex 3 of the PDD and confirmed by the validation team to be valid.

The formula of Heat below as stated in PDD is applied correctly and in accordance to physics principle. It is confirmed by the validation team to be considered reasonably appropriate for the heat estimation.

The monthly net heat is calculated as follow:

$$\text{Heat} = \text{Power} * \text{Time}$$

The formula of 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 is estimated correctly and verified by the validation team to be considered reasonably appropriate for the project.

$$HG_i = n * [P_i * t_i * (3.6 \times 10^{-9})]$$

Where n is the total number of solar cookers installed by the proposed project. There are 17,000 sets solar cookers will be installed

P_i is the actual average power of the solar cooker in month i

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

$$P_i = 773.5 * (R_i / 700)$$

Where 773.5W is the rating power of solar cooker

R_i is the actual solar irradiance rate in month i in W/m².

The determination of rating power (W), i.e. 773.5W, is based on the information of solar irradiance (R), i.e. 700W/m², solar cooker's light-collecting area (A), i.e. 1.7m, and the

thermal efficiency of the solar cooker (η_{solar}), i.e. 65%. The calculation is demonstrated by the project proponent as the formula below:

$$\text{Rating power} = R \cdot A \cdot \eta_{\text{solar}}$$

The calculation is referenced to the corresponding National Standard for solar cooker (GB: NY/T219-2003) /12/, which has been provided by the project owner and verified by the validation team to be valid. With all the parameters being checked up by the validation team through relevant documents, e.g. National Standard, technical specification & test report of solar cookers, the rating power calculation is considered convincingly demonstrated.

The emissions reduction formula applied below is correctly and verified by the validation team to be valid:

$$ERy = BEy - PEy - Ly$$

The calculation of emission reductions (ERy) is based on the amount of the baseline emissions from heat displaced by the project activity minus the amount of the project emissions (PEy) and the leakage (Ly).

While the project emissions & leakage are zero, the baseline emission is equal to the emission reductions and has been estimated to be 35,723 tCO₂e per year in the PDD, based on an *ex-ante* baseline emission factor of coal which is 94.6 tCO₂e/TJ from IPCC reference data⁴. The validation team has verified that a conservative emission factor has been adopted by the project owner among the various coal products' emission factors from IPCC⁵, e.g. coke oven coke is 107 tCO₂e/TJ, lignite is 101 tCO₂e/TJ and sub-bituminous coal is 96.1 tCO₂e/TJ. Preciseness of the data was verified by the validation team through document review. According to the latest Chinese DNA document⁶, the China emission factor shall be referred and used IPCC value which there is no published China emission factor value. Thus the validation team considers IPCC value is considered reasonability appropriate to the project.

The *ex-ante* estimation of emission reductions is based on the monthly solar irradiance value and the relevant baseline emissions and project emissions of the project, which the validation team considers that the estimation is reasonably and transparently carried out.

4.7 Environmental Impacts

The registration form for the environmental impact on construction projects (RFEIP) /19/ has been recorded in PDD, Section D. It is reported that the project activity is not expected to cause any significant environmental impacts. The environmental impacts of the project were sufficiently assessed and presented in the RFEIP. The preparation of RFEIP is under supervision by the State Environmental Protection Administration of China and the document

⁴ Volume 2, 2006 IPCC guidelines for national greenhouse gas inventories

⁵ Volume 2, 2006 IPCC guidelines for national greenhouse gas inventories

⁶ 2008 Baseline Emission Factors for Regional Power Grids in China,
<http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2976>

has been approved /20/ by the Pengyang County Construction and Environmental Protection Bureau (EPB) and is inspected by the validation team to be valid.

No significant environmental impact is identified during the on-site assessment. The environmental protection measure is satisfied as confirmed by the interview with representative of local EPB and local villagers. No environmental complaint on the proposed project is received.

4.8 Comments by Local Stakeholders

Although it is not a formal requirement by the current legislation of the host country to carry out a public consultation process, a stakeholder survey were held to the local stakeholders in March 2008 to obtain their opinions on the project. 85 questionnaires distributed and collected. 100% of the comments from stakeholders considered that the project can help saving energy and its positive impacts far outweigh the negative impacts and would be willing to obtain the solar cooker. The 100% expressed their full support to the implementation of the project activity and willing to spend 30 CNY to purchase a solar cooker. The 85 interviewees have reached 80% confidence level of the total affected resident. All the comments were summarized and recorded in the PDD, Section E.

During the OSV, representatives /x/ from the local community were interviewed. In general, the interviewees show adequate understanding of the nature of the project. The citizens consider that the project would benefit the improvement in local social, economic and environmental development. The response is overall supportive to the project implementation.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 20th October 2007, version 02 was made publicly available on UNFCCC's website

(<http://cdm.unfccc.int/Projects/Validation/DB/0BLAQIXEC607FZIN6GSTMWN881FIT0/view.html>) and parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 16th February 2008 to 16th March 2008. One global stakeholder comment was received on 19th February 2008. The comments received are provided in below:

Comment by: Long Yan

Comment provided on: 19th February 2008

Subject: Federal Intertrade Hong-Ru River Solar Cooker Project

Comment:

Project mentioned that there is economic barrier that local residents would not purchase the solar cookers. How the CDM could help the local residents overcome the barrier? Is the project owner, Ningxia Federal Intertrade Co. going to provide these solar cookers to the local residents for free of charge?

TÜV Rheinland's validation team forwarded the above comments to the project proponent on 19th February 2008, and requested the project proponent to provide a response to the comment received. Clean air trade Inc. response is given below:

Response to comment made by Long Yu:

REPLY:

The project location belongs to National-level Poor Counties of China. The price of a solar cooker is equal to a large proportion of the villager's annual income. The villagers cannot afford spending such a large amount of money on solar cooker. With CDM project, each rural family can get one solar cooker from Ningxia Federal Intertrade Co. at just 30 Chinese Yuan, which is only 10% of its normal price. Therefore, the implementation of CDM project helps the villagers overcome the economic barrier in purchasing the solar cooker.

As explained above, the project owner, Ningxia Federal Intertrade Co. will provide the solar cookers to the local residents at 30 Chinese Yuan (about 2.8 Euro) per solar cooker.

TÜV's opinion towards the comment and response received:

The validation team has reviewed the public comments received. The comment by Long Yu enquired that how the CDM could help the local residents overcome the barrier? And the local residents have to pay for the solar cooker?

The validation team has undertaken due considerations on the comments and responses given during the validation, and has reviewed relative document to the corresponding questions.

Firstly the Hong-Ru River region is one of the poverty regions in China /16/. The China Central Government decided to put Pengyang and other 3 nearby areas as a poverty alleviation area /16/. The average annual villager income was CNY 1,518 in 2005. Each solar cooker is cost around CNY300, which include the transportation, installation and first three years maintenance fee. The cost of a solar cooker has quoted from 3 nearby solar cooker manufacturers /26/ and the quote was confirmed by the validation team. According to the project proposal /6/, each villager has only to pay CNY30 per each, 1/10 of the original solar cooker's fee, as the administration fee /6/. Without the CDM subsidy, each villager would continuous using coal as the cooking fuel as reported in section 4.3 of this validation report.

Therefore the validation team considers the proposed project could help the project owner to overcome the financial barrier. By using this project, the local poverty villagers can award a solar cooker at 1/10 of the original price.

APPENDIX A

Small-Scale CDM Validation Protocol

Introduction

This document contains a generic Validation Protocol for small-scale CDM projects, which must be seen in conjunction with the Validation and Verification Guidelines and the Validation Report Template.

This validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a project is expected to meet; and
- It ensures a transparent validation process by inducing the validator to document how a particular requirement has been validated and which conclusions have been reached;

This protocol contains two tables with generic requirements for validation projects. Table 1 shows the requirements that the GHG emission reduction project will be validated against. Table 2 consists of a checklist with validation questions related to one or more of the requirements in Table 1. The checklist questions may not be applicable for all investors, and should not be viewed as mandatory for all projects. Where a finding is issued, a corrective action request or clarification request are stated. The resolution and final conclusions of these requests should be described in Table 3 of this protocol.

Before this generic validation protocol can be applied to validate a specific project, the validator must review and adjust/amend the protocol to make it applicable to individual project characteristics and circumstances as well as individual investor criteria. The application of the validator's professional judgement and technical expertise should ensure that checklist amendments cover all necessary specific project requirements that have impact on project performance and acceptance of the project. Given the above, the checklist part of the protocol is neither exhaustive nor prescriptive.

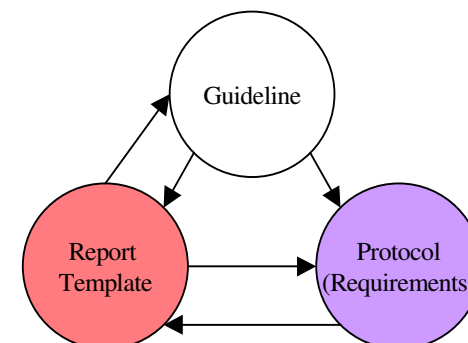


Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	OK	Table 2, Section E.4.1 Annex I Party is Netherlands. Reference: www.unfccc.net
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	CAR01 OK	Table 2, Section A.3 Confirmation by China DNA (NDRC) has been received (LoA) /5/.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	OK	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	CAR01 OK	Approvals of voluntary participation from the China DNA & Netherlands DNA have been received.
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	OK	Table 2, Section B.2.1

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This document is a part of the Validation and Verification Manual

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
would have occurred in the absence of the registered CDM project activity			
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	CL01 OK (Refer to table 3 below)	The project does not receive any public funding, according to Annex 2 of the PDD. The review of documents and OSV did not reveal any information indicating that ODA is used for the project financing. The project investment amount is RMB 8 million but the registered capital of NXFI has RMB 3 million. The plan for Bank loan should be provided for verification.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	OK	China DNA – National Development and Reform Commission (NDRC); The Netherlands DNA – The Ministry of Housing, Spatial Planning and the Environment (VROM)

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities § 30)	OK	China ratified the Kyoto Protocol on 30 th August 2002; The Netherlands ratified the Kyoto Protocol on 9 th September 2003.
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK	Table 2, Section A.1
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	OK	Table 2, Section A.1
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	CL09 OK (Refer to table 3 below)	Table 2, Section A.1.3 and B.1 The project category is Type I.C. – Thermal energy for the user with or without electricity. <u>CL09:</u> Please determine and justify the proposed project is not a government planned project.
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale	CL18 OK	Table 2, Section G Public notification was

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
	CDM Project Activities §22b	(Refer to table 3 below)	made. As revealed in the stakeholder survey result, numbers of percentage of them have some opinions. Please elucidate for their major concerns and how the project proponent acts in response correspondingly. CL18: Please elaborate how the local stakeholders are selected and how they are invited.
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK	Table 2, Section F RFEIP has been approved by local EPB on 10 th October 2007
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	OK	PDD was published for invitation of comments for a 30-days period from 16 th Feb 2008 to 16 th Mar 2008. A comment was received, which has reported on section 4.3 of this validation report

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	PDD	DR	Yes. The Federal Intertrade Hong-Ru River Solar power Project is a small solar thermal project, where the installed capacity is 13.1 MW. CL03 Please demonstrate the CDM was considered prior to the decision to carry on the project activity. Please provide the updated project progress status chart and history list of the project for reference.	CL03	OK (Refer to table 3 below)
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	PDD	DR, I	As confirmed and reported during the OSV, this project is not a de-bundled component of a larger project activity.	OK	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	PDD	DR	Yes. This project involves renewable energy technology that supplies thermal energy to the user directly which meets all the application criteria stated in the methodology AMS I.C.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	PDD	DR	<p>Yes. The project is located on the southern Ningxia in northwestern China, which is clearly defined in PDD (A.4.1)</p> <p><u>CAR02:</u> Please provide more specific location information at PDD A.4.1.4. (e.g., physical address of the plant, or a more detailed municipal or street map) in order to uniquely identify the proposed project.</p> <p><u>CL07:</u> The lack of determination of project boundary is considered. Please specific the project boundary in the PDD.</p>	CAR02 CL07	OK (Refer to table 3 below)
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	PDD	DR, I	<p>Yes. The project evacuates the solar thermal energy to the individual villager for cooking and water boiling in rural area. A clear description of the deployed technology is defined.</p> <p><u>CL02</u> Please elaborated and demonstrate the number of solar cookers will available for the proposed project boundary. The number of systems operating has to be recorded annually if the emissions reduction per system is less than 5 tonnes of CO2 a year according to the baseline and monitoring methodologies AMS-I.C. version 12.</p>	CL02	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2.3. Does the project design engineering reflect current good practices?	PDD PRO	DR, I	The technical specifications have been provided to the validation team. The project proposal was conducted by the NXFI. The technology used for the project reflects current good practices.	OK	OK
A.2.4. Will the project result in technology transfer to the host country?	PDD	DR, I	No technology is transferred from other countries to this Project activity.	OK	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	PDD	DR, I	Yes, the whole training program contains the CDM knowledge, the operational regulations, the quality control (QC) standard flows, the data recording requirements and the management rules.	OK	OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	PDD	DR, I	Yes. The project will supply clean renewable energy to rural resident, less pollutant will be eliminated by traditional coal-fired stove.	OK	OK
A.3.2. Will the project create any adverse environmental or social effects?	PDD PRO RFEIP	DR, I	After OSV and review of RFEIP Report, minimal impact to the environment was observed, where specific control measures is adopted by the project owner as suggested in the RFEIP Report.	OK	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	PDD LoA	DR, I	Yes, the project was approved by the China DNA (NDRC) and the LoA /5/ is received for showing the project being in line with sustainable development policies of China.	CAR01	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			CAR01: The LoAs from DNA of P.R. China and the Netherlands are not available for inspection. Please accordingly obtain and submit to the validation team for verification.		
A.3.4. Is the project in line with relevant legislation and plans in the host country?	PDD EIA	DR, I	Yes. A RFEIP was conducted according to the Chinese environmental regulations, and was approved by the Pengyang County Construction and Environmental Protection Bureau on 10 th October 2007	OK	OK
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	PDD	DR, I	The approved methodology For Type I Cat. C has been considered in accordance with simplified baseline and monitoring methodologies for selected CDM projects - Appendix B. CAR03: Please noticed that the CDM baseline methodology AMS-I.C. Version 11 applied for the project has been expired. AMS-I.C. Version 12 has been valid since 10th August 2007.	CAR03	OK (Refer to table 3 below)
B.1.2. Is the baseline methodology applicable to the	PDD	DR, I	Yes. The adopted methodology is applicable to a solar	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
project being considered?			power plant, i.e. a renewable energy source.		
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	PDD	DR, I	<p>The project claims to face a barrier, which includes:- Investment barrier: NPV -7.4 million CNY has been calculated without CDM subsidiary;</p> <p><u>CL10:</u> Please elaborate the economic barrier in terms of project developer. The CER revenue is attained by the project developer and subsidized the solar cookers installation. The economic barrier shall be referred and reflected the project is not financial viable without CDM support.</p> <p><u>CL11:</u> Please elaborate more clearly on technical barrier. The required skill of solar cooker operation and maintenance is very low as confirmed with the solar cooker manufacturer. The statement is too vague to substantiate the technical barrier.</p> <p><u>CL12:</u> The other barriers has to be elaborated more substantiated, evidence has to be provided for all assumptions. The statement is too vague to substantiate the other barrier.</p> <p><u>CL13:</u> Please demonstrate the unit price of thermal cookers which are inconsistent with the PDD and the interview with the solar cooker manufacturer. Evidence should be</p>	CL10, CL11, CL12, CL13	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			provided to the validation team for verification (e.g. tender document and the retail price...etc.).		
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	PDD	DR, I	Yes, coal fired stoves for the daily cooking and water boiling is chosen as the baseline. The determination is transparent and conservative as discussed in section 4.3, PDD.	OK	OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	PDD	DR, I	Yes, as discussed in A.3.3	OK	OK
B.2.4. Is the baseline selection compatible with the available data?	PDD	DR, I	Yes. Calculation of the solar irradiance rate and the emission factor of coal from IPCC are adopted. CL16: The project proponent should also demonstrate that a conservative approach has been adopted in selection of data source for determination the estimated emission reduction. The used of solar cooker's thermal efficiency value is much lower than the manufacturer defined value. CL17: All the data/parameter has to be elaborated more substantiated, evidence has to be provided for the baseline emissions.	CL16 CL17	OK (Refer to table 3 below)
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	PDD	DR, I	Yes. Refer to B.4 of PDD. CL08: The use of coal stove to cook and for water boiling as the baseline scenario should be substantiated. Evidence has to be provided for the baseline emission assumption.	CL08	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	PDD	DR, I	Yes. Tendering document /7/ of project is prepared at January 2008; Expected operational lifetime of the project activity is 10 years. CL04: Please clarify about the starting date of project activity reported in Section C of PDD, with provision of supporting documents, as the starting date of project activity should be the earliest of the dates at which the implementation or construction or real action of the project activity began. Furthermore the start date of crediting period is not realistic and amendment required.	CL04	OK (Refer to table 3 below)
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	PDD	DR, I	Yes, as reported during OSV, fixed crediting period was selected as 10 years; Starting date of the crediting period is 1 st February 2009, and it ends on 31 st January 2019. CL05: The solar cooker installation plan has to be elaborated in the PDD. It should be checked whether the status of installations corresponds to the start of the crediting period defined in the PDD.	CL05	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	PDD	DR, I	Yes. The selected monitoring methodology is in line with the monitoring methodologies	OK	OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	PDD	DR, I	Yes. the monitoring methodology has demonstrated at PDD B.7.2	OK	OK
D.1.3. Is the application of the monitoring methodology transparent?	PDD	DR, I	Yes. Direct metering to be applied for monitoring of electricity generated by the project activity is considered transparent.	OK	OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	PDD	DR, I	Yes. Real measurements can be acquired by the check list and preparing a monitoring report at the end of each year, which includes the number of systems operating and estimating the annual hours of operation of an average system by sampling survey, the verification files, the emission reduction evaluation files and the records on monitoring apparatus' repairs and tests. CL14: Please specific and elaborate the monitoring method has been selected according to paragraph 17, AMS-I.C version 12. It has to be demonstrated the selection at PDD.	CL14, CL15	OK (Refer to table 3 below)

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			CL15: The monitoring of number of systems operation should be described in the PDD.		
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	PDD	DR	Yes. The proposed project is a solar power project where its greenhouse gas emissions are zero.	OK	OK
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	PDD	DR	Not applicable	OK	OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	PDD	DR	Not applicable	OK	OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	PDD	DR	Not applicable	OK	OK
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	PDD	DR	According to the monitoring plan /8/, the condition of the solar cookers will be checked by the project owner and the local rural energy station and the plan is confirmed by the validation team. During the OSV, the management representative /xi/ of NXFI confirmed the project would install newly manufactured solar cooker.	OK	OK
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	PDD	DR	Not applicable	OK	OK

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D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	PDD	DR	Not applicable	OK	OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	PDD	DR	Not applicable	OK	OK
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	PDD	DR	Yes.	OK	OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	PDD	DR, I	Yes. In addition to the usage recording by the rural resident, the project owner will estimate and verify the record by sampling survey to ensure the working hour of the entire project at every month. The number of the systems operating will also be checked by the project owner at yearly base.	OK	OK
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	PDD	DR, I	Yes.	OK	OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	PDD	DR, I	Yes. The monitoring data shall be kept 2 more years after the credit period.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	PDD	DR, I	Yes. The project proponent NXFI is responsible for the project operation, maintenance, monitoring and reporting.	OK	OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	PDD	DR, I	The monitoring organization chart in PDD B.7.2 clearly provides a description of the single responsibility of the relevant party.	OK	OK
D.5.3. Are procedures identified for training of monitoring personnel?	PDD	DR, I	Yes, as reported during OSV, the training of monitoring personnel is scheduled in before and after the solar cooker installation.	OK	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	PDD	DR, I	Not applicable	OK	OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	PDD	DR, I	Reference – “Testing report and Implementation plan	OK	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	PDD	DR, I	Reference – “Implementation plan”	OK	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	PDD	DR, I	Idem	OK	OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to	PDD	DR, I	Reference – “Implementation plan”	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
keep, storage area of records and how to process performance documentation)					
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	PDD	DR, I	Reference – “Implementation plan”	OK	OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	PDD	DR, I	Idem	OK	OK
D.5.11. Are procedures identified for project performance reviews?	PDD	DR, I	Idem	OK	OK
D.5.12. Are procedures identified for corrective actions?	PDD	DR, I	Idem	OK	OK
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	PDD	DR, I	The proposed project is a small solar power project where its greenhouse gas emissions are zero.	OK	OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	PDD	DR	Not applicable	OK	OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	PDD	DR	Not applicable	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.1.4. Are the calculations documented in a complete and transparent manner?	PDD	DR	Not applicable	OK	OK
E.1.5. Have conservative assumptions been used?	PDD	DR	Not applicable	OK	OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	PDD	DR	Not applicable	OK	OK
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	PDD	DR	According to the monitoring plan /8/, the condition of the solar cookers will be checked by the project owner and the local rural energy station and the plan is confirmed by the validation team. During the OSV, the management representative /xi/ of NXFI confirmed the project would install newly manufactured solar cooker. Therefore there is no leakage in the project.	OK	OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	PDD	DR	Not applicable	OK	OK
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	PDD	DR	Not applicable	OK	OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	PDD	DR	Not applicable	OK	OK
E.2.5. Have conservative assumptions been used (if applicable)?	PDD	DR	Not applicable	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	PDD	DR	Not applicable	OK	OK
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	PDD	DR, I	Yes. The baseline emission boundaries were defined as the system boundary. The five townships in southern Pengyang County in Ningxia Hui Autonomous Region are defined and verified by the validation team.	OK	OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	PDD	DR, I	All the direct baseline emissions were captured.	OK	OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	PDD	DR, I	Yes.	OK	OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	PDD	DR, I	Yes. The methodology complies with the SSC category I.C. project activities.	OK	OK
E.3.5. Are the calculations documented in a complete and transparent manner?	PDD	DR, I	Yes. The calculation is done in a transparent manner. CL06: The testing standard and testing report of the solar cooker should be specified in the PDD and submit to DOE for verification. CL17:	CL06 CL17	OK (Refer to table 3 below)

* MoV = Means of Verification, DR= Document Review, I= Interview
CDM Validation Report no.: 01 997 9105045593, rev. 02

*This validation protocol must be seen in conjunction with the Validation Guidelines and the Validation Report template.
The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			All the data/parameters have to be elaborated more substantiated, evidence has to be provided for the baseline emissions.		
E.3.6. Have conservative assumptions been used?	PDD	DR, I	Yes. The justification for selecting the average plant efficiency is reasonable. CL17: All the data/parameters have to be elaborated more substantiated, evidence has to be provided for the baseline emissions.	CL17	OK (Refer to table 3 below)
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	PDD	DR, I	Yes.	OK	OK
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	PDD	DR	Yes. The estimated emission reduction is 35,723 tCO ₂ e per annum over the 10 years crediting period from Feb 2009 to Jan 2019.	OK	OK
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	PDD	DR, I	An RFEIP was conducted as required by the Chinese Law and Regulations. The summary was revealed in Section D of the PDD.	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview
CDM Validation Report no.: 01 997 9105045593, rev. 02

*This validation protocol must be seen in conjunction with the Validation Guidelines and the Validation Report template.
The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F.1.2. Does the project comply with environmental legislation in the host country?	PDD	DR, I	Yes. The RFEIP has been approved by the Pengyang County Construction and Environmental Protection Bureau on 10th October 2007.	OK	OK
F.1.3. Will the project create any adverse environmental effects?	PDD	DR, I	With reference to the approval from the Pengyang County Construction and Environmental Protection Bureau, the project is unlikely to have significant environmental impacts.	OK	OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	PDD	DR, I	Yes. All environmental impacts has been identified and addressed in the PDD D.1	OK	OK
G. Comments by Local Stakeholder					
Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	PDD	DR, I	The project proponent has performed a formal consultation process with local stakeholders through local public notification and survey, which was submitted to the validation team for review.	OK	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	PDD	DR, I	CL18 Please elaborate how the local stakeholders are selected and how they are invited.	CL18	OK (Refer to table 3 below)
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD	DR, I	Not required.	OK	OK
G.1.4. Is a summary of the comments received	PDD	DR, I	Yes. A summary was prepared and was reviewed by the	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview
CDM Validation Report no.: 01 997 9105045593, rev. 02

*This validation protocol must be seen in conjunction with the Validation Guidelines and the Validation Report template.
The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
provided?			validation team.		
G.1.5. Has due account been taken of any comments received?	PDD	DR, I	There were no major negative comments received in general and the local community gave strong positive comments on the project.	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview
CDM Validation Report no.: 01 997 9105045593, rev. 02

*This validation protocol must be seen in conjunction with the Validation Guidelines and the Validation Report template.
The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p><u>CAR01:</u> The LoAs from DNA of P.R. China and Netherlands are not available for inspection. Please accordingly obtain and submit to the validation team for verification.</p>	Table 1 Table 2 A.3.3.	<p>The project has been approved on 27th November 2007 by Chinese NDRC, DNA of P.R. China. The approval will be published on NDRC official website and the LoA will be issued in sometime in February 2008.</p> <p>The LoA from the government of the Netherlands will be obtained</p>	<p>OK The LoA /5/ from China DNA has been issued on February 2008. The LoA /25/ from the Netherlands has been issued on 25th April 2008.</p> <p>The CAR is therefore resolved and closed.</p>
<p><u>CAR02:</u> The map, figure A1, of PDD should be in English. Please also provide more specific location information at PDD A.4.1.4. (e.g., physical address of the plant, or a more detailed municipal or street map) in order to uniquely identify the proposed project.</p>	A.2.1.	<p>The detailed location information has been provided in revised PDD. Also, the detailed map has also been provided to DOE during site visit.</p>	<p>OK The detail of the map and the geographic location information has been updated in the PDD.</p> <p>The CAR is therefore resolved and closed.</p>
<p><u>CAR03:</u> The CDM baseline methodology AMS-I.C./Version 11 applied for the project has been expired. AMS-I.C./Version 12 has been valid since 10th August 2007.</p>	B.1.1.	<p>Has been corrected - Version 12 is used in revised PDD</p>	<p>OK The methodology has been updated as AMS-I.C./Version 12 in the revised PDD. The CL is therefore resolved and closed.</p>
<p><u>CL01</u> The project claimed that it does not receive any public funding, according to Annex 2 of the PDD. Please provide evidence that no ODA is used for</p>	Table 1	<p>During DOE's site interview, the governmental officials /vi, ii, iii, v/ have confirmed that there was no ODA involved in the project.</p>	<p>OK The term sheet /17/ of purchase of Certified Emission Reductions between Swiss Re Global Markets Limited and Ningxia</p>

* MoV = Means of Verification, DR= Document Review, I= Interview
CDM Validation Report no.: 01 997 9105045593, rev. 02

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
the project financing. The project investment amount is RMB 8 million but the registered capital of NXFI has RMB 3 million only. The funding plan for the project should be provided for verification.		The fund for the project is from advance payment of the CER buyer plus some fund from the developer. According to the term sheet submitted to DOE, the buyer will pay Euro 595000 (RMB 6.5 million) as advance payment. In the mean time the total number of solar cookers will be reduced from 20000 to 17000, a 15% cost reduction. Therefore, the revised total investment is $8 \times (1 - 15\%) = \text{RMB } 6.8 \text{ million}$, which is very close to the RMB 6.5 million advance payment provided by the buyer. Ningxia Federal Intertrade Co. will pay for the remaining RMB 0.3 million.	Federal Intertrade Co. Ltd has indicated that NXFI will receive the advance payment for the project. The rest of the capital will be accrued by NXFI internally which was verified with the NXFI management representative and the local government official. The CL is therefore closed and resolved.
CL02 Please elaborate in more detail about the number of solar cooker which are available in the proposed project boundary, the technical data and testing record for the solar cooker.	A.2.2.	The number of solar cookers that will be available for the proposed project boundary is 17,000. The total number of solar cookers operating will be monitored. Please refer to the revised PDD for details.	OK Each solar cooker reduces 2.05 tCO ₂ e per year which stated in the revised PDD. The monitoring plan for the number of the systems operating is amended. The corresponding sections are correctly revised in the PDD. The CL is therefore resolved and closed.
CL03 Please demonstrate that the CDM was considered prior to the decision to carry on the project activity. Please provide the updated project master	A.1.1	The project is not financially attractive without CER revenue. Therefore, it is obvious CDM was considered prior to the decision of the project. In fact, CDM is the only financial incentive for the developer to	OK The Yulin Solar Cooker Investment Project Proposal /6/ dated August 2007 claimed that the project is designed on the basis of presence of CDM support. While the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
schedule and history for reference.		<p>carry on the project.</p> <p>The updated project progress chart is attached for reference.</p>	<p>anticipated overall cost for purchase and 10-year operation of solar cooker is approximately CNY300, the project proponent is now only asking for a management fee of CNY30 (only one-tenth of the overall cost) from the villagers for one set of solar cooker. There would not be any other financial incentive inject to the project which is verified by the validation team and interview with the management representative. The corresponding sections are correctly revised in the PDD.</p> <p>The CL is therefore resolved and closed.</p>
<p><u>CL04</u> Please clarify about the starting date of project activity reported in Section C of PDD, with provision of supporting documents. Furthermore the start date of crediting period is not realistic and amendment required. The start date of the project activity should be revised in the PDD to the earliest of the dates at which the implementation or construction or real action of the project activity began.</p>	C.1.1.	<p>Start date of project: 2nd November 2007. It is expected that on this date the project owner signed the term sheet with CER buyer, which is a substantial action to implement this project. Therefore, 2nd November 2007 can be considered as the start date of this project.</p> <p>The starting date of the crediting period has been changed to 1st February 2008 in the revised PDD to reflect the realistic schedule.</p>	<p>OK</p> <p>The starting date of project activity is 2nd November 2007, which signed the CER contract with the buyer. The term sheet /17/ has been verified and inspected by the validation team during the OSV. The starting date of crediting period is revised as 1st April 2008. The corresponding sections are correctly revised in the PDD.</p> <p>The CL is therefore resolved and closed.</p>

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CL05:</p> <p>The solar cooker installation plan has to be elaborated in the PDD. It should be checked whether the status of installations corresponds to the start of the crediting period defined in the PDD.</p>	C.1.2.	<p>Plan of installation has been provided in B7.2 of the revised PDD, and that plan corresponds to the starting crediting period in the PDD.</p>	<p>OK</p> <p>It is noted from the project proponent that the installation of solar cookers shall practically start only upon successful validation at the UNFCCC. In the current stage, the project proponent has just prepared the tendering documents /7/ for bidding. The corresponding sections are correctly revised in the PDD.</p> <p>The CL is therefore resolved and closed.</p>
<p>CL06:</p> <p>The testing standard and testing report of the solar cooker should be specified in the PDD and submit to DOE for verification.</p>	E.3.5	<p>The testing standard is National Standard of P. R. China (GB) No. NY/T219-2003. The National Standard and the testing report has been submitted to DOE.</p>	<p>OK</p> <p>The testing standard (National Standard (GB): NY/T 219-2003) and testing report of the solar cooker (test conducted by the Rural Energy Section (RES) in Year 2006) have been received from the project proponent and is checked by the validation team to be valid. Quality test against the solar cooker, including equipment dimension, thermal efficiency & rating power etc, have been performed in accordance with the requirements set out in the National Standard.</p> <p>The CL is therefore resolved and closed.</p>

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p><u>CL07:</u> The lack of determination of project boundary is considered. Please specify the project boundary in the PDD.</p>	A.2.1	<p>The detailed map depicting the project boundary was submitted to DOE and the details of project boundary were added in the revised PDD.</p>	<p>OK The boundary is clearly defined in the revised PDD as the project site which includes the Gucheng, Baiyang, Xinji, Honghe, Chengyang townships. The corresponding sections are correctly revised in the PDD.</p> <p>The CL is therefore resolved and closed.</p>
<p><u>CL08:</u> The use of coal stove to cook and for water boiling as the baseline scenario should be substantiated. Evidence has to be provided for the baseline emission assumption.</p>	B.2.5.	<p>During the DOE's visit to the site, DOE has interviewed with local residents and governmental officials and confirmed that the use of coal stove to cook and water boiling is a common practice in project site. In addition, the project site is very dry and experiencing severe desertification (This can be substantiated by the document submitted to DOE as well as DOE's site visit). Therefore, there is very limited amount of vegetation available in the project site. Also, coal is abundant in the project site and cutting vegetation is illegal. The statement from Bureau of Agriculture, Graze and Science & Technology of Pengyang County that confirms this point is submitted to DOE.</p>	<p>OK The letter /29/ from BAGST of Pengyang County confirmed that the coal fired stove is a common practice in the project site, which also confirmed the coal-fire stove is commonly used in the villagers' daily life.</p> <p>The CL is therefore resolved and closed.</p>
<p><u>CL09:</u> Please determine and justify the proposed project</p>	Table 1	<p>A letter that confirms the non-PoA nature of this project from Ningxia provincial</p>	<p>OK The 11th five years plan of Ningxia /14/ has</p>

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The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
is not a government planned project.		Rural Energy and Bureau of Agriculture, Graze, and Science & Technology of Pengyang County have been submitted to DOE. In addition, the DOE interview with governmental officials also confirmed that the project is not a PoA project.	verified by the validation team. The document is confirmed the project not regulated by government. The project is initiated by the project developer. The CL is therefore resolved and closed.
<u>CL10:</u> Please elaborate the economic barrier in terms of project developer. The CER revenue is attained by the project developer and subsidized the solar cookers installation. The economic barrier shall be referred and reflected the project is not financial viable without CDM support.	B.2.1.	The proposed project activity generates no revenue other than CDM revenue to the project owner. In other words, the project is financially infeasible without the subsidy from CDM revenue. Therefore, the project faces obvious investment barrier. This point has been added to the revised PDD. Detailed NPV calculation has been added to the revised PDD.	OK The NPV of the proposed project is -8.12 million CNY. The calculation table is provided and demonstrated in PDD B.5. The parameter is discussed at the section 4.4. of the report. The CL is therefore resolved and closed.
<u>CL11:</u> Please elaborate more clearly on technical barrier. The required skill of solar cooker operation and maintenance is very low as confirmed with the solar cooker manufacturer. The statement is too vague to substantiate the technical barrier.	B.2.1.	This point has been removed from the revised PDD.	OK The project proponent also considers the training plan /11/ shall be able to adequately deliver the skill for operating solar cookers to the users. The claimed technological barrier is therefore removed in the revised PDD. The corresponding sections have been revised in the PDD. The CL is therefore resolved and closed.

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CL12: The other barriers has to be elaborated more substantiated, evidence has to be provided for all assumptions. The statement is too vague to substantiate the other barrier.	B.2.1.	This paragraph has been revised and substantiated in the revised PDD. The statement from Bureau of Agriculture, Graze and Science & Technology of Pengyang County that confirms this point is submitted to DOE.	OK This paragraph has been revised and substantiated in the revised PDD. The statement /29/ from BAGST of Pengyang County that confirms the common practice of coal consumption in daily water boiling and cooking is submitted to DOE. The corresponding section is correctly revised in the PDD. The CL is therefore resolved and closed.
CL13: Please demonstrate the unit price of thermal cookers which are inconsistent with the PDD and the interview with the solar cooker manufacturer. Evidence should be provided to the validation team for verification (e.g. tender document and the retail price...etc.).	B.2.1.	The document from the solar cooker manufacturer demonstrating the unit price has been provided to DOE	OK The quotes /26/ from three solar cooker manufacturers demonstrating the unit price has been provided to DOE. The unit price of CNY300 is clearly broken down to contain CNY180 of equipment cost, and the remains be the cost for transportation fee, installation fee and 3-year after-sale maintenance service /33/. In considering the increase cost for transportation of the equipments to the remote mountainous location, the unit price is deemed by the validation team to be reasonable. The CL is therefore resolved and closed.

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			The CL is closed
CL14: Please specify and elaborate the selected monitoring method according to paragraph 17, AMS-I.C version 12. The justification of method selection should also be provided in the PDD.	D.1.4.	Has been elaborated in revised PDD. The storage time of the original records has been increased to at least 2 years after their creation. Please see the revised PDD.	OK It is noted from the revised PDD that the emission reduction from each solar cooker is 2.1 tCO ₂ e which is less than 5 tCO ₂ e. According to the AMS-I.C./Version 12, the monitoring items shall therefore include i) the number of solar cookers in operation and ii) the average operating time of each solar cooker. The corresponding sections are correctly revised in the PDD. The CL is therefore resolved and closed.
CL15: The monitoring of number of systems operating should be described in the PDD.	D.1.4.	Has been added in revised PDD.	OK Monitoring plan /8/ accompanied with a data record sheet has been incorporated in the monitoring plan for checking on the number of systems operating. A CDM group will be set up to track the number of those operating systems. The monitoring of total number of operating solar cookers will be conducted annually during the last quarter of each year. The corresponding sections are correctly revised in the PDD. The CL is therefore resolved and closed.
CL16:	B.2.4.	The calculation has been revised to adopt	OK

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The entries in the protocol should be adjusted and amended as appropriate to prepare for the validation of a particular projects.*

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
The project proponent should also demonstrate that a conservative approach has been adopted in selection of data source for determination the estimated emission reduction. The use of solar cooker's thermal efficiency value is much lower than the manufacturer defined value.		the conservative approach. The new calculation in the revised PDD used the national standard value NY/T219-2003 instead of the lower efficiency.	The national standard (GB: NY/T219-2003) /12/ is referenced and is considered more conservative and authoritative. The CL is therefore resolved and closed.
<u>CL17:</u> All the data/parameters have to be elaborated more substantiated, evidence has to be provided for the baseline emissions.	B.2.4. E.3.5. E.3.6.	The sources of the data/parameters used in the calculation have been submitted to DOE. Pengyang County 2000~2007 sunlight hour and solar irradiance value /13/ was indicated the monthly average solar irradiance rate in Pengyang County from 2000 to 2007.	OK The used data/parameters have been specified in the PDD and discussed in the report. The CL is therefore resolved and closed.
<u>CL18:</u> Please elaborate how the local stakeholders are selected and how they are invited.	Table 1 G.1.2.	1) Started from the county center and chose a random route within the few townships in the project site; 2) After 20 minutes driving, got off the car at the nearest village; 3) Talked to the first 1 or 2 adults seen in the village and asked them the questions on the survey form; recorded the answers; 4) Then randomly chose one villager's home and talked to the homeowner; asked the questions on the survey form and recorded the answers; 5)Went back to the car and continued	The process and summary of local stakeholders have been incorporated in PDD. The corresponding sections are correctly revised in the PDD. The CL is therefore resolved and closed.

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		driving, Repeated step 2)-4) 6) In some villages found the local village officials and asked their comments.	

Qualification

Wong, WaiKwok /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No. :
(AuditorenRegNr)

Appointed :
(Zugelassen)

☒ ja

Qualification Level : Lead Auditor
(Qualifikationsstufe)

External :
(Externer)

☐ ja

Add. reviewer : ☐ yes
(Zusätzlicher Prüfer)

EAC Scopes :
(EAC Branchen)

CDM 04 – Manufacturing industries
CDM 01 – Energy industries (renewable – / non-renewable sources)

Add. qualification :
(zus. Qualifikation)

First Appointment : 2006/11/01
(Erstberufung)

Valid to : 2009/10/31
(Gültig bis)

Remarks : 2008-03-26: Scope extension to CDM 01, see Personal data and "Final application review".

Languages : Chinese
Chinese simplified
Chinese traditional
English

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring :
(letzte Beurteilung)

Next
Monitoring :
(nächste
Beurteilung)

Remarks :

[View / Edit Monitoring](#)

History of scope allocation

Date : 2007-05-08
Change : EAC CDM added
By : Manfred Brinkmann
Reason :

History

Created : 2006/07/17 18:32:00 WaiKwok Wong/Hk/Chn/TUV

Modified: 2008/03/26 10:36:26 Manfred Brinkmann/Jpn/TUV

Qualification

Fan, Roy /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 06 – Construction
CDM 10 – Fugitive emissions from fuels (solid; oil and gas)
CDM 12 – Solvents use
CDM 13 – Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment: 2006/07/11
(Erstberufung)

Valid to: 2009/07/10
(Gültig bis)

Remarks:

Languages:

Chinese
Chinese simplified
Chinese traditional
English

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2006-10-09
Change: EAC CDM, CDM, CDM, CDM, CDM, CDM added
By: Manfred Brinkmann
Reason:

History

Created: 2006/07/17 18:51:31 Roy Fan/Hk/Chn/TUV
Modified: 2007/05/08 15:23:20 Manfred Brinkmann/Jpn/TUV

Qualification

Chan, Wilfred /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 06 – Construction
CDM 13 – Waste handling and disposal
CDM 01 – Energy industries (renewable – / non-renewable sources)

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2008/03/25

Valid to:
(Gültig bis)

2011/03/24

Remarks:

2008-08-03:
Addition of CDM-01 based on project experience, but limited to renewable energies except Biomass power / cogeneration projects.

Languages:

Chinese
Chinese simplified
Chinese traditional
English
Mandarin

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View](#) / [Edit Monitoring](#)

History of scope allocation

Date:
Change:
By:
Reason:

Date: 2007-06-24
Change: EAC CDM, CDM added
By: Manfred Brinkmann
Reason: No indication yet for training as CDM auditor and participation in completed validation / verification activities, therefore changed application to 'Expert'.

History

Created: 2007/05/23 14:58:07 Wilfred Chan/Hk/Chn/TUV
Modified: 2008/08/03 11:37:43 Manfred Brinkmann/Jpn/TUV

Qualification

Brinkmann, Manfred /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:
(EAC Branchen)

CDM 03 – Energy demand
CDM 04 – Manufacturing industries
CDM 05 – Chemical industry
CDM 10 – Fugitive emissions from fuels (solid; oil and gas)
CDM 11 – Fugitive emissions from production and consumption
of halocarbons and sulphur hexafluoride
CDM 12 – Solvents use
CDM 01 – Energy industries (renewable – / non-renewable
sources)
CDM 06 – Construction
CDM 13 – Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment: 2004/03/03
(Erstberufung)

Valid to: 2010/03/03
(Gültig bis)

Remarks:

Languages:

German
English
French

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2004-03-05
Change: EAC CDM, CDM added

By: Klaus-Dieter Fritsch
Reason:

Date: 2004-03-03
Change: EAC CDM, CDM, CDM, CDM, CDM, CDM added
By: Klaus-Dieter Fritsch
Reason: Qualification is based on the applicant's ISO 14001 auditor qualification.

History

Created: 2003/12/11 14:27:13 -
Modified: 2007/11/22 12:00:46 Manfred Brinkmann/Jpn/TUV