



# VALIDATION REPORT

for the CDM Project Activity

## Federal Intertrade Haiyuan Solar Cooker Project

in  
P.R. China

Report No. 01 997 9105053901

Version No. 01.2, 2010-03-11

TÜV Rheinland Japan Ltd.

**I. Project description:**

**Project title:** Federal Intertrade Haiyuan Solar Cooker Project  
**Host Country:** P. R. China  
**Methodology:** AMS-I.C. version 14 ☐ Large Scale ☒ Small Scale  
**Annual average emission reductions (estimate):** 33,482 tCO<sub>2</sub>e/yr  
**GHG reducing measure/technology:** Solar Cooker

Party	Project Participants	Party considered a project participant
People's Republic of China (Host)	Ningxia Federal Intertrade Co., Ltd.	No
Netherlands	Swiss Re Global Markets Limited	No

**II. Validation:**

**Contract party:** Ningxia Federal Intertrade Co.

**Validation Team:**

Role	Full name	Appointed for Sectoral Scopes	Affiliation
<b>Team Leader</b>	Wilfred Chan	1, 6, 13	TÜV Rheinland Hong Kong Ltd.
<b>Team Member</b>	Tommy Lo Harold Hai	5, 13 13	TÜV Rheinland Hong Kong Ltd.
<b>Technical Reviewer</b>	Asim Kumar Jana	1, 2, 3, 4, 5, 11, 12, 13	TUV Rheinland (India) Pvt. Ltd.

**Validation Phases:**

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

**Validation Status:**

- ☐ Corrective Actions / Clarifications Requested  
☒ Full Approval and Submission for Registration  
☐ Rejected

**III. Validation Report:**

Report No.: <b>01 997 9105053901</b>	Current revision No.: <b>01.2</b>	Date of current revision: <b>2010-03-11</b>	Date of first issue: <b>2009-09-23</b>
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Final approval:  <input checked="" type="checkbox"/>	Released on:  <b>2010-03-11</b>	Designated Operational Entity (DOE):  <b>TÜV Rheinland Japan Ltd.</b> Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama, JAPAN 222-0033 Tel.: +81 45 470 1850, Fax: +81 45 470-2361 E-mail: cdm@tuv.com
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## Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) concludes that the CDM Project Activity “Federal Intertrade Haiyuan Solar Cooker Project” in P.R. China, as described in the PDD (version 11 dated 20<sup>th</sup> February 2010), meets all relevant requirements of the UNFCCC for small-scale CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline/monitoring methodology is applicable to the project and correctly applied. The DOE therefore request the registration of the project as a CDM project activity.

The validation was executed in the following steps so far:

- Desk review of preliminary PDD (version 6, 19<sup>th</sup> June 2009)
- Public stakeholder comment process (25<sup>th</sup> June 2009 to 24<sup>th</sup> July 2009)
- On-site visit with stakeholder interviews (2<sup>nd</sup> September 2009 to 3<sup>rd</sup> September 2009)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol (23<sup>rd</sup> September 2009)
- Desk review of revised PDD (version 11, 20<sup>th</sup> February 2010)
- Review of proposed corrections and clarifications
- Issue of the final validation report & protocol

The host country is the P.R. China. The LoA issued by the DNA of the P.R. China – National Development & Reform Commission of the P.R. China (NDRC) was checked. The NDRC authorizes Ningxia Federal Intertrade Co., Ltd. as a voluntary project participant and confirms that the project assists China in achieving sustainable development.

The project is a bi-lateral CDM-project, with Netherlands identified as the Annex I party. The LoA issued by the DNA of the Netherlands for confirming Swiss Re Global Markets Limited as the voluntary project participant has been validated.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards China.

The validation team has checked that the project correctly applies AMS-I.C./Version 14 – “Thermal energy for the user with or without electricity”.

The total emission reductions from the project are estimated to be on the average 33,482 tCO<sub>2</sub>e per year over the selected 10-year fixed crediting period. The estimation of emission reductions has been validated; however more clarification information for the detailed calculations is requested for the validation of emission reductions.

Monitoring procedures have been designed according to the monitoring methodology AMS-I.C./Version 14. Training materials are available, and the training programme will be provided by the project developer to the participating villagers when the proposed project is registered as a CDM project.

In summary, the validation team has revealed that the relevance of investment barrier is sufficiently evidenced. Thus, it is the validation team's opinion that the Federal Intertrade Haiyuan Solar Cooker Project in the P.R. China, as described in the PDD of 20<sup>th</sup> February 2010, meets all the relevant UNFCCC requirements for the CDM project and relevant host country criteria, and correctly applies the baseline and monitoring methodology AMS-I.C./Version 14. The validation team of TÜV Rheinland Japan Ltd. thus recommends the proposed project activity to be registered as a CDM project activity with the UNFCCC.

**Abbreviations**

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

BAGST	Bureau of Agriculture, Graze, Science & Technology
BE <sub>y</sub>	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
DRC	Development and Reform Commission
EB	Executive Board
EIA	Environmental Impact Assessment
EIAR	Registration Form for Environmental Impact on Construction Projects
EPB	Environmental Protection Bureau
ER	Emission Reductions
ERPA	Emission Reduction Purchase Agreement
ESMTS	Energy Saving Monitoring Technical Service Center of Ningxia
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GWh	Giga Watt Hours
I	Interview
IETA	International Emissions Trading Association
IM	Interim Measures for Operation and Management of CDM projects
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
LoI	Letter of Intent
L <sub>y</sub>	Leakage
MOU	Memorandum of Understanding
MoV	Means of Validation
MW	Mega Watt
MWh	Mega Watt Hours
NDRC	National Development and Reform Commission of the People's Republic of China
NGO	Non Government Organisation
NO <sub>x</sub>	Nitrogen Oxides
NPV	Net Present Value
NXFI	Ningxia Federal Intertrade Co., Ltd.
O&M	Operation and Maintenance
OSV	On Site Visit
PDD	Project Design Document
PE <sub>y</sub>	Project Emissions
RES	Rural Energy Station
SA	Sensitivity Analysis
SO <sub>2</sub>	Sulphur Dioxide
STHS	Stakeholder Survey
T	Tonne

UNDP	United nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added Tax
VVM	Validation and Verification Manual

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## **1 INTRODUCTION**

Ningxia Federal Intertrade Co. has commissioned the DOE TÜV Rheinland Japan Ltd. to perform a validation of the CDM Project Activity “Federal Intertrade Haiyuan Solar Cooker Project” in the P.R. China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the simplified modalities and procedures for small-scale CDM project activities (as applicable) and the subsequent decisions by the CDM Executive Board, in COP/MOP and host country criteria.

### **1.1 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).

### **1.2 Scope**

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and 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 rules-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.



## 2 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II on-site visit and 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.

### 2.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

/1/	/1.1/	Project Design Document (PDD), Version 6, 19 <sup>th</sup> June 2009
	/1.2/	Project Design Document (PDD), Version 11, 20 <sup>th</sup> February 2010
/2/	CDM Validation and Verification Manual (Version 01.1) EB51 Annex 3	
/3/	/3.1/	CDM-SSC-PDD - Project Design Document form for Small-Scale project activities, Version 03 <a href="http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html">http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html</a>
	/3.2/	Guidelines for Completing the Project Design Document (CDM-PDD) And the Proposed New Baseline And Monitoring Methodologies (CDM-NM), Version 05 <a href="http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html">http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html</a>
	/3.3/	Glossary of CDM terms <a href="http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf">http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf</a>
	/3.4/	Guidelines on the Assessment of Investment Analysis, Version 3.1 EB51 Annex 58
	/3.5/	Guideline on the Demonstration and Assessment of Prior Consideration of the CDM, Version 3 EB49 Annex 22
	/3.6/	Guidelines on assessment of de-bundling for SSC project activities, EB47 Annex 32
/4/	UNFCCC Approved Baseline & Monitoring Methodology: AMS-I.C./Version 14, "Thermal energy production with or without electricity", EB46	
/5/	UNFCCC, " Non-binding best practice examples to demonstrate additionality for SSC project activities", EB35 Annex 34	
/6/	The National Development and Reform Commission of The People's Republic of China (i.e. Chinese DNA), Letter of Approval, English version: Ref no. 1986, April 2009	
/7/	Haiyuan County Development and Reform Commission, Approval of Ningxia Federal Solar Cooker Project Proposal (Ref. no.: NingFaGeiBeiAn[2008]19),	

	11 <sup>th</sup> December 2008
/8/	Ningxia Federal Intertrade Co., Ltd., CDM Solar Cooker Project Introduction and Training Materials (in form of disc and poster)
/9/	Haiyuan County Construction and Environmental Protection Bureau, Approval of Registration form for Environmental Impact on Construction Projects (Ref. no.: 2008017), 10 <sup>th</sup> December 2008
/10/	Ningxia Meteorological Archives, 1999 - 2008 Irradiance Data in Haiyuan County, 20 <sup>th</sup> April 2009
/11/	Ningxia Federal Intertrade Co., Ltd., Solar Cooker Tendering Document
/12/	Ningxia Federal Intertrade Co., Ltd., Ningxia Federal Intertrade solar cooker project user training plan
/13/	Ningxia Federal Intertrade Co., Ltd., Ningxia Federal Intertrade solar cooker project maintenance and repair method
/14/	Ningxia Federal Intertrade Co., Ltd., Agreement of Solar cooker with rural residents (Template), 2008
/15/	Ningxia Federal Intertrade Co., Ltd., Company Organization Chart
/16/	Ningxia Federal Intertrade Co., Ltd., Business Registration License (Ref. no.: 6400011200383, Date of Establishment: 16 <sup>th</sup> November 1999)
/17/	China National Standard, Concentration type solar cooker standard (NY/T219-2003), 2003
/18/	Xiji County Yu Neng Solar Energy Co., Ltd., "Sheng Huo brand" Solar cooker Operation Manual
/19/	Longde County Xin Huo Solar Cooker Plant, "Xin Huo brand" Solar Cooker Operation Manual
/20/	Solar Cooker Quotations from 3 Solar Cooker Vendors, 10 <sup>th</sup> March 2008
/21/	State Statistics Bureau: Ningxia Team, 2006 Ningxia Statistics (also called 2006 Ningxia Diao Cha Shu Ju), Annual income of population in Haiyuan County 2006, August 2007
/22/	Ningxia Federal Intertrade Co., Ltd., Shareholder meeting minutes for CDM Development of Solar Cooker Projects (including Haiyuan), 23 <sup>rd</sup> February 2008
/23/	Clean Air Trade, Inc. and Ningxia Federal Intertrade Co. Ltd., Project CDM Service Agreement, 24 <sup>th</sup> June 2007
/24/	Ningxia Hui Autonomous People's Congress, The Family Planning Regulations

	of Ningxia Hui Autonomous Region, 1 <sup>st</sup> January 1991
/25/	Energy Saving Monitoring Technical Service Center (ESMTS) of Ningxia, The explanation about Ningxia rural stove, 2 <sup>nd</sup> April 2008
/26/	China Statistics Press, China Energy Statistical Yearbook 2004-2008
/27/	Ningxia People's Publishing House, The Encyclopaedia of Ningxia, 1998
/28/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Table 2.5, Page 2.22, Chapter 2, Volume 2
/29/	UNDP, Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and development Needs in Poorer Nations, 2002 ( <a href="http://www.undp.org/energy/publications/2002/2002b.htm">http://www.undp.org/energy/publications/2002/2002b.htm</a> )
/30/	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, 27 <sup>th</sup> February 2009
/31/	Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS), Sampling distribution of thermal efficiency test on domestic-used coal stoves
/32/	Energy Saving Monitoring Technical Service Center of Ningxia Hui Autonomous Region (ESMTS), Test records (100 full sets) of thermal efficiency measurement data of domestically-used rural coal-stove in southern mountainous region of Ningxia
/33/	Chinese National Standard, Method for testing household coal and stoves (GB6412-86)
/34/	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
/35/	Ningxia Federal Intertrade Co., Ltd., Quality control and product inspection procedures and standards for the solar cookers to be used in the project, 15 <sup>th</sup> October 2008
/36/	Office of National Coordination Committee on Climate Change, NDRC, Baseline emission Factor Calculation Result of China Grids, 18 <sup>th</sup> July 2008
/37/	TÜV Rheinland Hong Kong Ltd. and Ningxia Federal Intertrade Co., Ltd., CDM Validation Service Contract, 1 <sup>st</sup> June 2009
/38/	SinoMaps Press, The Atlas of Resource and Environment in Ningxia Hui Autonomous Region, 2006

/39/	Ningxia Federal Intertrade Co., Ltd. and Swiss Re Global Markets Limited, Emission Reductions Purchase Agreement, 30 <sup>th</sup> October 2008
/40/	Xiji County Agriculture, Graze, and Science & Technology Bureau (BAGST), Proof of Project Boundary, 17 <sup>th</sup> June 2009
/41/	Haiyuan County Agricultural Bureau, Proof of Project Boundary, 17 <sup>th</sup> June 2009
/42/	Geographical Location of the Boundary of the Xiji and Haiyuan Counties (Google Map)
/43/	Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST), Proof of Usage Time for Solar Cooker, 17 <sup>th</sup> September 2009
/44/	Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST), Clarification of Fuel Consumption of the Local, 17 <sup>th</sup> September 2009
/45/	Ningxia Federal Intertrade Co., Ltd., Calculation Worksheet of NPV and IRR for the Haiyuan Solar Cooker Project
/46/	Ningxia Federal Intertrade Co., Ltd., Calculation Worksheet for Inflation Rate over 2006-2008 according to the information from Global Economics Research
/47/	The Ministry of Housing, Spatial Planning and the Environment (i.e. The Dutch DNA), Approval of Voluntary Participation in a CDM Project (Ref. no.: 2009SN.341), 26 <sup>th</sup> October 2009
/48/	Ningxia Federal Intertrade Co., Ltd., Project Proposal, January 2008
/49/	Ningxia Rural Energy Station, Testing Reports of Solar Cooker Quality Control for three manufacturers (Shenghuo, Mingzhu and Qiangyin), July 2007
/50/	Ningxia Federal Intertrade Co., Ltd., Product Quality Control, Inspection Procedures and Standards, 15 <sup>th</sup> October 2008
/51/	Ningxia Federal Intertrade Co., Ltd., Project Monitoring Plan (Chinese version)
/52/	Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST), Clarification of no financial assistance and baseline fuel source for the Haiyuan project, 10 <sup>th</sup> February 2009
/53/	Returned questionnaire of local stakeholder's comment (100 nos.), December 2008
/54/	Ningxia Federal Intertrade Co., Ltd., Explanation on Revised Solar Cooker Identification System

## 2.2 Follow-up Interviews with Project Stakeholders

The following table identifies the personnel who have been interviewed and/or provided additional information to the presented documentation:

	Date	Name	Organization	Title
/i/	2009-09-02	Ren Chunsheng	Haiyuan County Development and Reform Commission	Officer
/ii/		Huang Zhanyong	Haiyuan County Environmental Protection Bureau	Officer
/iii/		Zheng Haiming	Haiyuan County Agriculture, Graze, and Science & Technology Bureau	Officer
/iv/		Li Wanjun	Haiyuan County Rural Energy Station	Station Leader
/v/	2009-09-02 to 2009-09-03	Wang Runlin	Ningxia Federal Intertrade Co., Ltd.	President (Management Representative)
/vi/	2009-09-03	Jiang Wei		General Manager
/vii/	2009-09-02 to 2009-09-03	Zhang Bin		CDM Project coordinator
/viii/		Ding Xiaobo		CDM Project coordinator
/ix/		Ma Yan		Project Coordinator
/x/		Xi Wenjuan		Project Coordinator
/xi/		Leon Wang Liangliang	The Gold Standard Foundation (NGO)	Local Expert
/xii/		Dai Yuran	Tradition Financial Services Ltd (NGO)	Chief Representative
/xiii/		Guo Benchi	Global Environmental Institute (NGO)	Program Officer
/xiv/	2009-09-03	An Weizhong	Ningxia-Environmental Federation (NGO)	Secretary
/xv/	2009-09-02	14 Villagers	Haiyuan County Hongyang Township Hongbao Village	Villagers

**Table 1 Interview topics**

	<b>Date</b>	<b>Organization</b>	<b>Topic</b>
/1/	2 <sup>nd</sup> September 2009 to 3 <sup>rd</sup> September 2009	Ningxia Federal Intertrade Co., Ltd. (Project Participant from host party)	<ul style="list-style-type: none"> <li>➤ Project design</li> <li>➤ Project related legal issues</li> <li>➤ Project &amp; CDM development history</li> <li>➤ Technical equipment</li> <li>➤ Sustainable development issues</li> <li>➤ Additionality</li> <li>➤ Crediting period</li> <li>➤ Monitoring plan</li> <li>➤ Training history</li> <li>➤ Management system</li> <li>➤ Environmental impacts</li> <li>➤ Stakeholder process</li> <li>➤ Approval by the host country</li> </ul>
/2/	2 <sup>nd</sup> September 2009 to 3 <sup>rd</sup> September 2009	Ningxia Haiyuan County Municipality & Local Community, NGO	<ul style="list-style-type: none"> <li>➤ Project design</li> <li>➤ Project related legal issues</li> <li>➤ Project status</li> <li>➤ Sustainable development issues</li> <li>➤ Environmental impacts</li> <li>➤ Stakeholder process</li> <li>➤ Issues affecting the local community</li> <li>➤ Approval by the local governments</li> </ul>

## 2.3 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's 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 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 two tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of 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) 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 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.

A revised PDD (Version 11, 20<sup>th</sup> February 2010) was submitted to the validation team for final validation. The revision was based on the CARs and CLs in the draft validation report. The major amendments include: geographical coordinates of the project location, starting date & expected crediting period of the project activity, project debundling nature, project CDM history, supporting information for the estimation of the parameters applied in the investment analysis and monitoring arrangement etc.

<b>Validation Protocol Table 1: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of validation (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 1 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 validation 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 <b>corrective action request (CAR)</b> 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>

  

<b>Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests</b>				
<b>CL/CAR No.</b>	<b>Observations</b>	<b>Reference</b>	<b>Summary of project owner response</b>	<b>Validation team conclusion</b>
<i>CL/CAR XX</i>	<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 1 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**



## 2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification.

## 2.5 Validation Team

Role	Full Name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Wilfred Chan	1, 6, 13	TÜV Rheinland Hong Kong Ltd.
Team Member	Tommy Lo Harold Hai	5, 13 13	TÜV Rheinland Hong Kong Ltd.
Technical Reviewer	Asim Kumar Jana	1, 2, 3, 4, 5, 11, 12, 13	TUV Rheinland (India) Pvt. Ltd.

## 3 VALIDATION FINDINGS

The findings of the validation 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 as documented and described in the revised and resubmitted project design documentation.

### 3.1 Approval and Participation

According to the PDD, the project is a bilateral CDM project which involves two project participants: Ningxia Federal Intertrade Co., Ltd. (NXFI) from the host party, the P.R. China and Swiss Re Global Markets Limited from the Annex I party, Netherlands.

The Ningxia Federal Intertrade Co., Ltd. is a local investment based entity, which was established on 16<sup>th</sup> November 1999 /16/. The host party, the P.R. China meets all relevant participation requirements in CDM. The Letter of Approval (LoA) issued by the DNA of P.R. China, i.e. NDRC is received for authorizing NXFI as a voluntary project participant and confirming that the project contributes to China's sustainable development /6/. The relevant project approval has been announced in NDRC's webpage<sup>1</sup>.

The Letter of Approval (LoA) from the DNA of Netherlands, i.e. Ministry of Housing, Spatial Planning and the Environment, that authorizes Swiss Re Global Markets Limited as a

<sup>1</sup> Project Approval by NDRC, [http://cdm.ccchina.gov.cn/website/CDM/pdf/Item\\_new/Item\\_new4306.pdf](http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new4306.pdf)

voluntary project participant has been reviewed /47/. The relevant project approval has been announced in the SenterNovem's (Dutch governmental agency) webpage<sup>2</sup>.

According to Annex 2 of the PDD, the project does not receive any public funding. The validation team did not receive any information indicating that the project involves a diversion of official development assistance (ODA) towards China. As advised from the local DRC /i/ and project owner /vi/ during the OSV, there is no ODA from the state and local government for the project activity. The project owner reported that project funding will be raised from internal accrual only. The project total upfront investment was reported as about RMB 5.68 million. In addition, the validation team reviewed the official clarification document issued by the Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST) /52/, in which it stated that there was no financial assistance to the proposed project activity.

The below table summarizes the project participant and party involved.

<b>Project participant</b>	Ningxia Federal Intertrade Co., Ltd.	Swiss Re Global Markets Limited
<b>Parties involved</b>	P.R. China (host)	Netherlands (Annex I party)
<b>APPROVAL</b>		
LoA received	Yes	Yes
Date of LoA	April 2009	26 <sup>th</sup> October 2009
Reference to document	No. 1986 (English version)	2009SN.341
LoA received from	Project Participant	Project Participant
Validation of authenticity	Document Review and the announcement from NDRC's webpage <sup>1</sup>	Document Review and the announcement from SenterNovem's webpage <sup>2</sup>
Validity of LoA	Valid	Valid
<b>PARTICIPATION</b>		
Party is party to Kyoto Protocol	Yes. P. R. China ratified the Kyoto Protocol on 30 <sup>th</sup> August 2002. <sup>3</sup>	Yes. Netherlands ratified the Kyoto Protocol on 31 <sup>st</sup> May 2002. <sup>3</sup>
Voluntary participation	Yes. Approved by the DNA of P.R. China	Yes. Approved by the DNA of Netherlands
Diversion of official development aid towards host country	No	No

<sup>2</sup> Project Approval by SenterNovem, Netherlands' Ministry of Housing, Spatial Planning and the Environment, [http://www.senternovem.nl/mmfiles/Overview%20of%20submitted%20Written%20Approvals%201%20November%202009\\_tcm24-316677.xls](http://www.senternovem.nl/mmfiles/Overview%20of%20submitted%20Written%20Approvals%201%20November%202009_tcm24-316677.xls)

<sup>3</sup> Information from UNFCCC website: [http://unfccc.int/files/kyoto\\_protocol/status\\_of\\_ratification/application/pdf/kp\\_ratification.pdf](http://unfccc.int/files/kyoto_protocol/status_of_ratification/application/pdf/kp_ratification.pdf)

Project contribution to SD	Yes. Approved by the DNA of P.R. China	Yes. Noted by the DNA of Netherlands
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### 3.2 Project Design Document

The Project Design Document /1/ is based on the currently valid PDD template and is correctly completed in accordance with the applicable guidance document /3/.

### 3.3 Project Description

The “Federal Intertrade Haiyuan Solar Cooker Project” is a small-scale solar cooker project to be implemented in the Haiyuan County, Ningxia Hui Autonomous Region of P.R. China. The Haiyuan County is approximately located at the boundary of between east longitude 105°09'-106°10' and north latitude 36°06'-37°04'. The project will cover 10 townships in southern Haiyuan County. The geographic coordinates of the center points of the 10 townships are presented in the PDD. The map and the corresponding coordinates of the 10 townships are checked by the validation team from the public map source, Google Earth, and are confirmed to be valid to indicate the various locations of the townships.

The proposed project is the installation of 17,000 parabolic type solar thermal cookers for the poor rural residents in remote areas with rural populations of 359,700 or 80,818 households according to the Atlas of Resource and Environment in Ningxia Hui Autonomous Region /38/. The project will cover 21% of the households in the project region. The rated power of each solar cooker is 773.5 W and the total installed capacity of the proposed project is 13.1495 MW. According to the data from the Ningxia Meteorological Archive in April 2009, the average sunlight time and solar irradiance rate from 1999-2008 in Haiyuan County is 2,833 hour/year and 553 W/m<sup>2</sup> /10/. The proposed project will enable rural residents to efficiently utilize solar energy, and substitute for a portion of the fossil fuel (coal) used in daily cooking and water heating. Thus this could reduce CO<sub>2</sub> emissions that would otherwise be generated from fossil fuel consumption. The proposed project will neither generate any electricity nor connect to any power grids. There will be approximately 17,000 low-income households or 68,000 villagers directly benefiting from the implementation of the proposed project<sup>4</sup>. The expected GHG emission reductions of the project activity are 33,482 tCO<sub>2</sub>e annually over the next 10 years of the fixed crediting period.

The validation team reviewed the Emission Reductions Purchase Agreement signed between Ningxia Federal Intertrade Co., Ltd. and Swiss Re Global Markets Limited on 30<sup>th</sup> November 2008 /39/, and confirmed this to be valid.

Haiyuan County is defined by Central Government of P.R. China as one of the high poverty regions in the P.R. China according to the Encyclopedia of Ningxia /27/. The average annual income of the population in Haiyuan County was RMB 1,584 per capita in 2006 /21/. Most of

<sup>4</sup> The validation team checked the 'The Family Planning Regulations of Ningxia Hui Autonomous Region' /24/ and confirms that one couple can have 2 children in the rural area of Haiyuan County. If the couple is minority, they can have 3 children. In addition, some couples live together with their parents (s) for taking care of them. Thus there are about 4-5 people in one household on average.

populations in Haiyuan County work in the agricultural sector as farmers. Their income is derived mainly from the sale of crops. This kind of income means that there is relatively less floating capital among the community. The market price of each solar cooker is around RMB 300 /20/, which is indicated in the quotation documents of three solar cooker manufacturers in the Ningxia region. Therefore, it is reasonable for the validation team to consider that the cost of a solar cooker is a significant portion of average annual income for one household. It is unlikely for a family to spend a large portion of their income on a solar cooker. Further reasons from an investment analysis perspective; and the unaffordability of purchase of the solar cookers for the participants will be discussed in Section 3.5.3.

The project proposal with the details of the project design was prepared by NXFI in January 2008 /48/. The proposal was approved by the Haiyuan County Development and Reform Commission (Ref. no.: NingFaGeiBeiAn [2008]19) on 11<sup>th</sup> December 2008 /7/. The project approval was also confirmed by the Haiyuan County's government officials during OSV /i/.

During the site interview with NXFI's management representative /v/, it is understood that NXFI is responsible for organizing the necessary training for the operation, maintenance and monitoring of CDM project implementation. The training materials for solar cooker users, monitoring team and management staff were reviewed by the validation team during OSV /8, 12/. During the OSV, the training materials in form of video, poster and desktop calendar etc. were presented to the validation team, in which the validation team considers that it would be an effective way to provide the information to the rural residual, and comprehensively cover the benefited people. According to the project owner's project schedule presented during the on-site meeting, the training will be started one month before project operation. Based on the OSV and the PDD, the validation team confirmed that no construction was required in this project. The installation, transportation and maintenance of the solar cookers would be responsible by the solar cooker manufacturers under the supervision of NXFI. The project solar cooker maintenance & repair instructions prepared by NXFI were reviewed by the validation team, and confirmed to be valid /13/. The CDM training and monitoring plan were introduced by the project owner during on-site meeting. The validation team confirms that the relevant CDM background knowledge, necessary training and monitoring process were comprehensively addressed in the plan.

The equipment tendering document /11/ and solar cooker agreement (template) with rural residents /14/ were prepared by NXFI for project implementation. It is confirmed by NXFI's management representative /vi/ that the solar cookers will be distributed to participants after the project registration in the UNFCCC. Under such circumstances, the validation team considers that the PP would implement the project only if the proposed project is registered as a CDM project.

According to the Section C of the PDD, the starting date of the project activity will be planned on 15<sup>th</sup> May 2010. The starting date is justified as the tentative date to start the tender bidding process. During the on-site interview, the project owner advised that the project will only be started after the proposed project is registered as a CDM project. The validation team agrees with the project implementation status for the selection of the starting date, and confirms that no implementation or real actions of the proposed project (such as purchase of solar cookers) have been carried out at this moment. A fixed crediting period of 10 years is

selected and the starting date of the crediting period is 1<sup>st</sup> June 2010 or the date of registration, whichever is later. Since the expected operational lifetime of the proposed project activity is 10 years, the validation team considers the selection of fixed crediting period of 10 years is reasonable.

It is stated by the project owner that once the project is started, they shall place purchase orders to the solar cooker manufacturers. The equipment stock from the manufacturers will be distributed to the end users, and thus the emission reductions can be accounted once the first batch of cookers are being used by the users. According to the experience from the project owner, it might take about half to one month to manufacture and distribute all the 17,000 cookers to the end users, and it will greatly depend on the production progress of the manufacturers. The emission reductions shall be based on the actual number of solar cooker used. However the estimated emission reductions from the start of crediting period are considered as full capacity for simplification. The usage record of solar cookers will be monitored by the project owner according to the monitoring plan. The validation of monitoring plan will be covered in Section 3.6 in details.

The critical project description milestones from the PDD are thus tabulated as follows:

Starting date of project	Expected project operational lifetime	Crediting period
15 <sup>th</sup> May 2010 (Tentative date for start of project tendering process)	10 years	10-year crediting period: June 2010 – May 2020

The validation team considers the project description in PDD version 11 is accurate and complete.

### 3.4 Baseline and Monitoring Methodology

#### 3.4.1 Applicability of the selected methodology to the project activity

The project applies the approved simplified baseline and monitoring methodology for small-scale CDM project activities AMS-I.C./Version 14 EB46 “Thermal energy for the user with or without electricity”.

Applicability criteria for the baseline methodology are assessed by the validation team by means of document review and interview. It is agreed in the validation team’s opinion that the project activity fully met the criteria as described below:

- The project activity applies renewable energy technology (solar cookers) that supply individual households or users with thermal energy that displaces coal used for cooking and water-boiling;
- The total installed capacity of the project activity is 13.1495MW, which does not exceed the threshold of 45MW as stated in the small-scale methodology;
- The project activity only utilizes renewable solar energy without any fossil fuels. Thus it does not involve in any biomass system, co-fired system;

- The heat produced by the project activity is captured and used within the solar cookers. It does not involve in delivery to another facilities within the boundary;
- The project activity will be a new project using new solar cookers, and it does not seek to retrofit or modify any existing facility for renewable energy generation.

Thus the validation team considers that the project participant has correctly applied the approved methodology for the proposed project activity. In addition, the overall expected annual emission reductions for the proposed project are 33,482 tCO<sub>2</sub>e. As advised from the project participant /vi/, no auxiliary fuel will be used during the whole project period. Apart from this, the validation team confirms that there are no other major sources of emission reductions. Therefore the validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, is deemed to contribute less than 1% of the overall expected average annual emission reductions. Please refer to Section 3.4.4 for the detailed discussion.

With reference to "Guidelines on assessment of de-bundling for SSC project activities, EB47 Annex 32", the validation team has validated that the project is not deemed to be a debundled component of a large scale project. The validation criteria are stated below:

- i. The same host project participant, NXFI registered two solar cooker projects (UNFCCC ref. no. 2307 and 2311) as CDM projects at the time of PDD submission for validation. Meanwhile another project namely, Ningxia Federal Solar Cooker Project, was also registered on 12<sup>th</sup> February 2010 (UNFCCC ref. no. 2924). Together with the proposed project activity, all these projects are in the same project category, applied with same technology, and located in the Ningxia Province;
- ii. Only the project location (Xiji county) of Ningxia Federal Solar Cooker Project (UNFCCC ref. no. 2924) is adjacent to the located county of proposed project activity. While the project locations of the other two registered CDM projects are away from the proposed project activity for at least 50km as estimated from the public map source, Google Earth;
- iii. According to the clarification documents issued by the (a) Xiji Agriculture, Graze, and Science & Technology Bureau /40/ and (b) Haiyuan Agricultural Bureau /41/, both documents stated that "the boundary of the Ningxia Federal Solar Cooker Project (Xiji county) and the project activity (Haiyuan county) is located at the regions of mountains, rivers and valley. The area is unsuitable for human living, and there are no populations within 1km along the boundary of the two counties";
- iv. According to the physical observation during the on-site visit, the validation team visited one of the border points along the boundary between two counties, and realized that it is located on a mountain without any populations within 1km.

Therefore, the validation team confirms that there is no registered small-scale CDM project activity or any application to register another CDM small-scale CDM project activity by the project participants within the previous two years with the same project category and technology within 1 km of the project boundary of the project activity. Thus, the project activity is not deemed to be a de-bundled component of a large project activity.



### 3.4.2 Project Boundary

During the on-site visit, the validation team has visited one of the villages (Hongbao Village) that will participate in the project activity. It is confirmed that the villagers use coal for daily cooking, water heating and house warming as described in the PDD. They do not have any solar cookers in the village as they considered the solar cookers were too expensive for them to buy this kind of solar thermal equipment.

The project boundary is clearly defined as the physical, geographical site of the project equipment producing the renewable solar energy, i.e. the 10 townships in southern Haiyuan County since the project neither generates electricity on grid nor transports the thermal power to other regions. The project boundary is clear and reasonably demonstrated.

The system boundary and the selected sources and gases are justified transparently and are presented as below:

	GHGs involved	Description
Baseline emissions	CO <sub>2</sub>	Major emission source
Project emissions	--	The proposed project utilizes solar resources for heat generation where no auxiliary fuel shall be used. Project emissions are thus deemed to be negligible.
Leakage	--	Since the project activity is a new project and the energy generating equipment is not transferred from another activity, leakage is thus considered negligible as per AMS-I.C Version 14.

### 3.4.3 Baseline Identification

According to AMS-I.C./Version 14, the baseline is identified as the fuel consumption of the technologies that would have been used in the absence of the project activity multiplied by an emission factor for the fossil fuel displaced.

During the on-site interview with the rural residents, they claimed that using coal-fired stoves for their daily cooking and water heating are the common practice locally. The straw of maize and other biomass residues are mainly used as feedstuff only.

This is also verified during the on-site interview with the representatives from the local Rural Energy Unit /iv/, they also advised that the local villagers use coal as their major energy source for daily cooking and water heating. Electricity is only used for lighting as the tariff is comparatively expensive for the local villagers. In addition, the Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST) issued an official document for the clarification of fuel consumption of local residents /44/. The document stated that:

“All the rural residents use (i) coal as energy source for their daily cooking and water heating; (ii) electricity is used for lighting only; (iii) the straw resource is limited, and it is used for

feedstuff and industrial raw materials; and (iv) all livestock manures are used as fertilizers. According to the Forest Law of China, woodland harvest cutting and damage on the natural vegetation are prohibited. Thus the local residual only rely on coal as their energy source for cooking and water heating purpose.”

According to the China Energy Statistical Yearbooks 2004-2008, coal is the major energy source in Ningxia rural area /26/. People living in Ningxia mainly consume low-cost coal for warming and daily cooking use. Therefore it can be confirmed that the baseline scenario is the emissions occurring due to cooking or water heating through coal-fired stoves.

The baseline determination is considered as transparent and reasonable.

The validation team has checked the following in according to the latest version of Approved CDM Validation and Verification Manual /2/, and the results are tabulated as follows. The details can be referred to Appendix A.

The approved baseline methodology applicable to the project - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
PDD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
All relevant policies / regulations considered are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11 of the AMS-I.C. /Version 14, the simplified baseline is prescribed.



### 3.4.4 GHG Emission Reductions

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

According to the selected methodology AMS-I.C./Version 14 for thermal energy production with or without electricity, the emission reductions ( $ER_y$ ) by the project during the crediting period is the difference between the baseline emissions ( $BE_y$ ), project emissions ( $PE_y$ ) and emissions arising from leakage ( $L_y$ ).

As the project utilizes solar energy for heat generation, no auxiliary fuel will be used and this was also verified by the validation team during the on-site visit. Hence the project emissions could be regarded as zero.

It is noted during OSV that all the solar cookers involved in the proposed project will be newly purchased from the equipment manufacturers. There will be no transfer of heat generating equipments from another activity because the solar cookers will be new equipments. According to the PDD, a unique project logo will be assigned and fabricated on each solar cooker before distribution to the users for identification. The project logo can be a useful and simple identification strategy to differentiate the project solar cookers from other projects implemented by the project owner. The validation team confirmed with the management representative of NXFI /vi/ that the monitoring team of NXFI will check if there will be any transfers of the solar cookers by verifying the unique project logo during the regular monitoring schedule. The monitoring plan will be further discussed in Section 3.6. According to the AMS-I.C./Version 14, leakage is not required to be considered and is assumed as zero.

Since the project emissions and leakage within the project boundary are zero, the emission reductions of the proposed project are equal to the baseline emissions.

According to the equation (2) of AMS-I.C Version 14, the following equation is correctly applied in the PDD for the calculation of baseline emissions:

$$BE_y = HG_y * EF_{CO_2} / \eta_{th} \quad (\text{PDD Equation 2})$$

Where:

- $BE_y$  = The baseline emissions from heat (generated by burning coal) displaced by the project activity during the year y in tCO<sub>2</sub>e
- $HG_y$  = The net quantity of heat supplied by the project activity during the year y in TJ
- $EF_{CO_2}$  = The CO<sub>2</sub> emission factor of coal (tCO<sub>2</sub>/TJ), IPCC default emission factors 2006 are used
- $\eta_{th}$  = The efficiency of the coal-fired stove that would been used in the absence of the project activity

The equations (3), (4) and (5) in the PDD for the estimation of annual baseline emissions of the proposed project are correctly applied. The annual baseline emissions of the project ( $BE_i$ ) are based on the amount of 12-monthly net heat supplied by the project activity,  $HG_i$ , and  $EFCO_2$ , and  $\eta_{th}$ , which are calculated as follows:

$$HG_y = \sum HG_i \quad (i = 1 \sim 12) \quad (\text{PDD Equation 3})$$

$$BE_y = \sum BE_i \quad (i = 1 \sim 12) \quad (\text{PDD Equation 4})$$

$$BE_i = HG_i * EFCO_2 / \eta_{th} \quad (i = 1 \sim 12) \quad (\text{PDD Equation 5})$$

Where

$HG_i$  = The net heat supplied in month  $i$  in TJ

$BE_i$  = The baseline emissions in month  $i$  in  $tCO_2e$

#### ***Determination of thermal efficiency of baseline unit (coal-fired stove)***

According to the clause 19 of AMS-I.C Version 14, 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 project owner adopts the criteria (a) for the determination of efficiency of the baseline units by providing two references to justify the thermal efficiency of 15% for the traditional coal furnaces: #1) Document from The Energy Saving Monitoring Technical Service Center (ESMTS) of Ningxia Hui Autonomous Region; #2) Publication "Clean Energy for Development and Economic Growth: Biomass and Other Renewable Energy Options to Meet Energy and Development Needs in Poor Nations" issued by United Nations Development Programme (UNDP) in 2002.

According to AMS-I.C Version 14, the validation team has reviewed these two reference information, and the validation results are discussed in the following.

#### ***Reference #1)***

It is confirmed from the self-explanatory letter dated 2<sup>nd</sup> April 2008 issued by the ESMTS that according to the ESMTS's investigation and verification, the current practice by residents in the rural areas of Guyuan region and southern mountainous region in Ningxia (including Pengyang County, **Haiyuan County**, Longde County and Xiji County etc.) is the use of unimproved traditional stoves /25/. The thermal efficiency of these stoves was below 15% and the fuel used by these stoves for cooking and water heating was coal.

The stated thermal efficiency of 15% was obtained from a measurement campaign determining the thermal efficiency of domestically used rural coal-stoves in the southern mountainous region of Ningxia, performed by the ESMTS during May to October 2007. It is further clarified from another self-explanatory letter dated 27<sup>th</sup> February 2009 issued by the ESMTS regarding the background and rationale of that measurement campaign /30/. This testing series was independent from the proposed project, and was originally aimed to obtain

a clear understanding on the application status of coal-stoves by the rural households in the southern mountainous region of Ningxia. It provided an accurate data for calculating energy consumption, which was in response to the target of “energy saving” listed in the 11<sup>th</sup> Five-year Plan of Ningxia Hui Autonomous Region. ESMTS is the provincial authority which is responsible for collecting and monitoring energy usage data in Ningxia, and therefore responsible for conducting the test and on-site measurements.

In the measurement campaign, totally 100 rural households were randomly selected over seven counties (including 18 households in Haiyuan County, where the proposed project is located) for measurement of the stove efficiency. The sampling distribution and coverage is checked by the validation team in the “sampling distribution table” /31/. The original testing records were checked by the validation team. The data record sheets indicating the highest measured efficiency of 15% are attached /32/ (note: these testing records are classified information of ESMTS and not permitted to be published; therefore only the data sheet with the highest efficiency is uploaded). The test report /30/ also confirmed 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 measured thermal efficiency ranged from 9.6% to 15.0%, with an average of 12.3% according to the Chinese National Standard GB6412-86, “Method for testing household coal and stoves” /33/. Thus it is considered that the measurement results from the ESMTS for the highest thermal efficiency of 15% is reasonable and traceable.

The validation team confirms that the thermal efficiency of 15% applied in the PDD is “the highest measured efficiency of a unit with similar specifications” obtained from a comprehensive authorized measurement campaign, thus it fulfils the requirements of the clause 18 of AMS-I.C/ Version 14.

### **Reference #2)**

It is cited in the page 8 of the publication reference issued by UNDP 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% of the fuel's energy into the cooking pot...” /29/. During the OSV, the validation team visited several rural households and observed the type of stoves used by the local population in general. 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)” /34/. It is reported in page 17 of the reference source that the measured efficiency for traditional (unimproved) stoves is 10-15% in several provinces of China.

This document further justified that the thermal efficiency of the stoves being used in the rural areas of the proposed project location in Ningxia Huiyuan County is at most 15%. Therefore the validation team considers it is conservative to apply this thermal efficiency value in the calculation of baseline emissions.

The heat supplied as stated in the PDD is determined with the basic energy law. The formula of Heat below as stated in the PDD is correctly applied in accordance with physics principles. It is confirmed by the validation team to be appropriate for the heat estimation. The monthly net heat is calculated as follows:

Heat = Power \* Time

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

Where

- $n$  = The total number of solar cookers to be installed by the proposed project. According to the PDD, totally 17,000 sets solar cookers will be installed.
- $P_i$  = The actual average power of the solar cooker in month  $i$  in W
- $t_i$  = The usage time of each solar cooker in month  $i$  in hour. The value adopted in the PDD is 120 (4 hours per day for 30days). According to the on-site interview with the representative from the local Rural Energy Station and villagers, they advised that the rural families in Haiyuan County and local villagers shall spend at least 4 hours per day for cooking and water heating by solar cookers. This is further checked for the official document issued by the Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST) dated 17<sup>th</sup> September 2009 /43/. It is stated in the document that it is a reasonable estimation of the average heating requirement of a solar cooker for one family as 4 hours per day.

$$P_i = 773.5 * (R_i / 700) \quad (\text{PDD Equation 8})$$

Where

773.5W = Rated power of solar cooker.

The validation team checked that the rated power is determined in accordance with the National Standard for solar cookers (GB: NY/T219-2003) /17/. The calculation of rated power is demonstrated as:

$$\begin{aligned} \text{Rated power} &= R * A * \eta \\ &= 700\text{W/m}^2 * 1.7\text{m}^2 * 65\% \\ &= 773.5\text{W} \end{aligned}$$

$R$  is the solar irradiance rate in  $\text{W/m}^2$ . As indicated in Section B.6.2. of the PDD, it is determined according to the Chinese National Standard (GB NG/T219-2003), in which  $700\text{W/m}^2$  is used for the standard value of solar irradiance rate. The validation team considers the solar irradiance rate of  $700\text{W/m}^2$  applied in the calculation of rated power is reasonable.

$A$  is the solar cookers' light-collecting area. As indicated in Section B.6.2. of the PDD, it is in accordance with the project owner's technical specification /11/ of the solar cookers, which is  $1.7\text{m}^2$ . The project owner advised that the solar cooker manufacturers have to provide certificates in order to ensure the area of solar cookers. The validation team considers the solar cookers' light-collecting area of  $1.7\text{m}^2$  applied in the calculation of rated power is reasonable.

$\eta$  is the solar cookers' thermal efficiency. As indicated in Section B.6.2. of the

PDD, it is determined according to the Chinese National Standard (GB NG/T219-2003), in which the standard value of solar cookers' thermal efficiency is at least 65%. The project owner advised that this requirement is included in the tender documents /11/, only the manufacturers which are able to produce solar cookers with at least 65% of thermal efficiency (in order to fulfil the requirement in GB NG/T219-2003) will be accepted by the project owner. The project owner also reported that the solar cooker manufacturers have to provide official testing reports or certificates in order to ensure the solar cookers' thermal efficiency. The validation team also checked the test report issued by the local authoritative entity, Ningxia Rural Energy Station for the quality control of the solar cookers made by three manufacturers /49/. According to the test reports, the thermal efficiency of the solar cookers can be reached to at least 65%. The project owner advised that the products from these potential manufacturers will be considered to be used for the project activity. Furthermore, the validation team checked the "Product Quality Control, Inspection Procedures and Standards" issued by the PP on 15<sup>th</sup> October 2008 /50/. It is clearly stated that during the solar cooker quality inspection process, the PP will check the product testing report issued by official testing authority, and accept those solar cookers with at least 65% of thermal efficiency only. Hence the validation team considers the solar cookers' thermal efficiency of 65% applied in the calculation of rated power is reasonable.

Therefore the validation team consider the calculation of rated power of solar cooker of 773.5W is reasonable and transparent.

$R_i$  = The actual solar irradiance rate in month  $i$  in  $W/m^2$

The validation team has verified the Annex 3 of the PDD, in which the monthly solar irradiance and sunlight time are sourced from the Ningxia Meteorological Archives, an authorized reference source dated April 2009 /10/. The average monthly solar irradiance and sunlight time over the past 10 years (1997-2008) was reported. The irradiance values were ranged from  $367 W/m^2$  (in December) to  $720 W/m^2$  (in July) and the yearly average was  $553 W/m^2$ . The validation team considers that the irradiance values are correctly applied in the calculation of baseline emissions.

While the project emissions & leakage are zero; the baseline emissions are equal to the emission reductions and have been estimated to be 33,482 tCO<sub>2</sub>e per year in the PDD, based on above formula, input values and the ex-ante baseline emission factor of coal (EFCO<sub>2</sub>) which is 94.6 tCO<sub>2</sub>e/TJ from the IPCC reference data<sup>5</sup>. The validation team has verified that a conservative emission factor has been adopted by the project owner among the emission factors of various coal products from the IPCC reference data, e.g. coke oven coke is 107 tCO<sub>2</sub>e/TJ, lignite is 101 tCO<sub>2</sub>e/TJ and sub-bituminous coal is 96.1 tCO<sub>2</sub>e/TJ. The preciseness of the data was verified by the validation team through document review.

<sup>5</sup> Volume 2, 2006 IPCC guidelines for national greenhouse gas inventories ([http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_2\\_Ch2\\_Stationary\\_Combustion.pdf](http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf))

According to the latest Chinese DNA document<sup>6</sup>, the P.R. China grid emission factors are calculated using IPCC values due to the lack of national fuel emission information. The validation team considers that the application of IPCC emission factors is reasonable, and it also fulfils the requirements in clause 35 in AMS-I.C./Version 14.

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

All assumptions made for estimating GHG are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD Section B.6., assumptions were made for ex-ante GHG emission reductions.
All data used by project participants are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All data such as baseline emission factor, irradiance rate used by the PPs are listed in the Section B.6. of the PDD.
Their references and sources are also listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All data from public sources, such as IPCC, local meteorological report are listed in the Section B.6. of the PDD.
Formulas, parameters, values are complete, accurate, transparent and conservative	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the reference information and confirms that the formulas, parameters, values applied in the PDD are complete, accurate, transparent and conservative.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the public references and documents, and confirms that these are correctly quoted and conservatively interpreted in the PDD.
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The AMS-I.C./Version 14 is applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions.
All the emissions of baseline emissions can be replicated using information provided in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The validation team checked the information provided in the PDD with the reference information, and all the emissions of baseline emissions can be replicated.

### 3.5 Additionality

According to the PDD, the project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfills the

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



requirement of Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities from UNFCCC (Version 06 issued on 30<sup>th</sup> September 2005).

### 3.5.1 CDM consideration

According to the document review and on-site interview, the validation team has assessed the project development and the corresponding CDM consideration scenario and these are summarized below:

According to the latest "Guideline on the demonstration and assessment of prior consideration of the CDM" released in EB49, Annex 22, the PP should demonstrate the prior CDM consideration to the project. The PP must inform a Host Party DNA and the UNFCCC secretariat in writing of the commencement of project activity and of their intention to seek CDM status. Such notification is not necessary if a PDD has been published for GSP before the project activity start date.

According to the project owner, the proposed project will be started only when it is registered as a CDM project. The global stakeholder consultation was carried out from 25<sup>th</sup> June 2009 to 24<sup>th</sup> July 2009. Consideration of CDM income as an important part of the project has been demonstrated in the shareholder meeting minutes dated 23<sup>rd</sup> February 2008, in which it was reported that the registration as a CDM project could assist in building up the project revenue through the sale of the CERs /22/. The revenue from CERs is reflected as the critical factor to decide whether the project is financially feasible. Thus the validation team considers the PP has fulfilled the requirements in the latest "Guideline on the demonstration and assessment of prior consideration of the CDM".

In summary, here are the important milestones according to the PDD:

Starting date of project	Justification of and evidences (references) on the starting date of project	Date of CDM consideration
15 <sup>th</sup> May 2010	Tentative date of start of project tendering process	Shareholder meeting dated 23 <sup>rd</sup> February 2008 /22/

In addition, the project timeline is tabulated as follows for detailed project development.

Time Period	Project Milestone	Remarks
16 <sup>th</sup> November 1999	Ningxia Federal Intertrade Co., Ltd. was established.	Business registration document /16/
24 <sup>th</sup> June 2007	CDM consultancy service agreement was confirmed between the project owner and Clean Air Trade, Inc.	CDM consultancy contract /23/
23 <sup>rd</sup> February 2008	Shareholder meeting about CDM development of the project activity	Shareholder meeting minutes /22/
10 <sup>th</sup> December	The Registration Form for the Environmental	EIA registration

2008	Impact on Construction Projects (EIAR) was approved by the Haiyuan County Construction and Environmental Protection Bureau	approval /9/
11 <sup>th</sup> December 2008	The project proposal was recorded and approved by the Haiyuan County Development and Reform Commission	Approval of project proposal /7/
30 <sup>th</sup> October 2008	Emission Reduction Purchase Agreement (ERPA) between Ningxia Federal Intertrade Co., Ltd. and Swiss Re Global Markets Limited was confirmed.	ERPA /39/
30 <sup>th</sup> April 2009	Letter of Approval from the DNA of the P.R. China	LoA from the Chinese DNA /6/
1 <sup>st</sup> June 2009	The project participant has commissioned the validation team of TÜV Rheinland to perform the validation of the project.	Validation service contract between the PP and TÜV Rheinland /37/
25 <sup>th</sup> June 2009 to 24 <sup>th</sup> July 2009	PDD publication on UNFCCC webpage (Details in Section 4.9.)	UNFCCC webpage
26 <sup>th</sup> October 2009	Letter of Approval from the DNA of the Netherlands	LoA from the Dutch DNA /47/

### 3.5.2 Alternatives

The selected approved methodology AMS-I.C./Version 14 prescribes the baseline scenario and no further analysis of alternatives is thus required.

### 3.5.3 Investment analysis

According to “Non-binding best practice examples to demonstrate additionally for SSC project activities (EB35 Annex 34), the project participant will provide an explanation to show that the project activity would not have occurred anyway due to at least one barrier. As noted in the PDD, the investment barrier was selected, and the application of financial analysis of Net Present Value (NPV) without CDM revenue is carried out.

As mentioned in the PDD, the proposed project will not generate any revenue except a limited and one-off administrative payment from the participating residents at the project commencement (i.e. RMB30 per cooker). The administrative fee is considered as the villagers’ commitment in order to receive the operation and maintenance service of solar cookers throughout the entire project lifetime, i.e. 10 years. Since the project involves other income apart from the CDM revenue, the simple cost analysis is not applicable for the project. Thus the PP applies the financial indicator, NPV instead of the simple cost analysis. If the project is carried out without CDM support, the upfront project investment of RMB 5.68 million shall result in no return. The result of financial analysis is presented in the PDD and the worksheet. The NPV of the project without CDM subsidies is a negative value (RMB -7.85 million) which demonstrates that the project activity is unlikely to be financially viable without



CDM support. The project can be financial feasible with CER revenues, in which the NPV of the project becomes 5.19 million and yields a project IRR of 16.6%.

During the OSV, the validation team has verified via interviewing with local residents /xv / that they are willing to purchase the solar cookers from the proposed project, and pay the PP RMB30 per cooker for each household as the project administrative costs. When compared to the original price (about RMB300 /20/), the proposed project administrative cost is much lower and affordable to the local residents. The interviewed local residents stated that the solar cookers could help them to save money through reducing coal consumption for daily cooking and water heating. However, due to the limitations of the solar cooker (i.e. limited sunshine during rainy and cloudy weather, solar radiation intensity at night and winter season), the solar cooker cannot completely replace the coal-fired stove. Thus, the villagers consider that the solar cooker is not an essential good for their livelihood. The local residents cannot afford and are also unwilling to pay the original price of the solar cooker considering their level of poverty. According to the 2006 Ningxia Statistics regarding the annual income in Haiyuan County, the average income was RMB1,584 per capita in 2006 /21/, and it is also confirmed that the population in Haiyuan County is located in one of the poorest regions of the P.R. China /27/. Hence it is reasonable to believe that the local residents are unable to afford the payment to purchase the solar cookers at their own expenses (about 19% of their annual income).

In accordance with the “Guidance on the Assessment of Investment Analysis” from UNFCCC EB51 Report Annex 58, the validation team has independently checked the following critical project and financial input values for the NPV calculation as the basis of financial analysis. The validation of some of critical parameters based on the local and sectoral expertise of the validation team, is tabulated as follows:

Item	Data & Source	Remarks on Validation of Parameters
Project lifetime	10 years (PDD)	17,000 sets of 773.5W rated power solar cookers (National standard of P.R. China (GB), GB No.: NY/T219-2003) Total power = 773.5W x 17,000 = 13.1495MW  The validation team checked the quotation documents from the solar cooker manufacturers, and confirmed that the solar cooker lifetime is 10 years in average as cited by the cooker manufacturers /20/. In addition, it is in line with the Guideline in which a minimum period of 10 years will be appropriate for the project activity assets.
Equipment cost	RMB 5.1 million (PDD)	Each set of solar cooker ≈ RMB 300 Total equipment cost = RMB 300/set x 17,000 sets = RMB 5.1 million  The validation team has checked the quotations of solar cookers from 3 different manufacturers,

		confirmed that quoted prices were ranged from RMB 295-305 per solar cooker including the transportation, installation and first 3-year maintenance service costs /20/. The quotation documents have been verified by the validation team. Thus the validation team considers the estimation of RMB300 per solar cooker is reasonable in the financial analysis.
Implementation Cost	RMB 0.51 million (PDD)	The implementation cost includes the project logistics management of solar cookers, training of users and monitoring team and project monitoring works, while the largest proportion will be contribute to the project monitoring cost. The monitoring service will be subcontracted to the Haiyuan County Rural Energy Station under the project owner's management. The monitoring plans have been verified by the validation team, and confirmed to be valid.
Contribution from the users	RMB 0.51 million (PDD)	<p>According to the project owner /vi/, each solar cooker user has to pay RMB 30, which is around 10% of the original price of the solar cooker, to cover the project administrative cost. This was also confirmed by the official from the Haiyuan County Rural Energy Station /iv/ during the OSV.</p> <p>Contribution from the users  = 17,000 sets × RMB30/set  = RMB 0.51 million</p>
Annual maintenance cost:	RMB 0.35 million for the 4 <sup>th</sup> year (PDD)	<p>According to the past quotation documents from the potential solar cooker manufacturers, the manufacturers will be responsible for maintenance service of solar cookers for the first 3 years /20/. The maintenance fee from the fourth to the tenth year will be responsible by NXFI. It is indicated in the quotation documents that the maintenance cost of each solar cooker is RMB 20 per year plus the inflation rate for subsequent operational years. Thus, the forth year maintenance fee is RMB 0.35 million plus the annual 4% inflation rate for subsequent operational years.</p> <p>The quotation documents were checked by the validation team, and were confirmed to be valid.</p>
Annual Inflation Rate	4% (PDD)	The inflation rate of the P.R. China of 4% is sourced from the Global Economics Research, in which it is based on the past 3-year (i.e. 2006-

		2008) monthly inflation values <sup>7</sup> to obtain the average annual inflation rate, i.e. 4%. The validation team considers that the reference applied is a reasonable assumption. In addition, the calculation of average inflation rate is checked by the validation team, and confirmed to be correct /46/.
Income Tax Rate	25% (PDD)	The standard corporate income tax rate in China is 25% <sup>8</sup> , which is confirmed by the validation team. There will be no tax benefit or exemption from the government for this project, in which this was confirmed with the government officials during the OSV /i/.
Discount Rate:	3.6% (PDD)	The discount rate of 3.6% <sup>9</sup> used for NPV calculation, which is based on the 5-year deposit rate of RMB in Bank of China in December 2008. The validation team considers that the estimation of discount rate from the 5-year deposit rate is reasonable and transparent.
Contingency	8% of total investment (PDD)	Due to the innovative feature of project, there was no reference value for the contingency for such project type. 8% contingency is the estimation from the project proponent, which is based on its understanding of the project and its business experience. The validation team considers that the specific value of the contingency does not affect the additionality of the project, i.e., regardless of the contingency value, the NPV of the project without CDM is always negative.
Salvage value	Nil	Since once the solar cooker is distributed to the users, the equipment belongs to the beneficiaries, the question of salvage value for the project activity does not arise.

It is noted in the PDD that the discussion of sensitivity analysis has not been carried out since the project does not generate any financial revenue except RMB 30 from each solar cooker, contributed by the end users as the project administrative expenses. The negative NPV indicates that the project encounters with a prohibitive financial barrier without CDM revenues. Under such circumstances, the proposed project would not be set up unless the proposed project is supported by CDM revenues.

<sup>7</sup> Trading Economics: Global Economics Research, China Inflation Rate (<http://www.tradingeconomics.com/Economics/Inflation-CPI.aspx?Symbol=CNY>)

<sup>8</sup> Corporation Income Tax Law of P.R. China, Clause 4 ([http://www.gov.cn/ziliao/flfg/2007-03/19/content\\_554243.htm](http://www.gov.cn/ziliao/flfg/2007-03/19/content_554243.htm))

<sup>9</sup> Bank of China, RMB deposit rate on December 2008, ([http://www.boc.cn/finadata/lilv/fd31/200812/t20081222\\_508225.html](http://www.boc.cn/finadata/lilv/fd31/200812/t20081222_508225.html))

### 3.5.4 Barrier analysis

The project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfills the requirement of “Non-binding best practice examples to demonstrate additionality for SCC project activities” in EB35 Annex 34.

### 3.5.5 Common practice analysis

According to the approved monitoring methodology AMS-I.C./ Version 14, there is no requirement for common practice analysis. The project participant does not carry out the common practice analysis in the PDD.

In summary, the requirements iterated in the “Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities from UNFCCC (Version 06 issued on 30<sup>th</sup> September 2005)” were followed and demonstrated by the project activity through the documentation review and the interviews. The project activity without CDM revenue can be considered as financially unattractive. According to the clause 93 of the VVM /2/, the project activity without any CDM revenue is proven as additional and the project activity would not have occurred anyway due to the investment barrier.

## 3.6 Monitoring

The monitoring plan is included in PDD Section B.7 based on the clause 29 of the approved monitoring methodology AMS-I.C. Version 14 titled “Thermal energy for the user with or without electricity”, and is correctly applied to the proposed CDM project activity. Monitoring of GHG emission reductions is based on measuring the number of solar cookers operating and the operational time of solar cookers by sampling, in which this is transparently presented in Section B.7 of the PDD.

### 3.6.1 Parameters determined ex-ante

The project activity neither generates any project emissions nor leakage. The project is a new solar cooker project and there will be no equipment transfers from another activity. In addition, as confirmed with the project proponent during the OSV, no equipment will be transferred to other project activities. Hence leakage is not required to be considered in accordance with AMS-I.C. Version 14. In addition, no auxiliary fuel will be used for the proposed project, the project emissions are regarded as zero. Therefore the monitoring of project emissions and leakage are not required.

In addition, the project adopts the ex-ante calculation of the solar irradiance and emission factor of coal. The parameters applied in the calculation were validated by the validation team. Please refer to Section 3.4.4 for the detailed discussion.

### 3.6.2 Parameters monitored ex-post

As stipulated in clause 29(c) of AMS-I.C./Version 14, if the emission reductions per system are less than 5 tCO<sub>2</sub>e per year, the project proponent has to: (i) record annually the number

of systems in operation and; (ii) estimate the annual hours of operation of an average system.

The validation team checked that the expected emission reductions per solar cooker would be less than 5 tCO<sub>2</sub>e per year (i.e.  $33,482 \text{ tCO}_2\text{e}/17,000 \text{ sets} = 1.97 \text{ tCO}_2\text{e/set} < 5 \text{ tCO}_2\text{e/set}$ ), thus the validation team considers that the proposed project has correctly applied the monitoring requirements in the clause 29(c) of AMS-I.C./Version 14.

The project monitoring plan in the PDD has clearly described the monitoring procedures in accordance with the monitoring methodology and identifies the responsible parties. In the monitoring plan, NXFI will be responsible for the overall monitoring management. In order to demonstrate that the monitoring steps will be performed in a fair and independent way, Haiyuan County Rural Energy Station, i.e. a government organization under the Bureau of Agriculture, Graze, and Science & Technology (BAGST) of Haiyuan County, has agreed to execute the monitoring work in the future, in which this will be sub-contracted by the NXFI /iv/. NXFI shall, prior to the installation of the solar cookers, provide appropriate training on monitoring procedures to ensure the competency of the monitoring staff. The accuracy of the monitoring data shall be monitored under the supervision of the CDM consultant, i.e. Clean Air Trade, Inc.

The number of systems operating will be recorded annually by the Haiyuan County Rural Energy Station. A checklist has been prepared for data recording as indicated in the PDD. The details of the data collection procedures have been described in the monitoring plan, which was verified and confirmed by the validation team to be valid. Therefore, the monitoring requirements of AMS-I.C [i.e. (i) record annually the number of systems operation] can be fulfilled.

As stipulated in clause 29(c)(ii) of 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 details of the data collection procedures have been described in the sampling plan of the monitoring plan. According to the "General Guidelines for Sampling and Surveys for Small-Scale CDM Project Activities, EB50 Annex 30", since there is no specific guidance in the AMS-I.C. version 14, the project proponent applies the 90/10 confidence and precision level has been adopted for determining the sampling size for estimating the annual hours of operation of an average system. The calculation of sample size according to 90/10 of confidence/precision level has been verified by the validation team and it was considered appropriate for the project. A sample size of 79 will be picked from the 17,000 solar cookers. Simple Random Sample will be applied and 79 participating households will be randomly selected by the monitoring team. According to the monitoring plan, each household is required to fill in the record daily and Haiyuan County Rural Energy Station will collect the record at least once a month. Subsequently, the records will be consolidated annually. The monitoring requirements of AMS-I.C, i.e. (ii) estimate the annual hours of operation of an average system, can be fulfilled. Therefore, the monitoring plan is deemed suitable for collection of the required data. The validation team considers that the monitoring plan has complied with the requirements in the approved methodology.

It is stated by the project owner that once the project is started, they shall place purchase orders to the solar cooker manufacturers. The equipment stock from the manufacturers will be distributed to the end users, and thus the usage time can be recorded once the first batch of cookers is being used by the users. At the initial stage of the project, it might not be able to distribute all the solar cookers to users for full-scale operation. According to the experience from the project owner, it might take about half to one month to manufacture and distribute all the 17,000 cookers to the end users, and it will greatly depend on the production progress of the manufacturers. The emission reductions shall be based on the actual number of solar cooker used. The usage record of solar cookers will be monitored by the project owner according to the monitoring plan described above.

In summary, the collected monitoring data, including (i) number of solar cookers 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 overall monitoring procedure is clearly described in the monitoring plan, and has been verified by the validation team.

### **3.6.3 Management system and quality assurance**

According to the PDD, the project's monitoring plan outlines the followings:-

- Monitoring Organization: establishment of management structure to carry out monitoring work;
- Data Monitored: including the number and operating time of solar cookers;
- Monitoring Method: the form and methodology for recording the above mentioned parameters by sampling;
- Data Collection: monitoring records will be kept and stored for validation and verification;
- Maintenance: maintenance schedule and frequency for the solar cookers /13/;
- QA/QC Procedures: quality assurance and quality control procedures for recording, maintaining and data collection will be implemented. It is noted that in case of missing, damaged or abnormal data without valid reasons is identified, the data will be considered as zero value. The validation team considers that it is the most conservative approach to deal with the missing, damaged or abnormal data during quality control process. This instruction is clearly indicated in the project monitoring plan (Chinese version) /51/, and the project owner also advised that the monitoring plan will be covered comprehensively during the training of monitoring team.

#### *Steps undertaken to assess the monitoring plan*

The management team for monitoring of the project is identified in the PDD. As reported by the project owner, 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 monitoring plan, the training programme for project monitoring to the NXFI management team and Haiyuan County Rural Energy Station should be started one month before the operation. The QA/QC procedures are also described in the PDD, including the procedures when errors are recorded. Detailed monitoring procedures have been developed and the implementation of these will enable subsequent verification of the project's emission reductions.



According to document review in PDD, on-site interview with representatives from the project participant and the government officials, the monitoring arrangements described in the monitoring plan is assessed; it is reasonably believed that the monitoring plan can be feasible within the project operation stage. The validation team considered that project participant is capable to implement the monitoring plan provided that sufficient training can be arranged to the monitoring team, and with the assistance of CDM consultant and the Haiyuan County Rural Energy Station.

### 3.7 Sustainable Development

The project is considered to be contributing to sustainable development in the host country, P. R. China, by utilizing the renewable solar energy for heat generation, and eliminating the environmental pollution caused by operation of coal-fired cooking units. In addition to CO<sub>2</sub> emission reductions, the project would mitigate emissions of other pollutants, such as SO<sub>2</sub>, NO<sub>x</sub> and particulates associated with heat generation from burning coal. Several more benefits would be expected by the implementation of the project activity, which includes providing rural residents with a clean and practical method for their daily cooking; and improving indoor air quality and therefore the health of rural residents through reducing coal burning. During the OSV, the validation team observed that all the cooking stoves in the region are placed inside the house without proper ventilation. Besides the hygiene problems caused by the dark smoke created during coal burning, the possible accumulation of carbon monoxide created by incomplete combustion could also be another health issue caused by coal burning. In addition, the reduction in coal consumption by using the solar cooker shall alleviate the financial burden of the poor households.

The representative from the project owner /vi/ indicated that job opportunities will be created to the local residents during the monitoring of the project activity. As confirmed by the local government officials from the Haiyuan County DRC /i/ during the on-site interview, the sustainable development of the social, environmental and economic aspects can be achieved by the implementation of the proposed project. Furthermore, the validation team has checked the LoA issued by the DNA of the P.R. China for the confirmation of contribution of the project activity to sustainable development /6/.

### 3.8 Environmental Impacts

During the OSV, the representative from the local Environmental Protection Bureau (EPB) advised that the proposed project does not require a full analysis of environmental impacts owing to its unique project nature (such as no construction works). The only requirement for the proposed project is to complete the "Registration form for environmental impact on construction projects" (EIAR) with the local EPB. The preparation of EIAR is under supervision of the State Environmental Protection Bureau. The EIAR, which was approved by the Haiyuan County Construction and Environmental Protection Bureau on 10<sup>th</sup> December 2008, was inspected by the validation team to be valid /9/. The EIAR stated 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 EIRA.

No significant environmental impacts were identified during the OSV and this was confirmed by representative from the local EPB /ii/ and local villagers /xv/. No special environmental mitigation measures will be required by the proposed project. The local EPB official also did not receive any environmental complaints on the project activity.

### 3.9 Local Stakeholder Consultation

According to the PDD, a stakeholder survey was carried out by the project developer during December 2008 which was prior to the publication of the PDD on the UNFCCC website.

It is reported that totally 100 copies of survey forms were issued to the local rural residents with all pieces of reply received. The stakeholders' comments from the questionnaires are summarized and recorded in the Section E of the PDD. The returned questionnaires were checked by the validation team, and confirmed to be valid /53/. The surveyed stakeholders included representatives from different gender, age groups and education background. From the background of the stakeholders, it is reasonably believed that the survey have reflected the general attitudes towards the project from the local villagers who are possibly affected by the project. According to the returned questionnaires, all the participants expressed support to the project activity and considered that no negative impacts would be caused by the project.

During the on-site visit, the representatives from the local village (Hongyang Township Hongbao Village /xv/) were interviewed. In general, the interviewees showed adequate understanding of the nature of the proposed project through the posters and video prepared by the project owner. Most of the interviewees are engaged in farming industry. They considered that the project would benefit the improvement in local social, economic and environmental development. Since the original price (at about RMB300) for a solar cooker would occupy a large portion of their household incomes, they consider that the solar cookers are too expensive and thus do not want to buy their own solar cookers. However, they are willing to and even hope to pay for RMB30 for one solar cooker as stipulated in the project agreement document for the rural residents /14/. The interviewees' overall response was supportive to the project activity.

The representatives from local DRC /i/ and EPB /iii/ also advised that they did not receive any complaint from the residents about the project activity.

### 3.10 Comments by Parties, Stakeholders and NGOs

The PDD version 6 dated 19<sup>th</sup> June 2009 was made publicly available on UNFCCC CDM's website:

(<http://cdm.unfccc.int/Projects/Validation/DB/IJFUZDLMZ4T88A4VBIDL2AY1M5407U/view.html>) and parties, stakeholders and NGOs were invited to provide comments during a 30 days period from 25<sup>th</sup> June 2009 to 24<sup>th</sup> July 2009.

No public comments have been received during that period.



## **Appendix A**

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### **CDM VALIDATION PROTOCOL**

**PROJECT TITLE: FEDERAL INTERTRADE HAIYUAN SOLAR COOKER PROJECT**

**PROJECT LOCATION: P. R. CHINA**

**REPORT No. 01 997 9105053901**

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>1. Approval</b>					
<p>1.1 Have Letters of Approval have been provided from all involved Parties?</p> <p>If yes, indicate:</p> <ul style="list-style-type: none"> <li>– when and by which Party the LoA has been issued, with a clear reference to the LoA itself and any supporting documentation;</li> <li>– whether the LoA was provided to the DOE by the project participants or directly by the DNA;</li> <li>– the means of validation employed to assess the authenticity of the document; and</li> <li>– by a clear statement, that the DOE considers the LoA to be valid.</li> <li>–</li> </ul>	/2/	DR	<p>The Letter of Approval (LoA) from the China's DNA, i.e. NDRC, has been received for authorizing Ningxia Federal Intertrade Co., Ltd. as a voluntary project participant.</p> <p>The Letter of Approval (LoA) from the DNA of Netherlands, i.e. Ministry of Housing, Spatial Planning and the Environment, has been received for authorizing Swiss Re Global Markets Limited as a voluntary project participant.</p> <p><b>CAR01</b></p> <p>Please provide the relevant LoA from DNA of Annex I party to the validation team for verification.</p>	<b>CAR01</b>	OK (Refer to Table 2)
1.2 Are all Parties, who issued the LoA, Parties to the Kyoto Protocol <u>and</u> is this stated in the LoA?	/2/	DR	<p>Yes. NDRC of P. R. China is the host party to issue the LoA. P.R. China ratified the Kyoto Protocol on 30<sup>th</sup> August 2002. The Ministry of Housing, Spatial Planning and the Environment is the representative from the Annex I party to issue the LoA.</p>	OK	OK

<sup>10</sup> MoV = Means of Validation, DR = Document Review, I = Interview, www = internet search.

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			The Netherlands ratified the Kyoto Protocol on 31 <sup>st</sup> May 2002.		
1.3 Is every LoA from the Parties involved issued by an organisation listed as Designated National Authority (DNA) on the UNFCCC web site? <i>Indicate the official name of the DNA and contact person name.</i>	/2/	DR	<p>Yes. National Development and Reform Commission of the P.R. China (NDRC) is listed as the DNA of the P.R. China on the UNFCCC web site.            Contact Person:            Mr. Wang Shu            Project Officer of the Department of Climate Change, NDRC</p> <p>The Ministry of Housing, Spatial Planning and the Environment is listed as DNA of Netherlands on the UNFCCC web site.            Contact Person:            Mr. Hugo von Meijenfeldt            Deputy Director General for the Environment</p> <p><a href="http://cdm.unfccc.int/DNA/index.html">http://cdm.unfccc.int/DNA/index.html</a></p>	OK	OK
1.4 Is the participation in the CDM project activity voluntary <u>and</u> is this stated in all LoAs? <i>Indicate the source of proof.</i>	/2/	DR	<p>Yes. As stated in the LoAs of China and Netherlands respectively, Ningxia Federal Intertrade Co., Ltd. and Swiss Re Global Markets Limited participate in the CDM activity voluntarily.</p>	OK	OK
1.5 Is the LoA unconditional with respect to 1.2 to 1.4?	/2/	DR	<p>Yes. The LoAs for Ningxia Federal Intertrade Co., Ltd. and Swiss Re Global Markets Limited are unconditional with</p>	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			respect to 1.2 to 1.4.		
1.6 Is the title of the CDM project activity as given in the PDD identical with the title given in all LoAs and Modalities of Communication? <i>Provide Yes/No answer, and include details into Tables 2, 3 and 4 accordingly.</i>	/2/	DR	Yes. The title of project in PDD is identical with LoAs and MoC.	OK	OK
1.7 If any of provided LoAs contains additional specification of the CDM project activity (PDD version number, validation report version number, amount of ER, etc.) are those specifications valid and consistent with other documents?	/2/	DR	No. The LoAs do not contain additional specification for the project activity.	OK	OK
1.8 Does the project activity involve any public funding from Annex I Parties? <u>If yes</u> , has Annex I Party provided a written confirmation that the use of such funding does not lead to the diversion of the official development assistance.	/2/	DR	<p>According to Annex 2 of the PDD, the project does not receive any public funding. In addition, the validation team reviewed the official clarification document issued by the Haiyuan County Agriculture, Graze, and Science &amp; Technology Bureau, in which it stated that there was no financial assistance to the proposed project activity.</p> <p><b>CL01</b> Please clarify with supporting information for the financial arrangement of sources of capital of the project activity.</p>	<b>CL01</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>2. Participation (VVM E.2)</b>					
2.1 Are the Parties and project participants (PP) listed in the section A.3 of the PDD correctly <u>and</u> is this information consistent with the contact details provided in Annex 1 of the PDD?	/1/	DR	Yes. The project participants are correctly listed in the section A.3. of the PDD and they are consistent with the contact details provided in Annex 1 of the PDD.	OK	OK
2.2 Has every Party involved approved the participation of each corresponding PP, either by means of a LoA or by a separate written document? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	/2/	DR	Yes. The LoAs from China and Netherlands for approving the participation of both PPs were issued respectively.	OK	OK
<b>3. Project Design Document (VVM E.3)</b>					
3.1 Is the PDD presented for validation based on the latest template available at the UNFCCC website? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	/1/, /3/	DR	Yes. The Project Design Document (Version 11 dated 20 <sup>th</sup> February 2010) is based on the latest template available at the UNFCCC website in accordance with the applicable guidance document /3/.	OK	OK
3.2 Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?	/1/, /3/	DR	Yes. The Project Design Document (Version 11 dated 20 <sup>th</sup> February 2010) has been established in accordance with CDM requirements.	OK	OK
<b>4. Project Description (VVM E.4)</b>					

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.1 Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	/1/, /6/, /7/, /8/, /9/, /12/, /13/	DR	<p>A description is contained in the PDD, in which a clear understanding of the precise nature of the project activity and the technical aspects of its implementation is provided.</p> <p><b>CAR02</b> From the PDD, the first crediting period will be started from December 2009. The validation team considers that the first crediting period is not realistic. Please consider in PDD with a more realistic estimation.</p> <p><b>CL02</b> The coordinates in the PDD is out of boundary of Ningxia Hui Autonomous Region. Please provide more specific geographical information in order to identify the project location and project boundary.</p> <p><b>CL03</b> Please provide the project proposal and relevant documents for CER purchase to the validation team for validation.</p>	<p><b>CAR02</b> <b>CL02</b> <b>CL03</b> <b>CL04</b> <b>CL06</b></p>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p><b>CL04</b> Please clarify the selection of the start date of the proposed project according to the Glossary of CDM terms.</p> <p><b>CL06</b> Please provide if any official documents indicating the current situation of heating requirements for the villagers for validation.</p>		
<p>4.2 In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals?</p> <p><i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i></p>	/1/, /6/, /7/, /8/, /9/	DR, I	Yes. The project activity is a greenfield project. The project design is sufficiently described from the technical specifications, drawings and manuals of solar cookers. In addition, the validation checked the equipment design through the video training prepared by the project owner.	OK	OK
<p>4.3 Does the project activity reflects current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country?</p> <p><i>Provide the description of how validation has been carried out and what comparisons have</i></p>	/1/, /6/, /7/, /8/, /9/	DR, I	Yes. The solar cooker technology used for the project reflects current good practices where on one hand renewable solar energy would be utilized for heat generation, and on the other hand the environmental pollution caused by coal burning could be reduced.	OK	OK



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<i>been made.</i>					
<p>4.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario?</p> <p><i>Please, provide Yes/Now answer and update Tables 2, 3 and 4 accordingly, if there is anything unclear in the provided description.</i></p>	/1/, /2/, /3/	DR, I	N/A. According to validation team's physical inspection and on site interview with project participant, the project activity does not involve the alternation of existing installation or process.	OK	OK
<b>5. Baseline and Monitoring methodology</b>					
<b>5.1 General requirements</b>					
5.1.1 Is the methodology used in the project activity approved by the CDM EB <u>and</u> is the selected version still valid?	/1/, /2/, /3/	DR	Yes. The methodology used in the project activity is approved by the CDM EB and the selected version is still valid.	OK	OK
<b>5.2 Applicability of the selected methodology</b>					
<p>5.2.1 Does the project activity qualify under the criteria for small-scale CDM project activities set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM?</p> <p><i>Please provide Yes/No response and description of how this was validated.</i></p>	/1/, /2/, /3/	DR, I	<p>Yes. The project activity qualifies under the criteria for small-scale CDM project activities set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM with application of AMS-I.C. Version 14:</p> <ul style="list-style-type: none"> <li>The project activity applies renewable energy technology (solar cookers) that supply individual households or users with thermal energy that displaces coal used for cooking and water-boiling;</li> </ul>	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<ul style="list-style-type: none"> <li>The total installed capacity of the project activity is 13.1495MW, which does not exceed the threshold of 45MW as stated in the small-scale methodology;</li> <li>The project activity only utilizes renewable solar energy without any fossil fuels. Thus it does not involve in any biomass system, co-fired system;</li> <li>The heat produced by the project activity is captured and used within the solar cookers. It does not involve in delivery to another facilities within the boundary;</li> <li>The project activity will be a new project using new solar cookers, and it does not seek to retrofit or modify any existing facility for renewable energy generation.</li> </ul>		
<p>5.2.1.1 If yes, does the PDD extensively demonstrates and confirms that the small-scale project activity is not a debundled component of a larger project?</p> <p><i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures taken and data found during the procedure. Otherwise amend the Tables 2, 3 and 4 accordingly.</i></p>	/1/, /2/, /3/	DR, I	Yes. According to the information from UNFCCC, there is no registered small-scale CDM project activity or any application to register another CDM small-scale CDM project activity by the project participant within the previous two years with the same project category and technology within 1 km of the project boundary of the project activity.	<b>CL05</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>The same host PP has taken part for three projects in the same province as CDM projects. Only the project location (Xiji county) of Ningxia Federal Solar Cooker Project (UNFCCC ref. no. 2924) is adjacent to the located county of proposed project activity. While the project locations of the other two registered CDM projects are away from the proposed project activity for at least 50km as estimated from the public map source, Google Earth. According to the clarification documents issued by the Ningxia government bureau, the boundary of the Ningxia Federal Solar Cooker Project (Xiji county) and the project activity (Haiyuan county) is located at the regions of mountains, rivers and valley, without any populations within 1km along the boundary of the two counties. In addition, the validation team visited one of the border points along the boundary between two counties, and realized that it is located on a mountain without any populations within 1km. Therefore, the PDD extensively demonstrates and confirms that the small-scale project activity is not a debundled component of a</p>		

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			larger project.  <b>CL05</b> Please substantiate whether the project is not a debundled component of a large scale project.		
5.2.2 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>	/1/, /2/, /3/, /4/, /5/	DR	Yes. All applicability conditions of the selected baseline and monitoring methodology and all tools involved are satisfied by the project activity as the project activity fulfils all the requirements in AMS-I.C. Version 14.	OK	OK
5.2.3 Is the selection of the applied baseline and monitoring methodology justified?	/1/, /2/, /3/, /4/	DR	Yes. The selection of the applied baseline and monitoring methodology is justified As per AMS-I.C./Version 14.	OK	OK
5.2.4 Is the selected methodology correctly quoted in all related documents?	/1/, /2/, /3/, /4/	DR	Yes. The selected methodology is correctly quoted in PDD.	OK	OK
5.2.5 Does the PDD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources</i>	/1/, /2/, /3/, /4/, /5/	DR	Yes. The GHG emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity is negligible, and assumed to be zero in project emissions and leakage. As advised from the project participant, no auxiliary fuel will be used during the whole project	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<i>or sinks of GHG, which were proved to be negligible. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>			period. Apart from this, the validation team considers that there are no other major sources of emission reductions. Therefore the validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, is deemed to contribute less than 1% of the overall expected average annual emission reductions.		
<b>5.3 Project boundary</b>					
5.3.1 Does the PDD correctly describe the project boundary? <i>Provide Yes/No answer. And amend the Tables 2, 3 and 4, if needed.</i>	/1/, /2/, /3/, /4/	DR	Yes. As per AMS-I.C./Version 14, the project boundary is clearly defined as the physical, geographical site of the project equipment producing the renewable solar energy, i.e. Haiyuan County since the project neither generates electricity on grid nor transports the thermal power to other regions.	OK	OK
5.3.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	/1/, /2/, /3/, /4/	DR	Yes. The PDD correctly indicate and describe the emission sources and sinks of GHG gases, in which it mainly comes from coal burning in the project boundary.	OK	OK
5.3.3 In cases where the methodology allows project participants to choose whether a	/1/, /2/, /3/, /4/	DR	Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
source or gas is to be included in the project boundary, is the choice explained and justified by PPs?					
<b>5.4 Baseline identification</b>					
5.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the PDD?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the baseline is applied correctly and documented in the PDD. Please refer to Section 3.4.3 for details.	OK	OK
5.4.1.1 Is the identified baseline scenario plausible?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the identified baseline is plausible. Please refer to Section 3.4.3 for details.	OK	OK
5.4.1.2 Are all assumptions stated in a transparent and conservative manner?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, all assumptions stated are in a transparent and conservative manner. Please refer to Section 3.4.3 for details.	OK	OK
5.4.2 Does the selected methodology require the use of tools <u>and</u> does PDD reflects that correctly?	/1/, /2/, /3/, /4/, /27/	DR	N/A. The selected methodology does not require the use of tool, but the PDD correctly reflect the additionality of the project by applying the information on additionality (attachment A to appendix B).	OK	OK
5.4.2.1 Were all the tools applied correctly?	/1/, /2/, /3/, /4/, /27/	DR	Idem	OK	OK
5.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline	/1/, /2/, /3/, /4/, /27/	DR	The methodology does not require alternatives scenarios to be considered in the identification of the most reasonable	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
scenario, have all scenarios been considered <u>and</u> have no reasonable alternative scenario been excluded?			baseline scenarios.		
5.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the baseline is prescribed. Please refer to Section 3.4.3 for details.	OK	OK
5.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the baseline is prescribed and identified reasonably according to the assumptions, calculations and rationales in reference sources. Please refer to Section 3.4.3 for details.	OK	OK
5.4.6 Does the PDD describe how the national and sectoral policies relevant to the baseline scenario have been identified and considered in the PDD?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the baseline is prescribed and identified as the fuel consumption of the technologies that would have been used in the absence of the project activity multiplied by an emission coefficient for the fossil fuel displaced. No national and sectoral policies are required to be identified.	OK	OK
5.4.7 Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the project activity?	/1/, /2/, /3/, /4/, /27/	DR	Yes. As per AMS-I.C./Version 14, the PDD provides a verifiable description of the identified baseline scenario. Please refer to Section 3.4.3 for details.	OK	OK

**5.5 Algorithm and/or formulae used to determine emission reductions**



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
5.5.1 Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner?	/1/, /3/, /4/, /10/, /17/, /26/, /28/	DR	Yes. The calculations applied and documented are in accordance with the selected methodology and in a complete and transparent manner.	OK	OK
5.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	/1/, /3/, /4/, /10/, /17/, /26/, /28/	DR	Yes. Idem.	OK	OK
5.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?	/1/, /3/, /4/, /10/, /17/, /26/, /28/	DR	Yes. Idem.	OK	OK
5.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?	/1/, /3/, /4/, /10/, /17/, /26/, /28/	DR	Yes. Idem.	OK	OK
5.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the PDD?	/1/, /3/, /4/, /10/, /17/, /26/, /28/	DR	Yes. Idem.	OK	OK
<b>5.6 Leakage</b>					

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
5.6.1 Has the leakage been identified and calculated according to the approved methodology?	/1/, /2/, /3/, /4/	DR, I	Yes. It is noted during OSV that no auxiliary fuel will be used for the project activity. As per AMS-I.C./Version 14, leakage is identified as not required to be considered and is assumed as zero.	OK	OK
5.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
5.6.3 Are uncertainties in the leakage emission estimates properly addressed?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
<b>6. Methodology-related issues for afforestation or reforestation CDM project activities</b>					
Add specific A/R requirements – if applicable!	N/A	N/A	Not applicable for this CDM project activity	OK	OK
<b>7. Additionality</b>					
<b>7.1 Prior consideration of the CDM (VVM E.6.III.a)</b>					
7.1.1 Is there documented evidence provided by the project participants on how and when the decision to proceed with the project activity was taken?	/1/, /2/, /22/, /23/, /37/	DR, I	Yes. The validation team has checked the shareholder meeting minutes provided by the PP on how and when the decision of CDM development to proceed with the project activity. Please refer to Section 3.5.1 for details.	OK	OK
7.1.2 Is the starting date of the project activity, reported in the PDD, in accordance with the “Glossary of CDM terms” and CDM VVM (§97)?	/1/, /2/, /3/, /22/, /23/, /37/	DR, I	Yes. The PP has reported a start date for the project activity as “planned tender bidding process start date” in the PDD. During the OSV, the project owner informed that the project will only be	<b>CL04</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>started after the proposed project is registered as a CDM project. The validation team agrees with the project implementation status for the selection of the starting date, and confirms that no implementation or real actions of the proposed project (such as purchase of solar cookers) have been carried out at this moment.</p> <p><b>CL04</b> Please clarify the selection of the start date of the proposed project according to the Glossary of CDM terms.</p>		
7.1.3 Is the date stated in the provided evidence consistent with other available evidence (e.g. dates of construction, purchase orders for equipment)?	/1/, /2/, /3/, /22/, /23/, /37/	DR, I	N/A. There is no solid evidence for the tentative project start date as this is the planned start date for the tendering process. The project will be started once the project is registered as CDM project.	OK	OK
7.1.4 If the project was not published and the starting date is on or after 2 <sup>nd</sup> August 2008, was it possible to receive from UNFCCC secretariat and DNA a written confirmation that PPs previously informed the above entities on commencement of the project activity and of their intention to seek CDM status?	/1/, /2/, /3/	DR	<p>N/A. The project was published in June 2009, and the project activity will be started once the project is registered as CDM project. The project history and milestones are demonstrated in the PDD.</p> <p><b>CAR03</b> Please demonstrate in the PDD the project</p>	<b>CAR03</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			history according to the requirements of Annex 22 in EB 49 for the project CDM real and continuing actions by the project participant until the latest project status with supporting documents.		
7.1.5 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were previously aware of CDM?	/1/, /2/, /3/, /22/, /23/, /37/	DR, I	N/A. The project was published in June 2009, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.6 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that CDM benefits have been a decisive factor in the decision to proceed with the project activity?	/1/, /2/, /3/, /22/, /23/, /37/	DR, I	N/A. The project was published in June 2009, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.7 Does the individual or body that took the decision to proceed with the project activity have/had the authority to do so?	/1/, /2/, /3/	DR, I	Yes. Since this is a voluntary project, the shareholders of the project have the authority to take the decision to proceed with the project activity. In addition, during the on-site interview, the representative from local DRC advised that the project owner is legal to proceed with the project activity, and a document dated 11 <sup>th</sup> December 2008 was issued from Haiyuan County DRC to the PP for the approval of project activity before the project start date.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.1.8 For the project activities with a starting date before 2 <sup>nd</sup> August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were taking continuing and real actions to secure CDM status for the project in parallel with its implementation?	/1/, /2/, /3/, /22/, /23/, /37/	DR, I	N/A. The project was published in June 2009, and the project activity will be started once the project is registered as CDM project.	OK	OK
7.1.7 In case there is a significant gap between the start date of the project activity and the commencement of validation, how was it possible for the project participant to commit funds to the project in advance of receiving a positive validation opinion?	/1/, /2/, /3/, /22/	DR, I	N/A. The upfront investment will be only raised by the PP. The project activity will be started once the project is registered as CDM project, in order to overcome the financial barrier with CDM revenue.	OK	OK
<b>7.2 Identification of alternatives</b>					
7.2.1 Does the PDD identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	/1/, /2/, /3/, /4/, /5/	DR	The PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.	OK	OK
7.2.2 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a CDM project activity?	/1/, /2/, /3/, /4/, /5/	DR	Yes, the alternatives include the project activity undertaken without being registered as CDM activity as the alternative.	OK	OK
7.2.3 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its	/1/, /2/, /3/, /4/, /5/	DR	Yes, the alternatives include the project activity undertaken without being	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>			registered as CDM activity as the alternative. In addition, the PP correctly applies the approved methodology which prescribes the baseline scenario and no further analysis of alternatives is required.		
7.2.4 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable, the alternative of “project without CDM” is legal.	OK	OK
<b>7.3 Investment Analysis</b>					
7.3.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations?	/1/, /2/, /3/, /4/, /5/, /20/	DR, I	Yes. All sources of revenues (project administrative fee) have been considered in the PDD.	OK	OK
7.3.2 Is the type of investment analysis selected correctly in the PDD?	/1/, /5/	DR, I	Yes. The PP applies the investment comparison analysis by identifying the financial indicator of NPV as the most suitable for the project type and decision-making context. The NPV calculation is selected in the investment analysis for the project activity without CDM revenues.	OK	OK
7.3.3 Is the selected financial indicator chosen and applied correctly?	/1/, /5/	DR, I	Yes. The PP applies NPV calculation in the investment analysis for the project	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			activity without CDM revenues. A negative value of NPV represents that the project is not financially feasible.		
7.3.4 Is the guidance on IRR calculation and assessment correctly applied? <i>Note: Means of validation should be recorded.</i>	/1/, /5/	DR, I	N/A. The PP applies NPV calculation in the investment analysis for the project activity without CDM revenues. A negative value of NPV represents that the project is not financially feasible.	OK	OK
7.3.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?	/1/, /5/	DR, I	Not applicable. PP has not used input values from the FSR. The input values are based on quotations available at the time of decision making.	OK	OK
7.3.6 Are all the values consistent between FSR and PDD <u>and</u> are inconsistencies properly justified?	/1/, /5/	DR, I	The PP applied values from the estimation of the project owner. These values are checked by the validation team, and confirmed to be valid for the financial analysis.	OK	OK
7.3.7 Were all the values from FSR applicable and valid at the time of the investment decision?	/1/, /5/	DR, I	The PP applied values from the quotations available at the time of decision making. These values are checked by the validation team, and confirmed to be valid for the financial analysis.  <u>CL07</u> Please clarify the compensation paid to	<b>CL07</b> <b>CL08</b> <b>CL09</b> <b>CL10</b> <b>CL11</b>	OK (Refer to Table 2)



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>external service on the implementation cost of the project in the financial analysis.</p> <p><b>CL08</b> Please clarify how the inflation rate is estimated for the financial analysis and specify the period of time applied in the estimation.</p> <p><b>CL09</b> Please clarify that there will be a difference in the annual maintenance cost for the project activity with and without CDM revenues respectively.</p> <p><b>CL10</b> Please provide the calculations for the Project NPV without CDM revenue and the Project IRR with CDM revenue for validation.</p> <p><b>CL11</b> Please provide the official documents as indicated in the PDD in order to substantiate that the project activity is not a common practice in Haiyuan County.</p>		

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.3.8 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have lead to a change in the benchmark?	/1/, /5/	DR, I	The project activity is the fourth same type of projects developed by the project owner. The first three projects were developed when they are registered as CDM projects (UNFCCC no. 2307, 2311 and 2924). Thus it is reasonable to assume that no investment would be made since the NPV is negative. The major source of income is the CDM revenue, and the project will not generate other profitable income.	OK	OK
7.3.9 Is the Investment Analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB?	/1/, /2/, /3/, /5/	DR, I	Yes. The investment analysis prepared in compliance with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM EB.	OK	OK
<b>7.4 Barrier analysis</b>					
7.4.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?	/1/, /2/, /3/, /4/, /5/	DR	There is no barrier analysis for the proposed project. The project participant has provided an explanation to show the project activity would not have occurred anyway due to the investment barrier only. This fulfils the requirement of "Non-binding best practice examples to demonstrate additionality for SCC project activities" in EB35 Annex 34.	OK	OK
7.4.2 Do the listed barriers exist <u>and</u> is their	/1/, /2/, /3/,	DR	Not applicable. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
existence substantiated? Note: (a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or (b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?	/4/, /5/				
7.4.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. Idem.	OK	OK
<b>7.5 Common practice analysis</b>					
7.5.1 If the PPs claim in the PDD that CDM project activity is the “first of its kind”, is it justified?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. As per AMS-I.C./Version 14, no common practice analysis is required.	OK	OK
7.5.2 Are the geographical boundaries of the project activity identified correctly?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. Idem.	OK	OK
7.5.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate <u>and</u> is this explanation traceable and reliable?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
7.5.4 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region? <i>Note: Use official sources and local and industry expertise.</i>	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. Idem.	OK	OK
7.5.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	/1/, /2/, /3/, /4/, /5/	DR	Not applicable. Idem.	OK	OK
<b>8. Monitoring plan</b>					
8.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the PDD?	/1/, /2/, /3/, /4/, /5/	DR	Yes. All parameters required by the selected approved methodology or tool identified and listed in the PDD. Please refer to Section 3.6 for details.	OK	OK
8.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?	/1/, /2/, /3/, /4/, /5/	DR, I	Yes. All parameters required by the selected approved methodology or tool identified and listed in the PDD. Please refer to Section 3.6 for details.	OK	OK
8.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?	/1/, /2/, /3/, /4/	DR, I	The project adopts the ex-ante parameters for calculation of emission factor as detailed in PDD Annex 3.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
8.4 Is the measurement equipment for each parameter described and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.5 Is the measurement accuracy addressed and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.6 Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?	/1/, /2/, /3/, /4/	DR, I	Yes. As reported in PDD and advised from PP, there are QC/QA procedures to deal with erroneous measurements and the corrective actions are also identified.	OK	OK
8.7 Is the frequency of measurement identified and deemed appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. The measurement recording frequency for number and operational hours of solar cookers are identified as “annually recorded” in PDD, in which this fulfils the requirement in AMS-I.C./Version 14. Thus the measurement frequency is deemed as appropriate.	OK	OK
8.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/, /2/, /3/, /4/	DR, I	<p>Yes. The monitoring plan is documented in PDD Section B.7, according to AMS-I.C./Version 14 in a complete and transparent manner.</p> <p><b>CL12</b> During the OSV, the project owner advised</p>	<b>CL12</b> <b>CAR04</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<p>that they would propose a new identification system of solar cookers being distributed to the villagers. Please clarify the new proposal for the identification of project equipment in the monitoring plan accordingly. In addition, please state if there will be any impacts on the investment analysis for the new identification system.</p> <p><b>CAR04</b> Please follow the latest guidelines for sampling for small-scale CDM project activities approved from the EB.</p>		
8.9 Are the sampling, measurement methods and procedures defined?	/1/, /2/, /3/, /4/	DR, I	Yes. The sampling, measurement methods are defined and documented in PDD Section B.7, according to AMS-I.C./Version 14 in a complete and transparent manner.	OK	OK
8.10 Are procedures identified for maintenance of monitoring equipment and installations?	/1/, /2/, /3/, /4/	DR, I	N/A. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK
8.11 Are the equipment calibration intervals identified and justified?	/1/, /2/, /3/, /4/	DR, I	N/A. The measurement equipment is simple paper records for all parameters but managed by the local government, and is deemed appropriate.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
8.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/, /2/, /3/, /4/	DR, I	Yes. There is a "Data Management System" identified in PDD for collection, handling, and storage of monitoring records.	OK	OK
8.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	/1/, /2/, /3/, /4/	DR, I	Yes. The validation team has checked the monitoring plan in PDD and considered that the monitoring arrangements are feasible provided that sufficient training can be arranged to the monitoring team.	OK	OK
8.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	/1/, /2/, /3/, /4/	DR, I	Yes. Through the implementation of monitoring plan, it is sufficient to ensure that the emission reductions resulting from the activity can be reported ex post and verified.	OK	OK
8.15 Do the PPs make provisions for personnel training needs?	/1/, /2/, /3/, /4/	DR, I	During the OSV with PP, it was understood that the project owner will be responsible for organizing the necessary technical training for the operation, maintenance and monitoring of project activity. The training will be provided to the monitoring team, which will be managed by the local Rural Energy Station, within one month after the project registration.	OK	OK
8.16 Is the authority and responsibility of overall project management clearly described?	/1/, /2/, /3/, /4/	DR, I	Yes. The management structure for monitoring is clearly described in the PDD	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			with the responsibility of overall project management. In addition, the monitoring will be also managed by the local government authority.		
8.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/, /2/, /3/, /4/	DR, I	Not applicable. According to the project design, such emissions are not expected to occur.	OK	OK
8.18 Are procedures identified for review of reported results/data?	/1/, /2/, /3/, /4/	DR, I	Yes. The quality assurance and quality control procedure is identified in the PDD for review of reported results/data.	OK	OK
8.19 Is the data archiving period for this project activity stated in the PDD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	/1/, /2/, /3/, /4/	DR, I	Yes. The "Data Management System" in monitoring plan of PDD describes the data archiving period for this project activity for two years after the end of the last crediting period.	OK	OK
<b>8.2 Monitoring of the leakage</b>					
8.2.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/, /2/, /3/, /4/	DR, I	No leakages have to be considered according to AMS-I.C./Version 14. No monitoring shall therefore be required.	OK	OK
8.2.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise</i>	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK



**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<i>shall also be considered.</i>					
8.2.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
<b>9. Sustainable development</b>					
9.1 Does the LoA from the Host country DNA contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party?	/2/, /6/	DR, I	Yes. The LoA from P.R. China contains the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party.	OK	OK
9.2 If PDD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	/1/, /2/, /3/, /4/, /6/	DR, I	Yes. Apart from environmental benefits, the project can contribute to social and economic benefits by providing job opportunities and tax revenue to local society.	OK	OK
<b>10. Stakeholders' consultation and comments</b>					
10.1 Were the stakeholders identified in appropriate and complete manner?	/1/, /2/, /3/, /4/	DR, I	The stakeholders included representatives from different gender, age groups and education background. From the background of the stakeholders, it is reasonably believed that the survey have reflected the general attitudes towards the project from the local villagers who are possibly affected by the project. Thus the stakeholders were identified in appropriate and complete manner.	<b>CL13</b>	OK (Refer to Table 2)

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
			<b>CL13</b> Please summarize in the PDD for the background information of the local villagers who participated in the survey conducted by the project owner.		
10.2 Are the identified stakeholders plausible?	/1/, /2/, /3/, /4/	DR, I	Yes. Idem.	OK	OK
10.3 Does PDD describe the means being used to invite local stakeholder's comments?	/1/, /2/, /3/, /4/	DR, I	Yes. According to PDD, the local stakeholder's comments were invited through distribution of questionnaires to the local residents with all pieces of reply received.	OK	OK
10.4 Were those means appropriate?	/1/, /2/, /3/, /4/	DR, I	Yes. A stakeholder consultation process is not mandatory in China. The PP invited stakeholder's comment through questionnaire and the details are described in Section E of PDD. The validation team considered those means were appropriate.	OK	OK
10.5 Was the project presented to the stakeholders in unbiased manner?	/1/, /2/, /3/, /4/	DR, I	Yes. Please refer to 10.1 of Table 1 for details.	OK	OK
10.6 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?	/1/, /2/, /3/, /4/	DR, I	Yes. A stakeholder consultation process is not mandatory in China. The PP invited stakeholder's comment through questionnaire and the details are described in Section E of PDD.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
10.7 Is a summary of the stakeholder comments provided in the PDD?	/1/, /2/, /3/, /4/	DR, I	Yes. A summary of the stakeholder comments is provided in Section E of PDD.  <b>CL14</b> Please provide the full set of returned questionnaires for the local stakeholders to the validation team for verification.	<b>CL14</b>	OK (Refer to Table 2)
10.8 Has due account of any stakeholder comments been taken by PPs and reflected in the PDD?	/1/, /2/, /3/, /4/	DR, I	Through the questionnaire and on-site interview with local stakeholder, the interviewees considered that there is no adverse impact for the project activity.	OK	OK
<b>11. Environmental impacts</b>					
11.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the PDD?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. An EIA registration form was submitted to the local EPB, and being approved by the local EPB. The environmental impacts have been accurately reflected in the Section D of PDD.	OK	OK
11.2 Is an environmental impact assessment (EIA) required for the CDM project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. Idem.	OK	OK
11.3 In case an EIA is required, has the EIA has been approved by local authorities and is the	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. Idem.	OK	OK

**Table 1: Validation requirements**

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Manual, Annex 3 of EB51)

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
outcome accurately reflected in the PDD?					
11.4 Does the PDD include a brief description of the environmental effects of the project, including transboundary?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. The Section D of PDD includes a brief description of the environmental effects of the project.	OK	OK
11.5 Are those effects properly addressed in the design of the project activity?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. Please refer to 11.1 of Table 1 for detail.	OK	OK
11.6 Does the project comply with environmental legislation in the host country?	/1/, /2/, /3/, /4/, /9/	DR, I	Yes. This is confirmed by the interview with the official from the local EPB. The local EPB also issued an approval document for the EIA registration form of the project activity, which complied with environmental legislation.	OK	OK

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)						
No.	CAR/CL		Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	✓		<b>CAR01</b> Please provide the relevant LoA from the DNA of Annex I party to validation team for verification.	1.1	The LoA from the DNA of Netherlands is provided for verification.	<p>The LoA issued from the DNA of Netherlands was checked and confirmed as valid through the cross-checking from information in the webpage of Dutch DNA.</p> <p>Therefore the CAR is resolved and closed.</p>
2.	✓		<b>CAR02</b> From the PDD, the first crediting period will be started from December 2009. The validation team considers that the first crediting period is not realistic. Please consider in PDD with a more realistic estimation.	4.1	The starting date of the crediting period has been revised in PDD.	<p>The validation team checked the updated PDD, in which the starting date of the crediting period has been revised into a more realistic period.</p> <p>Therefore the CAR is resolved and closed.</p>
3.	✓		<b>CAR03</b> Please demonstrate in the PDD the project history according to the requirements of Annex 22 in EB 49 for the project CDM real and continuing actions by the project participant until the latest project status with supporting documents.	7.1.4	The milestones of the project have been listed in section B.5 of the PDD, and the supporting documents such as ERPA, Chinese LoA are attached for validation.	<p>The validation team checked the updated PDD Section B.5., in which the starting date of the crediting period has been revised into a more realistic period. The various CDM related works such as LoA, ERPA are included in the updated PDD to demonstrate continuous actions of CDM development.</p> <p>Therefore the CAR is resolved and closed.</p>

4.		✓	<b>CAR04</b> Please follow the latest guidelines for sampling for small-scale CDM project activities approved from the EB.	8.8	According to paragraph 8 of Annex 30 of EB 50, 90/10 confidence and precision levels shall be used if there is no specific guidance in the applied methodology. Since there is no specific guidance on confidence and precision level in the applied methodology AMS-I.C. version 14 for the proposed project, 90% confidence and 10% precision levels are used in the updated PDD. Thus annex 30 of EB50 will be applied as the basis for choosing confidence and precision level.	The validation team checked the updated PDD, in which the sampling was based on the requirements from the latest EB's guideline of Annex 30 of EB50.  Therefore the CAR is resolved and closed.
5.		✓	<b>CL01</b> Please clarify with supporting information for the financial arrangement of sources of capital of the project activity.	1.8 7.1.7	The upfront investment will be raised by the project owner only. In addition, the official letter from Bureau of Agriculture and Graze of Haiyuan county confirms that there is no official development assistance fund to the project.	The project owner advised that the project funding will be raised from internal accrual only. In addition, the validation team reviewed the official clarification document issued by the Haiyuan County Agriculture, Graze, and Science & Technology Bureau (BAGST), in which it stated that there was no financial assistance to the proposed project activity. Thus the validation team considers that there is no indication for any ODA obtained for the project activity.  Therefore the CL is resolved and closed.
6.		✓	<b>CL02</b> The coordinates in the PDD is out of boundary of Ningxia Hui Autonomous	4.1	The coordinates of Haiyuan county has been updated. The project will be implemented in 10	The validation team checked the updated PDD in which the project will be implemented in 10 townships of

			Region. Please provide more specific geographical information in order to identify the project location and project boundary.		townships of southern Haiyuan county. The exact map of these 10 townships and the geographical coordinates of the centers of these 10 townships have been added in the revised PDD. The supporting document is attached.	southern Haiyuan county. The map and corresponding geographical coordinates of the 10 townships are checked from the public map source, Google Earth, and confirmed to be valid. The validation team considers that the project boundary covered for the project activity is clearly presented in the updated PDD.  Therefore the CL is resolved and closed.
7.		✓	<b>CL03</b> Please provide the project proposal and relevant documents for CER purchase to the validation team for validation.	4.1	The project proposal and relevant CER purchase document is attached.	The project proposal for the detailed description of the project is provided for review. The validation team also checked the ERPA dated 30 Oct 2008, which includes the CER purchase agreement between the two project participants.  Therefore the CL is resolved and closed.
8.		✓	<b>CL04</b> Please clarify the selection of the start date of the proposed project according to the Glossary of CDM terms.	4.1 7.1.2	According to The glossary of CDM terms, the starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins. The tender bidding process represents the beginning of real action of the project. This is why it is set as the start date of the project in C.1.1 of PDD.	According to the updated PDD, the tendering process will be carried out in May 2010 tentatively, and the tendering process is considered as the earliest date of the real action for the project activity. However, it is advised by the host PP, the equipment purchase will not be started until the project was registered as a CDM project. The validation team agrees with the selection of the starting date, although the tendering process will be just one of the project

						<p>actions before the actual implementation.</p> <p>Therefore the CL is resolved and closed.</p>
9.		✓	<p><b>CL05</b></p> <p>Please substantiate whether the project is not a debundled component of a large scale project.</p>	5.2.1	<p>The project is substantiated as not a debundled component of a large scale project in the Section A4.5 of PDD. The supporting document is attached.</p>	<p>According to the clarification documents issued by the (a) Xiji Agriculture, Graze, and Science &amp; Technology Bureau and (b) Haiyuan Agricultural Bureau, both documents stated that “the boundary of the Ningxia Federal Solar Cooker Project (Xiji county) and the project activity (Haiyuan county) is located at the regions of mountains, rivers and valley. The area is unsuitable for human living, and there are no populations within 1km along the boundary of the two counties”.</p> <p>According to the UNFCCC’s information, the validation team therefore confirms that there is no registered small-scale CDM project activity or any application to register another CDM small-scale CDM project activity by the project participants within the previous two years with the same project category and technology within 1 km of the project boundary of the project activity. Thus, the project activity is not deemed to be a de-bundled component of a large project activity. Please refer to Section 3.4.1 for</p>



						<p>details.</p> <p>Therefore the CL is resolved and closed.</p>
10.		✓	<p><b>CL06</b></p> <p>Please provide if any official documents indicating the current situation of heating requirements for the villagers for validation.</p>	4.1	<p>According to “Explanation on Solar Cooker Usage Time and Cooking Habits in Haiyuan County”, the heating requirement for cooking using solar cooker is at least 4 hours per day. The official document is attached.</p>	<p>According to the official document issued by the Haiyuan County Agriculture, Graze, and Science &amp; Technology Bureau (BAGST) dated 17<sup>th</sup> September 2009, it is stated that it is a reasonable estimation of the average heating requirement of a solar cooker for one family as 4 hours per day. The document is reviewed by the validation team, and confirmed to be valid.</p> <p>Therefore the CL is resolved and closed.</p>
11.		✓	<p><b>CL07</b></p> <p>Please clarify the compensation paid to external service on the implementation cost of the project in the financial analysis.</p>	7.3.7	<p>Footnote 11 of PDD has been substantiated to provide more clarification on the implementation cost of the project.</p>	<p>The validation team checked the updated PDD, in which the footnote 11 is revised. According to the PDD and advised by the PP, the implementation cost for the project includes the project and logistic management, local distribution and transportation of the solar cookers, training of users, and other implementation-related works.</p> <p>Therefore the CL is resolved and closed.</p>
12.		✓	<p><b>CL08</b></p> <p>Please clarify how the inflation rate is estimated for the financial analysis and</p>	7.3.7	<p>The inflation rate is the average inflation rate of China for the past 3 years. Please refer to</p>	<p>The inflation rate of the P.R. China of 4% is sourced from the Global Economics Research, in which it is</p>

			specify the period of time applied in the estimation.		“Inflation” worksheet in the financial analysis Excel file “financial on PDD v7_DOE.xls”.	based on the past 3-year (i.e. 2006-2008) monthly inflation values to obtain the average annual inflation rate, i.e. 4%. The validation team considers that the reference applied is a reasonable assumption. In addition, the calculation of average inflation rate is checked according to the calculation worksheet provided by the validation team, and confirmed to be correct.  Therefore the CL is resolved and closed.
13.		✓	<b>CL09</b> Please clarify that there will be a difference in the annual maintenance cost for the project activity with and without CDM revenues respectively.	7.3.7	There is no difference in the annual maintenance cost between project activities with and without CDM revenues. The difference in the previous PDD was a typing error which has been corrected in the updated PDD.	The PP confirms that it is only a typo error for the difference in the annual maintenance cost for the project activity with and without CDM revenues in the GSP PDD. The error is corrected in the updated PDD.  Therefore the CL is resolved and closed.
14.		✓	<b>CL10</b> Please provide the calculations for the Project NPV without CDM revenue and the Project IRR with CDM revenue for validation.	7.3.7	The Excel file “financial on PDD v7_DOE.xls” has been attached for the calculations of Project NPV without CDM revenue and the Project IRR with CDM revenue.	The validation team checked the calculation worksheet with the calculations of NPV and IRR. The calculation is checked and confirmed to be correct.  Therefore the CL is resolved and closed.
15.		✓	<b>CL11</b> Please provide the official documents as indicated in the PDD in order to	7.3.7	According to the “Explanation on the population and rural fuel	The validation team reviewed the clarification document issued by the

			substantiate that the project activity is not a common practice in Haiyuan County.		usage of Haiyuan County”, coal is the only energy source that is used in rural Haiyuan county. Therefore, the project activity of using solar cooker for cooking is not a common practice in Haiyuan county.	<p>Haiyuan County Agriculture, Graze, and Science &amp; Technology Bureau. The document stated that the local residents only rely on coal as their energy source for cooking and water heating purpose. Together with the on-site interview with the local RES officials and villagers, they also agree that coal is the only energy source for their daily cooking and water heating. Therefore, the validation team considers that the solar cooker for cooking is not a common practice in Haiyuan county. Please refer to Section 3.4.3 for details.</p> <p>Therefore the CL is resolved and closed.</p>
16.		✓	<p><b>CL12</b></p> <p>During the OSV, the project owner advised that they would propose a new identification system of solar cookers being distributed to the villagers. Please clarify the new proposal for the identification of project equipment in the monitoring plan accordingly. In addition, please state if there will be any impacts on the investment analysis for the new identification system.</p>	8.8	<p>Please note that the identification system we proposed is not new, but a slightly-revised system that can achieve the same purpose as before. Please find the attachment “Explanation on Revised Solar Cooker Identification System” for details. Basically, a unique project logo will be used in the proposed identification system for the solar cooker instead of serial numbers.</p> <p>The Section B.7.2. of the PDD has been revised to “...the logo</p>	<p>The validation team reviewed the document “Explanation on Revised Solar Cooker Identification System /54/” for the revised system of identification of the project cookers being used by the villagers. It stated that instead of a unique serial number is used on each of the solar cooker distributed to the users; a unique project logo will be used for all the solar cookers distributed for this project activity. The validation team agrees that the purpose of project monitoring is to measure the time of solar cooker being used by the users, but not necessarily the usage time for which specific solar cooker is actually used. The new revised system does</p>

					<p>of the project will be put on each of the solar cookers...”, i.e., each project will have a unique logo to differentiate it from other projects implemented by the project owner.</p>	<p>not affect the designed purpose of project monitoring.</p> <p>The validation team checked the updated PDD, in which the monitoring plan is revised as putting the logo of the project on each of the solar cookers, so that each project will have a unique logo to differentiate it from other projects implemented by the project owner. A brief description on the reasons for the change of monitoring plan compared with the GSP PDD is included in the updated PDD. The updated monitoring plan is also received and checked by the validation team. The major content of the monitoring plan are described in the updated PDD.</p> <p>Therefore the CL is resolved and closed.</p>
17.		✓	<p><b>CL13</b></p> <p>Please summarize in the PDD for the background information of the local villagers who participated in the survey conducted by the project owner.</p>	10.1	<p>The background information has been added in second paragraph of E.1 of PDD.</p>	<p>The validation team checked the updated PDD, and the background of the participants for the survey was summarized according to the returned questionnaires.</p> <p>Therefore the CL is resolved and closed.</p>
18.		✓	<p><b>CL14</b></p> <p>Please provide the full set of returned questionnaires for the local stakeholders to the validation team for verification.</p>	10.7	<p>The full set of returned questionnaires for the local stakeholders is attached for validation.</p>	<p>The validation team checked the 100 sets of the returned questionnaire conducted in December 2008, and confirmed to be valid.</p>

						Therefore the CL is resolved and closed.
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## Appendix B

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### CERTIFICATES OF COMPETENCE

## 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

Lo, Tommy /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level:

(Qualifikationsstufe)

Auditor

External:

(Externer)

☐ ja

Add. reviewer:

(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:

(EAC Branchen)

CDM 05 - Chemical industry

CDM 13 - Waste handling and disposal

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

2008/04/29

Valid to:

(Gültig bis)

2012/10/13

Remarks:

(as GHG auditor from 2009-10-14)

Languages:

Chinese

English

Mandarin

Chinese simplified

Chinese traditional

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:

(letzte Beurteilung)

Next Monitoring:

(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date: 2008-04-29  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason:

## History

Created:	2008/04/27 15:19:00	Manfred Brinkmann/Jpn/TUV
Modified:	2009/11/15 23:27:49	Manfred Brinkmann/Jpn/TUV

## Qualification

Hai, Harold /

### Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

Auditor

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 13 – Waste handling and disposal

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2007/12/20

Valid to:  
(Gültig bis)

2012/09/26

Remarks:

Languages:

Chinese  
English  
Mandarin  
Chinese simplified  
Chinese traditional

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

### History of scope allocation

Date  
(Datum)

2007-12-20

Change  
(Änderung)

EAC CDM added

By  
(durch)

Manfred Brinkmann

Reason  
(Begründung)

### History

Created:	2007/12/19 15:32:34	Harold Hai/Hk/Chn/TUV
Modified:	2007/12/20 14:59:31	Manfred Brinkmann/Jpn/TUV

## Qualification

Jana, Asim Kumar /

## Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)  
CDM 03 – Energy demand  
CDM 04 – Manufacturing industries  
CDM 12 – Solvents use  
CDM 02 – Energy distribution  
CDM 11 – Fugitive emissions from production and consumption of  
halocarbons and sulphur hexafluoride  
CDM 13 – Waste handling and disposal  
CDM 05 – Chemical industry

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2009/06/02

Valid to:  
(Gültig bis)

2012/06/01

Remarks:

Languages:

Hindi  
English

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date:

2009-06-03

Change:

EAC CDM, CDM, CDM, CDM added

By: Manfred Brinkmann  
Reason: scope 4 limited to fuel switch

### History

Created:	2009/04/21 22:54:07	Asim Kumar Jana/Ind/TUV
Modified:	2010/01/05 12:54:54	Manfred Brinkmann/Jpn/TUV