



VALIDATION REPORT

Sichuan Tiejue 25MW Hydro Power Project

31 March 2009

Japan Consulting Institute

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CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

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Approved by	Organizational Unit
Akio Yoshida, Executive Director	JCI CDM Center, Japan Consulting Institute (JCI)
Client	Client ref.,
KOE Environmental Consultancy, Inc. (Japan)	Mr. Kaoru Inoue
Project Name	Sichuan Tiejue 25MW Hydro Power Project
Host Country	Methodology version
People's Republic of China	ACM0002 version 07
Size	ER estimate
Large Scale	98,877 t-CO ₂ e / year (average)
GHG Reducing Measure/ Technology	Grid-connected hydro power generation

A summary of the validation process and its conclusions, validation opinion

Japan Consulting Institute (JCI) has performed a validation work of the "Sichuan Tiejue 25MW Hydro Power Project". The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

- The review of the PDD and the subsequent follow-up interviews have provided JCI with sufficient evidence, to determine the fulfilment of stated criteria.
- The host country is People's Republic of China and the Annex I country is Netherlands. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from People's Republic of China confirmed that the project assists in achieving sustainable development.
- The project correctly applies ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 07 and referenced Tool.
- The total emission reductions from the project are estimated to be on the average 98,877 tCO₂e per year over the selected 7 years crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.
- Adequate training and monitoring procedures have been implemented.
- In summary, it is JCI's opinion that the Sichuan Tiejue 25MW Hydro Power Project as described in the PDD version 3.0 of "30/03/2009" meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0002 version 07.
- JCI thus provides a positive opinion and requests the registration of the proposed project as a CDM project activity.

Date of revision	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organisational unit <input type="checkbox"/> Limited distribution <input type="checkbox"/> Unrestricted distribution
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CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

Abbreviations

ACM0002	ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 07
BM	Build Margin
CCNV	China Carbon N.V.
DOE	Designated Operational Entity
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CERs	Certified Emission Reductions
CM	Combined Margin
CO ₂	Carbon dioxide
DOE	Designated Operational Entity
DNA	Designated National Authority
DRC	Development and Reform Committee
ECR	Expansion Capacity Report
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
EB	Executive Board
GHG	Greenhouse Gas
JCI	Japan Consulting Institute
KOE	KOE Environmental Consultancy, Inc. (Japan)
Leshan ESI	Leshan Environmental Science Institute
Leshan DI	Leshan City Water Conservancy and Power Architecture and Reconnaissance Design Institute
Leshan EPB	Leshan City Environmental Protection Bureau
LoA	Letter of Approval
NDRC	National Development and Reform Committee
Mabian GRVD	Mabian Gaozhuoying River Valley Development Co., Ltd.
OM	Operating Margin
PDD	Project Design Document
PDR	Preliminary Design Report
PRC	People’s Republic of China
SJEPG	Sichuan Jianengjia Electric Power Group Co., Ltd.
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Clean Development Mechanism Validation and Verification Manual

TABLE OF CONTENTS

I.	VALIDATION SUMMARY AND OPINION.....	4
II.	INTRODUCTION OF CDM VALIDATION.....	4
1.	OBJECTIVE OF CDM VALIDATION	4
2.	VALIDATION APPROACH.....	4
3.	VALIDATION METHODS	5
3.1	<i>Means of validation.....</i>	5
3.2	<i>Clarification requests, corrective action requests and forward action requests</i>	5
4.	STAKEHOLDER CONSULTATION PROCESS	7
III.	VALIDATION WORK	7
1.	VALIDATION TEAM.....	7
2.	APPOINTMENT CERTIFICATE OF JCI VALIDATION TEAM MEMBER	7
3.	QUALITY CONTROL OF THE VALIDATION PROCESS	7
4.	DESK REVIEW	8
5.	FOLLOW-UP ACTIONS (E.G., ONSITE VISIT, INTERVIEWS WITH PROJECT STAKEHOLDERS)	11
IV.	VALIDATION FINDINGS	13
1.	APPROVAL.....	13
2.	PARTICIPATION	13
3.	PROJECT DESIGN DOCUMENT	13
4.	PROJECT DESCRIPTION.....	14
5.	BASILINE AND MONITORING METHODOLOGY	14
5.1.	<i>Applicability of selected methodology to the project activity.....</i>	14
5.2.	<i>Project boundary</i>	15
5.3.	<i>Baseline identification</i>	15
5.4.	<i>Algorithms and/or formulae used to determine emission reductions.....</i>	16
6.	ADDITIONALITY OF PROJECT ACTIVITY	17
6.1	<i>Prior consideration of CDM.....</i>	17
6.2	<i>Identification of alternative.....</i>	19
6.3	<i>Investment analysis.....</i>	20
6.4	<i>Barrier analysis.....</i>	25
6.5	<i>Common practice analysis.....</i>	25
6.6	<i>Conclusion of assessment of additionality.....</i>	26
7.	MONITORING PLAN	27
1)	<i>Parameters to be monitored ex-post</i>	27
8.	SUSTAINABLE DEVELOPMENT	28
9.	LOCAL STAKEHOLDER CONSULTATION.....	28
10.	ENVIRONMENTAL IMPACTS.....	28
11.	COMMENTS BY PARTIES, STAKEHOLDER THROUGH THE CONSULTATION PROCESS	28

Appendix A: Validation Protocol

Appendix B: Certificate of Appointment of Validation Team

I. VALIDATION SUMMARY AND OPINION

Japan Consulting Institute (JCI) has performed a validation of the Sichuan Tiejue 25MW Hydro Power Project. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

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

The host country is People's Republic of China and the Annex I country is Netherlands. Both countries fulfill the participation criteria and have approved the project and authorized the project participants. The DNA from People's Republic of China confirmed that the project assists in achieving sustainable development.

The project correctly applies ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 07 and referenced "Tool for the demonstration and assessment of additionality (Version 05.2)" and "Tool to calculate the emission factor for an electricity system (Version 01.1)".

The total emission reductions from the project are estimated to be on the average 98,887 tCO₂e per year over the selected 7 year crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been implemented.

In summary, it is JCI's validation conclusion that the "Sichuan Tiejue 25MW Hydro Power Project" as described in the PDD version 3.0 of "30/03/2009" meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies ACM0002.

JCI thus provides a positive validation opinion and requests for the registration of the proposed project as a CDM project activity.

II. INTRODUCTION OF CDM VALIDATION

The KOE has commissioned JCI to perform a validation of the "Sichuan Tiejue 25MW Hydro Power Project" (hereafter called "the project"). This report summarises the findings of the validation of the project, performed on the basis of CDM VVM version 01, and related UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, (the simplified modalities and procedures for small-scale CDM project activities) and the subsequent decisions by the CDM Executive Board.

1. Objective of CDM Validation

The purpose of validation is to ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.

JCI reports the results of its assessment in a validation report. JCI submits this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of a project activity as a proposed CDM project activity.

The validation report shall include a positive validation opinion only if the proposed project activity complies with the applicable CDM requirements.

2. Validation approach

The CDM is a rules-based mechanism. Therefore, it shall be JCI's responsibility to ensure that, in accordance with the CDM VVM version 01 and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.

During validation, JCI assesses whether the project design of the proposed CDM project activity meets the CDM requirements. For this, JCI, using objective evidence, assesses the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document (PDD). The evidence used in this assessment is not limited to that provided by the project participants.

In assessing evidence, JCI does not omit evidence that is likely to alter the validation opinion. In the assessment of evidence, the DOE shall use the acceptable approaches as specified in Chapter V. CDM Validation of section E. in CDM VVM version 01, and JCI ensures that the project activity complies with the relevant requirements set out in the CDM modalities and procedures, the applicability conditions of the selected methodology and guidance issued by the CDM Executive Board before submitting a request for registration.

In case the validation report includes a negative validation opinion the validation report shall be sent to the CDM Executive Board.

3. VALIDATION METHODS

3.1 Means of validation

JCI applies standard auditing techniques to assess the correctness of the information provided by the project participants, including, where appropriate, but not limited to:

- 1) Document review, involving:
 - (i) Review of data and information to verify the correctness, credibility and interpretation of presented information;
 - (ii) Cross checks between information provided in the PDD and information from sources other than that used, if available, and if necessary independent background investigations
- 2) Follow-up actions (e.g., on-site visit and telephone or email interviews), including:
 - (i) Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;
 - (ii) Cross-check of information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted from the validation;
- 3) Reference to available information relating to projects or technologies similar to the proposed CDM project activity under validation; and
- 4) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

3.2 Clarification requests, corrective action requests and forward action requests

During the validation of a project activity, if JCI identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, JCI shall ensure that these issues are correctly identified, discussed and concluded in the validation report.

JCI shall raise a corrective action request (CAR) if one of the following occurs:

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

JCI shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

JCI raise a forward action request (FAR) during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

JCI shall resolve or “close out” CARs and CLs only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidence that satisfy the JCI’s concerns. If this is not done, the DOE shall not recommend the project activity for registration to the CDM Executive Board.

JCI shall report on all CARs, CLs and FARs in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes. The validation protocol consists of two tables. The different columns in these tables are described as followings.

Validation protocol tables

Table 1: Requirement checklist

- ✧ **Checklist Question :**
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.
- ✧ **Reference :**
Gives reference to documents where the answer to the checklist question or item is found.
- ✧ **Means of verification (MoV) :**
Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.
- ✧ **Comment :**
The column is used to elaborate and discuss the checklist question and/or the conformance to the question.
- ✧ **Draft and/or Final Conclusion :**
 - ***OK** is used either acceptable based on evidence provided*
 - ***Corrective Action Request (CAR)** is used due to non-compliance with the checklist question.*
 - ***Clarification Request (CL)** is used when the validation team has identified a need for further clarification.*
 - ***Forward Action Request (FAR)** is used to highlight issues related to project implementation that require review during the first verification of the project activity.*

Table 2: Resolution of Corrective Action and Clarification Requests

- ✧ **Draft report clarifications and corrective action requests :**
*If the conclusions from the draft Validation are either a **CAR**, a **CL** or a **FAR**, these should be listed in this section.*
- ✧ **Ref. to checklist question in table1& 2 :**
*Reference to the checklist question number in Table1 & 2 where the **CAR**, **CL** or **FAR** is explained.*
- ✧ **Summary of project owner response :**
The responses given by the project participants during the communications with the validation team should be summarised in this section.
- ✧ **Validation conclusion :**
This section should summarise the validation team’s responses and final conclusions. The conclusions should also be included in Table 2, under “Final Conclusion”.

The completed validation protocol for the Sichuan Tiejue 25MW Hydro Power Project is enclosed in Appendix A to this report.

4. STAKEHOLDER CONSULTATION PROCESS

JCI makes the PDD of the project activity under consideration publicly available in accordance with the latest version of the “Procedures For Processing And Reporting On Validation Of CDM Project Activities”^{*1}.

^{*1} <http://cdm.unfccc.int/Reference/Procedures/reg_proc05_v01.pdf>.

During the validation of the project activity, JCI takes into account the comments received and the validation report shall include details of actions taken to take due account of the comments during the validation process.

If comments are not sufficiently substantiated or indicate that the project activity does not comply with the CDM requirements, then JCI requests further clarification from the entity providing the comment. However, JCI is not required to enter into a dialogue with Parties, stakeholders or NGOs that comment on the CDM requirements. If no additional information or substantiation is provided in response to a request for clarification, JCI proceeds to assess the comments as originally provided.

III. VALIDATION WORK

JCI carried out the validation work to ensure that the project activity complies with the requirements of paragraph 37 of the CDM modalities and procedures.

1. Validation Team

Details of the validation team are shown in below Table.

Table 3. Details of Validation Team members

Name	Role/Qualification	Expertise/ Experience of Audit
Takayuki Abe	All relevant issues / Team Leader	Mechanical Eng., Power & Steam Generation/ Energy Industry, Hydropower and LFG Recovery
Toshiaki Takeda	CDM auditor / Team Member	Chemical Eng., Food Industry /Hydropower

2. Appointment certificate of JCI validation team member

The certificate of appointment of the validation team members is attached in Appendix B to this report.

3. Quality Control of the Validation Process

The validation report worked out by the team underwent a series of review processes for the assurance of its conformance with the requirements of the applied methodology, VVM, relevant guidance/guidelines, /tools.

According to JCI's Quality Management Program, the series of the reviews has been conducted with the following three steps:

- 1) Interim review by the internal audit team including the technical reviewer
- 2) Review by the CDM evaluation committee consisting of external experts
- 3) Final review by the internal audit team including the technical reviewer

All the reviewers including the external experts have been selected based on JCI's qualification standard on the competency required for CDM validation and verification.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

4. Desk Review

4.1 Document list

The following table outlines the documentation reviewed during the validation.

Table 4. Document list

No.	Title
PDD, Methodology, Tools, Guidance, Guidelines, Manual	
/1/	PDD of Sichuan Tiejue 25MW Hydro Power Project version 1.0, completed on 21/03/2008 by KOE
/2/	PDD of Sichuan Tiejue 25MW Hydro Power Project, version 3.0, completed on 30/03/2009 by KOE
/3/	Tool to calculate the emission factor for an electricity system (Version 01.1)
/4/	Tool for the demonstration and assessment of additionality (Version 05.2)
/5/	ACM0002 version 07 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”
/6/	GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES(CDM-NM) (Version 07)
/7/	Guidance on the Assessment of Investment Analysis (Version 02)
/8/	GUIDANCE ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF THE CDM (Version 02)
/9/	Glossary of CDM terms (Version 04)
/10/	Clean Development Mechanism Validation and Verification Manual (version 01)
/11/	The paragraph 54 of the 38th meeting report of CDM EB
/12/	
/13/	
/14/	
/15/	
/16/	
/17/	
/18/	
/19/	
General Reference	
/20/	Economic Evaluation Code for Small Hydropower Projects (SL16-95)
/21/	Notice on Strictly Prohibiting the Installation of Fuel-fired generators with the Capacity of 135MW or below Issued by State Council office, decree No. 2002-6
/22/	Announcement of Ministry of Water Resources of the People’s Republic of China issued on 09/09/2006
/23/	News of China Power network : Power generation cost of wind and solar power www.cnpower.org/biz/gting/200706/15920.html
/24/	China Solar: Strategic Generation Cost of Renewal Energy http://www.chinasolar.org/bbs/detail.asp?id=405
/25/	China Power : Revolution Plan of Power System (year 2002)

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

No.	Title
	http://www.chinapower.com.cn/article/1078/art1078751.asp
/26/	Electricity Restructuring in China: The Elusive Quest for Competition http://www.china5e.com/laws/index2.htm?id=200608080001
/27/	China Electricity Council, Revolution: Engine for Electricity Power Development (26/12/ 2002) http://www.cec.org.cn/news/showc.asp?id=16718
/28/	NDRC, Review of Revolution in Economics 46 : Tariff Formation Mechanism http://tgs.ndrc.gov.cn/ggxx/t20060127_58349.htm
/29/	Classification & design safety standard of hydropower projects (DL5180-2003) issued by State Economic and Trade Commission of People's Republic of China in 2003
/30/	Sichuan Province Environmental Control Law, Regulation and Notice issued in 2008
/31/	China Electric Power Yearbook 2004-2006
/32/	China Energy Statistical Yearbook 2004-2006
/33/	New Energy, World of Biomass Net http://cwera.cma.gov.cn/upload/b_2_left_02.jpg
/34/	China Construction News Network: Analysis of Renewable Energy http://ac.agri.gov.cn/ac/ViewContent.do?id=4affaa20110219f101116d279548047d&year=207&month=3&right=!ENCODEtkc1vlOIflg1Oe
/35/	Science Direct – Renewable and Sustainable Energy Reviews http://www.86ne.com/Biomass/200712/Biomass_103227.html
/36/	China Water Resources Yearbook 2003-2007
/37/	
/38/	
/39/	
Evidence and Documents provided by the Project Participant	
/40/	LoA of China DNA issued on 11/11/2008
/41/	LoA of Netherland DNA issued on 20/01/2009
/42/	PDR issued in 02/2004
/43/	LoA of PDR issued on 08/03/2004
/44/	LoA of EIA Report issued on 08/03/2004
/45/	Purchase Contract of Major Equipment by ex-project owner issued in 06/2004
/46/	Construction Suspension Notice by ex-project owner issued on 10/06/2006
/47/	Mabian County Tiejue Hydropower Station Consulting Assessment Report by Chengdu Hongce Engineering Consulting Co., Ltd. Issued on 18/11/2006
/48/	Minutes of SJEPG Board Meeting on 12/12/2006
/49/	Asset Assessment Report issued on 01/09/2006
/50/	Reply Letter sent from Leshan City Design Institute to SJEPG on 20/12/2006
/51/	Letter of requesting asset evaluation
/52/	Purchase Contract of Tiejue and another small hydropower stations signed on

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

No.	Title
	11/01/2007
/53/	Contract of CDM consultation signed on 25/01/2007
/54/	Due Diligence Report by KOE conducted on 10-13/04/2007
/55/	ECR issued in 05/2007
/56/	LoA of ECR by Leshan City DRC issued on 18/06/2007
/57/	Due Diligence Report by China Carbon NV conducted on 07-10/07/2007
/58/	PPA issued on 07/01/2008 (tariff: 0.181RMB/kWh)
/59/	LoI of ERPA issued on 29/01/2008
/60/	Certificate of the Design Institute
/61/	PPA applied to another hydropower plant issued on 15/08/2003 (tariff:0.18 RMB/kWh)
/62/	FSR issued in 03/2004
/63/	LoA of FSR issued on 19/10/2004
/64/	LoA of the establishment of Mabian GRVD
/65/	Validation Contract with JCI
/66/	EIA Report issued in March 2004
/67/	Letter of Request for Expansion Capacity Report compilation and Assistance in applying CDM sent from SJEPG to Leshan City Design Institute on 15/12/2006
/68/	Discussion and Countermeasures of Calculation Procedure about Hydropower Loss in Central China Power System issued in year 2001
/69/	Monthly Electricity Sales Tickets of the Tiejue Project from June 2008 through March 2009

Major changes of the content from the PDD/1/ to the PDD/2/ are summarized in the below table.

Table 5. Major Changes in the Content of the PDDs

Subject and section in the PDD	Original content in the PDD/1/	Revised content in the PDD/2/	Issued CAR or CLAR Relevant tool, guidance, or guidelines applied
Additional description to explain the project activity in more details in section A.2	Description provided insufficient	Appropriate descriptions added to comply with the revised PDD guidelines/6/	CAR-2 The PDD guidelines (version 07) /6/
The project start date in section C.1.1	01 April 2004 on which the project construction started by ex-owner	11 January 2007 on which the purchase contract of the project activity was signed by current owner	CAR-5 The Glossary of CDM terms (Version 04)) /6/
Provision of spreadsheet of financial calculations corresponding to section B.5 Sub-step	No spreadsheets attached	Spreadsheets of benchmark and sensitivity analysis calculations in excel version are attached to	CL-8 and CL-11 Guidance on the Assessment

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

2c & 2d		the PDD/2/	of Investment Analysis (Version 02) /7/
Description of a wired-diagram of the project boundary in section B.3.	No descriptions provided.	An appropriate wired-diagram additionally described.	CAR-4 The PDD guidelines (Version 07) /6/
Prior consideration of CDM in section B.5.	No descriptions provided regarding the prior consideration	Appropriate descriptions provided with timelines and relevant evidence	CL-12 The PDD guidelines (Version 07) /6/ and the guidance of CDM prior consideration /8/
Explanation and evidence for input values used in financial analysis for project decision in section B.5.	Explanations of the input values and evidence provided were insufficient.	Sufficient explanations and supporting documents provided	CL-1 Guidance on the Assessment of Investment Analysis (Version 02) /7/, and Tool for the demonstration of assessment of additionality (Version 05.2) /4/

5. Follow-up actions (e.g., Onsite Visit, Interviews with Project Stakeholders)

The on-site visit and interviews with project stakeholder were held from 26 to 28 August 2008 at the project site in Sichuan Province, China.

The names of interviewees are listed as following table.

Table 6. List of interviewees

No.	Date	Name	Organization	Topic
/70/	27/08/2008	Mr. Wang jin Mr. Wang Shang Wu Ms. An Min Ms. Zhao Xue Jiao Mr. Er liang Huang	Mabian Grid SJEPG CCNV KOE	<u>Interview with Local Grid</u> <ul style="list-style-type: none"> • Tariff issue in the region • Negotiation of tariff • Power supply/demand balance in the region • Transaction with large regional/provincial grids
/71/	27/08/2008	Mr. Wang Shang Wu Ms. Zheng Yao Ms. An Min Ms. Zhao Xue Jiao Mr. Er liang Huang	SJEPG CCNV KOE	<u>Interview with Project Owner</u> <ul style="list-style-type: none"> • Company profile/capacity • Chronology of FSR development • Initial findings including CDM prior consideration & time gap issues • LoA application status • Benchmark analysis • EIA implementation • Regulation regarding EIA • Survey results of stakeholder's comments

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

No.	Date	Name	Organization	Topic
/72/	27/08/ 2008	Ms. An Min Ms. Zhao Xue Jiao Mr. Er liang Huang Ms. An Min	CCNV KOE CCNV	<u>Interview with PDD Author</u> <ul style="list-style-type: none"> Initial Findings Timelines of prior consideration of CDM Financial Analysis Common Practice Analysis Project start date Calculations of emission reductions Availability of data source Validation schedule
/73/	28/08/2008	Mr. Xu Fan Mr. Yang Yu Li Mr. Liu Nan Qiuo Mr. Qi wei dong. Mr. Wang Shang wu Ms. An Min Ms. Zhao Xue Jiao Mr. Er liang Huang	Leshan ESI Leshan DI Leshan EPB Leshan DRC SJEPG CCNV KOE	<u>Interview with NDRC, EPB, EIA Report Author, Design Institute</u> <ul style="list-style-type: none"> Company profile/capacity Chronology of FSR development and approval Gap of tariff between estimate and actual prices Evaluation of contribution of the project activity to local society Potential EIA issues and mitigation measures associated with hydropower project development Application of this kind of project for the CDM Regulations on hydropower projects
/74/	28/08/2008	Mr. Wang Shang wu Ms. An Min Ms. Zhao Xue Jiao Mr. Er liang Huang Mr. Shao Yong Jun Mr. Ji Hu Qu Luo Mr. Li Ru Xiong Mr. Ren Chuan Li Mr. Shua Ruo Yang Ge	SJEPG CCNV KOE Local resident	<u>Interview with Local Residents</u> <ul style="list-style-type: none"> Living conditions Impacts of the project activity on daily life in the region Contribution of the project activity to local society Anticipated negative impacts on local environment Request to the project participants

IV. VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of validation and the results from the validation process are identified and documented in more detail in the validation protocol in Appendix A.

Findings issued through the validation

JCI issued the five (5) CARs, and twenty (20) CLs as shown in the Validation Protocol, Appendix A of this report.

All the CARs, and CLs were resolved and then closed as shown in the Table 2 of the Appendix A.

Major issues and its resolution process through the CARs, and CLs are described in following items according to VVM/41/.

1. Approval

From KOE, JCI received on 24 November 2008 a copy of the LoA issued by PRC DNA on 24 November 2008, and on 16 February 2009 a copy of the LoA issued by Netherlands DNA on 20 January 2009.

JCI, however, requested KOE to resubmit a copy of the LoA by PRC DNA, as there is the inconsistency with the project title of the LoA compared with that of the PDD.

JCI reviewed the LoA by Netherlands DNA and confirmed the following:

- 1) It approved CCNV's voluntary participation to the project activity; and
- 2) It authorized CCNV as a project participant (proponent)

JCI also reviewed the reissued LoA and confirmed the following:

- 1) It authorized Mabian GRVD as PRC's participant to voluntarily participate to the project activity; and
- 2) It made a remark regarding the assist of the project activity in achieving sustainable development in PRC

The two copies of the LoAs were compared with those issued in the past, and concluded to be credible as there found no difference and also considering the chronology of receipt of them..

As the LoAs were not provided until late November, JCI issued CAR-1 requesting written approval from each Party. Upon receipt of the copies of the two LoAs, the finding of CAR-1 is resolved and closed.

There found no indication during the validation process that the project uses the official development assistance funding for PRC.

JCI concludes that the two LoAs are credible and fully comply with the requirements by the CDM VVM.

2. Participation

JCI confirmed that the project participants are Mabian GRVD of PRC and CCNV of Netherland as being listed in tabular form in section A.3 of the PDD/2/, and also confirmed that this information is consistent with the contact details provided in Annex 1 of the PDD/2/. It is also confirmed that no entities other than those approved as project participants are included in these sections of the PDD.

As described above, the project participants are authorized with the LoAs issued by the relevant DNAs as a voluntary participant to the project activity.

3. Project Design Document

Through desk reviews and Q&A sessions with the PDD author, JCI confirmed that the PDD is described based on and referring to the following relevant methodology, tools, guidance, guidelines, and manual:

- (1) ACM0002 version 07 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
- (2) Tool to calculate the emission factor for an electricity system (Version 01.1)
- (3) Tool for the demonstration of and assessment of additionality (Version 05.2)

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

- (4) GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES(CDM-NM) (Version 07)
- (5) Guidance on the Assessment of Investment Analysis (Version 02)
- (6) GUIDANCE ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF THE CDM (Version 02)
- (7) Glossary of CDM terms (Version 04)
- (8) CDM VVM (Version 01)

The project design was described using the PDD template of the latest version 03.1 as shown in the PDD/2/, that was confirmed through comparison with the template listed on the UNFCCC website.

As described above, JCI judged that the PDD is compiled with use of the appropriate format and is described based on appropriate tools, guidelines, manual and guidance which are specified and requested by the CDM procedures.

4. Project Description

The context of the PDD/2/ were checked during the on-site assessment conducted from 27 through 29 August 2008 with the following measures:

- 1) Observation of the project site
- 2) Cross-check of the construction work with relevant drawings provided by the project participant
- 3) Interviews with the project participant, relevant organizations/entities, and local stakeholders shown in Table 7.

As the result of the above steps, JCI judges that the descriptions of the PDD/2/ are correct and its content is sufficient, and well outlines the nature and technical aspects of the project activity.

The major features of the project activity described in the PDD/2/ are summarized below:

- Project type : the construction of a new hydropower plant
- Major construction : a powerhouse, a run-of-river reservoir and one set of 110kV transmission line
- Installed capacity :25MW (12.5MW x 2 units)
- Connecting grid : Central China Power Grid (CCPG)
- Estimated net output : 103,830 MWh/year
- Estimated emission reductions: 98,877 t-CO₂e/year
- Project lifetime :32 years (includes 2 years construction period)
- 1st crediting period :7years (a total of 21 years: 7years x 3)

5. Baseline and monitoring methodology

5.1. Applicability of selected methodology to the project activity

JCI judges that application of ACM0002 to the project activity is appropriate.

The project activity is one of grid-connected renewable power generation project activities that involve electricity capacity additions, and meet the following three conditions for application of ACM0002:

- 1) The project activity is the installation of a new hydropower plant with a run-of-river reservoir
- 2) The project activity results in a new reservoir and its power density is 1,500W/m², greater than the threshold 4 W/m²
- 3) As illustrated clearly in “Figure B.1. Proposed project boundary” in the PDD/2/, the project boundary is defined as within CCPG of which information on the characteristics is available; PRC DNA releases onto a relevant website the basic data on each Grid and they are updated every year

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

As shown in the below Table 8. System Boundary and Emissions, the project emission is zero as emissions from the reservoir can be neglected (the power density is $1,500 \text{ W/m}^2$ and greater than the threshold 10 W/m^2), according to ACM0002.

5.2. Project boundary

The PDD/2/ defines the system boundary to include the project activity site and CCPG which encompass the physical, geographical site of the renewable generation source. The electricity generated by the project activity replaces part of electricity from CCPG which has many fossil fuel-fired power plants within the network.

JCI judges that the definition of the system boundary is appropriate; during the on-site visit for assessment, it was confirmed that the project activity is to construct a new hydropower plant with a run-of-river reservoir, and generated power will be transmitted to CCPG via local grids. The power sale to CCPG was confirmed through the interview with staff of local grid/70/ and with PPA/58/ submitted by the project participant.

The system boundary and associated emissions are summarized in the below table, according to the selected methodology ACM0002 version 07/5/.

Table 7. System Boundary and Emissions

Emissions	GHGs involved	Description
Baseline emissions	CO ₂	Emissions from power generation of CCPG estimated
Project emissions	None	Emissions from the reservoir can be neglected, as the power density of the project activity is $1,500 \text{ W/m}^2$, greater than the threshold of 10 W/m^2
Leakage	None	As the project activity is to construct a hydropower plant, no leakage estimated

As shown in the above Table, the proposed CDM project activity does not discharge emissions within the project boundary as a result of implementation of the project activity.

JCI judges that the definition of the project boundary is appropriate and fully complies with ACM0002.

5.3. Baseline identification

JCI judges that the PDD/2/ appropriately identified “Provision of equivalent amount of annual power supply by CCPG” as the credible and feasible baseline scenario to the project activity, complying with the selected methodology/5/.

The PDD/2/ developed the following four (4) potential alternatives:

- 1) The project activity undertaken without being registered as a CDM project activity
- 2) Construction of a new fossil fuel-fired power plant with equivalent output to CCPG
- 3) Construction of a new power plant using other renewable power sources with equivalent output
- 4) Provision of equivalent amount of annual power supply by CCPG which the project activity is connected to

Due to the following reasons detailed in section B.4. and B.5. of the PDD/2/, alternatives 1), 2), and 3) are appropriately rejected:

Alternative 1): not financially attractive without CDM revenue, as demonstrated in the investment analysis section

Alternative 2): high generation costs associated with use of wind power, or solar power, or biomass

Alternative 3): limitation by current China laws and regulations on a coal-fired power plant

As the result, alternative 4) provision of equivalent amount of annual power supply by CCPG was identified as the credible and feasible baseline scenario for the project activity.

The rationale of the rejection of Alternatives 2) and 3) is verified with relevant evidence provided by the project participant: the notice by State Council Office on the prohibition of construction of coal-fired power plants with below 135MW installed capacity /21/, and insufficient infrastructure for introduction of other renewal energy resources./23/,/24/.

It is also appropriately quoted in the PDD/2/ that the baseline emission is calculated base on the methodology/5/ and detailed calculations are shown in section B.6.3 and Annex3.

5.4. Algorithms and/or formulae used to determine emission reductions

The algorithms and/or formulae are validated with the following steps:

1. Application of baseline and monitoring methodology

JCI confirmed that the PDD/2/ fully complies with ACM0002 and the relevant tool/3/ based on the baseline scenario selected. The calculations are conducted first to work out the project emissions based on ACM0002 and then work out the emission reductions with the 6-step method specified by the tool/3/.

Through cross-checks with comparison of the data of the website of CDM China, JCI also confirmed that the data and parameters used in the calculations are sourced from appropriate documents/31/,/32/, and correctly interpreted and applied.

2. Project emissions (PE_y)

- 1) The power density (PD) of the project activity is appropriately worked out to be 1,500W/m² based on the equation (6) specified in ACM0002 using the data of the PDR/42/.
- 2) As the PD worked out is greater than the specified threshold 10 W/ m², the PE_y is regarded as zero, according to the definition by ACM0002.

JCI judges through cross-checks with ACM0002 and the PDR/42/, that the PD has been correctly calculated based on ACM0002 using appropriate data, and of which result is also correctly applied to the PE_y calculation.

3. Baseline emission factor (BE_y)

- 1) CCPG is appropriately identified in Step-1 of the PDD/2/ as the Grid included in the project boundary.

Following official data are appropriately used in calculation emission related factors.

- China DNA DRC website
- China Electric Power Yearbook (2004 - 2006)
- China Energy Statistical Yearbook (2004 – 2006)

- 2) JCI confirmed that OM emission factor is calculated correctly as described below:

- A) The simple OM method is appropriately applied satisfying the applicable conditions specified by the relevant tool/3/: the dispatch data from the Grid in China is not publically available, and low-cost/must-run resources of CCPG in the average of the last five years from year 2002 through 2006 constitutes 37.55% of total grid generation and thus satisfies the specified ratio less than 50%.
- B) Ex-ante option is selected and then a 3-year generation-weighted average, based on the most recent available data at the time of submission of the PDD/1/ for validation is appropriately worked out using grid data from year 2003 through 2005.
- C) Option C is properly selected for calculation of the simple OM considering the condition of the connecting grid CCPG as:
 - Necessary data, such as power generation data on each plant required for selecting neither Option A nor Option B is available in PRC

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

- Only nuclear and renewable power generation are considered as low-cost/must –run power sources in CCPG
 - The quantity of electricity supplied to CCPG by these sources is known, which can be obtained from the above data sources
- D) Calculations are correctly conducted using Equation (5) specified in the relevant tool/3/. The data and parameters used are appropriately derived from the data sources listed above.

As a result, the OM emission factor is calculated to be 1.2899 tCO₂e/MWh, as shown in Annex 3, fully complying with ACM0002 and the relevant tool/3/.

3) JCI confirmed that BM emission factor is calculated correctly as described below:

- A) Due to the limitation of data availability on each power plant in PRC, the PDD/2/ appropriately applied the approved deviation in use of the methodology of AM0005 and AMS-I.D by several project activities in China, when estimating the BM emission coefficient.
- B) For calculations of the emission factor of new thermal power plants indx43wqely selected as shown in Annex 2 of the PDD/2/, according to the deviation. The installed capacity addition from year 2003 through 2005 was selected as it stands for q24.60% of the total installed capacity of year 2005 as shown in Table A11 of annex 3 , that satisfies the specification of over 20%.
- C) The weighted average of new thermal plant emission factor in CCPG has been correctly calculated using relevant equations correctly. And then the BM emission factor has been appropriately calculated using the ratio of new capacity addition of thermal power plants as calculated above.

As a result, BM has been correctly worked out to be 0.6146 tCO₂/MWh complying with the relevant tool/3/ which is shown in Annex 3of the PDD/2/.

- 4) JCI confirmed that CM emission factor is calculated to be 0.9523 tCO₂/MWh, correctly following the equation (13) of the relevant tool/3/. The default weight of 50% is applied to both OM and BM emission factors for calculation of CM emission factor.
- 5) JCI also confirmed that the above calculations can be replicated based on equations in the PDD/2/ and data listed in Annex3 with appropriate data sources.

4. Leakage

JCI confirms that the PDD/2/ estimated no leakage associated with the project activity appropriately following ACM0002.

5. Emission reductions

The PDD/2/ estimated appropriately that the project and leakage emissions both to be zero appropriately complying with ACM0002. And then it calculated the emission reductions of the project activity to be 98,877 tCO₂ / year. JCI confirmed that the calculations are appropriate and correct.

In conclusion, JCI judges that the emission reductions are appropriately worked out complying with ACM0002 and tool/3/, and parameters and data for the calculations are sourced from proper data sources.

6. Additionality of project activity

JCI assessed the additionality of the project activity with the following steps as below, complying with VVM/10/:

6.1 Prior consideration of CDM

Below summarizes how the project participant demonstrates the prior consideration of CDM and JCI validates in accordance with the guidance of CDM prior consideration/8/ and VVM/10/.

Since the project activity started on 11 January 2007, before the date of publication of the PDD for global stakeholder consultation on 29 May 2008, and it falls to “Existing” project specified by the relevant guidance/8/, the demonstration and the validation of the prior consideration of CDM are requested by EB41 annex 46.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

1. Project start date definition

To comply with the change of the definition in Glossary of CDM terms (version 04)/9/, the project start date was revised from 1 April 2004 on which the project construction started by the ex-project owner, to 11 January 2007 on which the purchase contract of the Tiejue project was signed by current project owner/52/.

For requesting this revision, JCI issued the finding of CAR-3, and then closed as being resolved.

With the purchase contract/49/ as the evidence, JCI confirms that the project start date has been correctly revised and fully complies with the new definition of Glossary of CDM terms (version 04)/9/.

2. Prior consideration of CDM

Timeline of major milestones relevant to the prior consideration of CDM is tabulated below, according to the relevant guidance/8/.

Table 8. Timeline of major key milestones relevant to prior consideration of CDM

Date	Key Milestone	Evidence
02/2004	PDR compiled	PDR /42/
08/03/2004	PDR approved	LoA of PDR /43/
06/2004	Start of Tiejue project by ex- owner	Contract of main equipment purchase /45/
10/06/2006	Project construction suspension the ex-project owner	Notice of construction suspension /46/
01/09/2006	Asset assessment report compiled by a chartered expert at the request by the ex-project owner	Asset assessment report /49/
20/10/2006	SJEPG commissioned a Consultant in Chengdu to compile an asset evaluation report including a budget estimate to upgrade the installed capacity from 22 to 25MW and complete the project construction.	Letter of requesting asset evaluation /51/
18/11/2006	Asset evaluation report compiled	Asset evaluation report /47/
12/12/2006 (prior consideration of the CDM)	Board of SJEPG decided on the purchase of Tiejue project with provision of CDM application	Minutes of board meeting /48/
15/12/2006	BJEPG commissioned Leshan DI to compile ECR	Letter of the commissioning ECR /67/
20/12/2006	Leshan DI sent a letter to Holding Company to suggest CDM application	Letter from Leshan DI /50/
11/01/2007 (the starting date of the project activity)	Purchase Contract of Tiejue project signed by ex- and current project owners	Purchase contract /52/
18/01/2007	LoA of establishment of Mabian GRVDE	LoA of the establishment /64/
05/2007	ECR compiled	ECR /55/
18/06/2007	ECR approved	The “Expanded capacity report” approved by DRC

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

		of Leshan City/56/
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JCI verified all the milestones listed in the above table with relevant evidence provided by the project participant.

JCI concludes that the above timeline appropriately justifies the serious consideration of CDM application by the project participant, prior to the decision on the purchase of the project activity from the ex-project owner made on 11 January 2007.

Before reaching the decision, the project participant decided the application of the CDM on 12 December 2006, and then received a reply letter on December 20 December from Leshan DI who was at that time commissioned the compilation of the Expansion Capacity Report, suggesting the application of the CDM to solve the financial difficulties due to a lower IRR of the project activity than the benchmark.

JCI validates that it is clearly demonstrated that under above situation the project participant seriously considered the application of the CDM before finally decided the project purchase, which led to the action that the contract with a CDM consultant was made just in two weeks time after the decision.

3. Activities/events to achieve CDM registration

Key activities and events taken by the project participant to achieve CDM are tabulated in the below timeline:

Table 9. Timeline of milestones of key activities/events to achieve CDM

Date	Milestone of Key Activity/Event	Evidence
11/01/2007 (the starting date of the project activity)	Purchase Contract of Tiejue project signed by ex- and current project owners	Purchase contract /52/
25/01/2007	Contract of CDM Consultation	Consulting Contract /53/
10/04/2007	Due diligence by CDM Consultant	Due diligence report /54/
07/07/2007	Due diligence by potential CER buyer	Due diligence report /57/
29//01/2008	The determination of CERs buyer	Letter of Interest with China Carbon./59/
04/04/2008	Signed the Validation Contract with DOE	Validation Contract with JCI /65/
08/04/2008	The PDD of the project GSC in UNFCCC	UNFCCC website

As shown in the above timeline, the project participant reached to the publication of the PDD/1/ after the project purchase in one year and five months. When considered the nature and difficulties of the task required to the project participant implementing in parallel with the project activity, that period of time is considered rather short, and also reasonable.

JCI has verified the above activities/events with relevant evidence provided by the project participant.

In conclusion, JCI judges that the above timeline clearly demonstrates that the project participant continuously took the actions/events to achieve CDM registration, complying with EB 41, Annex 46, and paragraph 5(b) guidance.

6.2 Identification of alternative

JCI judges that as described in the above section “5.3 Baseline identification”, the PDD/2/ of the proposed project activity identified four (4) alternatives appropriately, and then selected the most suitable

scenario as the baseline scenario, of which result is consistent with the baseline scenario specified by ACM0002.

6.3 Investment analysis

1. Benchmark Analysis

For the investment analysis, benchmark analysis is applied and the project IRR after tax (hereafter IRR) was calculated to be 8.36% without CERs revenue, and 13.40% with CERs revenue. It is, therefore, concluded that the project activity is not financially attractive, of which processes are validated with below steps:

1) Application of benchmark analysis

Selection of the benchmark analysis is justified appropriately as below:

- A) Out of 3 options, only benchmark analysis option can be applied to the project activity, as it aims to obtain revenue from electricity sale in addition to revenue from CERs, and the specified baseline scenario is not an investment project, which satisfies the application condition of benchmark analysis of the additionality tool/4/.
- B) There is an official benchmark IRR10% applicable to the project activity, and published in the code SL16-95 widely used in PRC for the financial evaluation of hydropower projects of installed capacity below 50MW. The validity of the code is officially announced in “Announcement of Ministry of Water Resources of the People’s Republic of China”/22/.
- C) The holding company SJEPG has applied the benchmark analysis to another CDM project, Wahei project (ref.1239) which is already registered. This demonstrates consistency of the benchmark analysis application to the CDM projects by the project participant. .

JCI reviewed the baseline scenario of the PDD/2/, cross-checked the Code and judges that the selection of benchmark analysis for investment analysis is appropriate and fully complies with the relevant tool and VVM/10/.

2) Conformance with EB38 paragraph54

As the project participant relied on the input values of the ECR in deciding the purchase of the project activity, the conformance is demonstrated below with the two steps: A) Consistency of input values and B) Comparison of major input values with those of other CDM projects. Though the ECR was issued 4 months after the purchase contract, the dependence is clearly demonstrated with the letter, sent by the Leshan DI before the contract, suggesting the project participant of the CDM application as shown in the above timeline.

A) Consistency of input values

As shown in the below table, all the major input values are consistent with those of the ECR, except the static investment, on which the project participant relied in deciding the purchase of the project activity. As shown in the above timeline table, before the project purchase contract, Leshan DI suggested the project participant to apply CDM for solving the financial difficulties based on their brief financial calculations, of which details were described in the ECR published later. As such it is clearly demonstrated that the project participant rely on the data in the ECR. The static investment was worked out by the project participant complying with the relevant guidance/7/, excluding the intangible investment incurred by the ex-project owner.

a) After the suspension of the project construction, the ex-project owner commissioned a chartered expert to compile the asset assessment report on the investment incurred by that time. In the report, the investment is classified to two categories: tangible and intangible asset /49/.

b) Before purchasing the Tiejue project, the current project owner commissioned the same chartered expert to compile the asset assessment report reflecting and incorporating the capacity expansion of the project activity from 22 to 25 MW, and the additionally required investment to complete the project./47/.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

c) The static investment shown below was calculated as the sum of the tangible asset investment incurred by the ex-project owner and the additionally required investment incurred by the existing owner to complete the project activity.

Table 10. Comparison of input values of investment analysis between PDD and ECR

Parameters	Unit	PDD/2/	ECR/55/
Installed capacity	MW	25	25
Static investment	Million RMB	122.43	142.26
O&M cost	Million RMB	3.97	3.97
Net grid-connected electricity generation	MWh/year	103,830	103,830
Tariff (exc. VAT)	RMB/kWh	0.192	0.192
Value added tax	%	17	17
Town building maintenance tax	%	5	5
Surcharge for education	%	3	3
Income tax	%	33	33
Operational life time	Years	30	30
Construction time of the project activity	Years	2	2

The ECR was compiled by Leshan DI 9 months after the compilation of the asset assessment report, incorporating some cost increase factors due to design changes and commodity price increases. As a result, the ECR reported a 16 % increase of the estimated total static investment necessary to complete the project activity, compared with that of the assessment report (122.43 vs. 142.26 million RMB).

JCI judges that the PDD/2/ uses the input value of the static investment estimated in a conservative manner and complies with the relevant guidance/7/.

B) Validation of total static investment, tariff, O&M cost and annual operation hours of the project activity

These 4 parameters are validated through comparisons with those of other 12 CDM projects (registered or under registration request).

As shown below table, those 4 parameters are cross-checked, and then validated to be appropriate and also conservatively estimated: the total investment index of the project activity is approx. 25% lower than the average and the tariff is 4% higher than the average. The percentage of the O&M cost to the total static investment appears to be higher than the average; however, this is due to the lower total static investment of the project activity. If assumed the total static investment at the same level as the average index, the O&M cost percentage will decrease to 2.6%, slightly below the average ($3.97/(122.42 \times 1.25) \times 100 = 2.6\%$). The annual operation hours of the project activity is longer than the average by 150 hours.

As a summary of the above comparison, the subjected 4 parameters all fall to a conservative side compared with the average, resulting in lower costs and higher revenues in the investment analysis and demonstrating that the IRRs are calculated in a conservative manner, as a result.

Table 11. Comparison of Some Input Values of the Project Activity with Other 12 CDM Projects in Sichuan Province

Project Activity	Installed Capacity (MW)	Total Static Investment/kW (RMB/kW)	Tariff Exc. VAT (RMB/kWh)	O&M Cost (% of total static inv.)	Annual Operation Hours
Tiejue	25	4,887	0.192	3.2	4,990

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

Other 12 CDM project summary*	Average	24.7	6,550	0.184	2.8	4,842
	Range	18.9-44	4,544 – 7,711	0.145 – 0.245	1.81 – 7.14	4,200-7,034

(Data source: UNFCCC website)

* Reference no: 1223, 1431,1589,1848,1897, 1961, 1984, 2172, 2086, 2189, 2192, and 2195

C) Validation of net grid-connected electricity generation

The net grid-connected electricity generation is decided by the annual average power generation and the overall coefficient of effective electricity, and the later consists of the three parameters in the project activity: the coefficient of effective electricity, self-consumption loss and line loss as shown in the below equations. According to the PDD/2/, these values of the project activity derived from the ECR and used in the investment analysis are as follows:

- Average annual power generation: 124,800 MWh/y
- The coefficient of effective electricity: 87.1%
- Self-consumption loss: 0.5%
- Line loss: 4%

$$\begin{aligned}
 \text{The net grid-connect electricity generation} &= 124,800 \text{ MWh/y} \times 87.1\% \times (1-0.5\%) \times (1-4\%) \\
 &= 124,800 \text{ MWh/y} \times 83.2\% * \\
 &= 103,830 \text{ MWh/y}
 \end{aligned}$$

*: Defined as “ The overall coefficient of effective electricity” for comparison with those of other projects in the below section. The difference with the definition of the coefficient of effective electricity is shown in the below table.

Table 12. Comparison of the definitions of the two kind of coefficients

Loss factor	The coefficient of effective electricity	The overall coefficient of effective electricity
Water abandon, etc	Included	Included
Self-consumption	Not included	Included
Line	Not included	Included

Appropriateness of the use of above input values of the 4 parameters are discussed below:

a) Average annual power generation

As being calculated based on past 45 years data of the river water flow in the ECR, the input value of the generation is considered stable and then appropriate when used as the average for coming 30 years.

b) The coefficient of effective electricity

This coefficient was checked through cross-checks with those of other CDM projects in the form of the overall coefficient and actual generation data of the project activity in past 10 months.

The subjected coefficient is compared with those of other 12 CDM projects in the form of the overall coefficient as specified in the above table, instead of the coefficient of effective electricity of which data of other CDM projects were not sufficiently available. As shown below table, the overall coefficient of the project activity is the same as the average worked out of the other 7 CDM projects (7 out of the 12 project data were available).

The actual electricity generation data shown in below table indicates that the estimated overall coefficient 83.2% is not underestimated in the ECR, and is rather conservatively estimated, suggesting that the coefficient of effective electricity 87.1% is also conservatively estimated.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

The necessity of incorporation of the coefficient due to mainly water abandon loss in calculations of the net grid-connected electricity generation is evidenced with the document “ Discussion and Countermeasures of Calculation Procedure about Hydropower Loss in Central China Power System” published by State Owned Central China Power in year 2001/68/. The document describes that to adjust the possible imbalance of demand/supply capacity of electricity in flood season, it is inevitable for some power stations to be forced to stop generation and instead to abandon water; and as a consequence they could not reach the designed power generation. In fact, the document addresses that from year 1996 through year 2000, the System experienced the power generation loss in hydropower stations ranging from 598 to 1,997 GWh/y.

Table 13. Comparison of the Overall Coefficients of the Tiejue project with other CDM projects in Sichuan province

Ref.*	Project Name	Status (as of 15/04/2009)	Overall Coefficient (%)
1223	Wahei	Registered	87.8
1431	Sichuan Zhaojiashan 20MW	Registered	NA
1589	Sichuan Chenjiaheba 20MW	Registered	NA
1848	Sichuan Kangding Simaqiao 24MW	Corrections request	NA
1897	Sichuan Pingshan Pingbian & Guanyintuo	Registered	83.1
1961	Sichuan Miaopu	Registered	88.2
1984	Sichuan Wanyuan Baiyangxi	Registered	NA
2086	Yunnan Guagquhe No.1	Registered	NA
2172	Daofu County Mengtuo	Registered	69.8
2189	Tianquan Qieshan	Registered	79.2
2192	Tianquan Xiacun	Corrections	86.2
2195	Tianquan Shiyang	Correction Request	88.0
Average (7 projects)			83.2
Tiejue			83.2

Table 14. Monthly Net Grid-Connected Electricity Generation of the Tiejue Project for the First 10 Months

Year	Month	Electricity Generation (MWh)
2008	June	8,449
	July	8,690
	August	8,457
	September	10,714
	October	8,105
	November	8,997
	December	6,493
2009	January	3,766
	February	6,178
	March	3,056
Total for the 10 months		72,909
Adjusted annual (= Total x 12/10)		87,491

(Data source: monthly electricity sales tickets of the Tiejue project from June 2008 through March 2009)

Table 15. Comparison of Net Grid-Connected Electricity Generation between the Estimate in the PDD and Actual Data

Category	Electricity Generation(MWh)	Index
Estimate in the PDD	103,830	100
Actual Data (Adjusted annual)	87,491	84

c) The self-consumption loss

For estimate of the net grid-connected electricity generation, incorporation of the loss is inevitable. The value estimated 0.5% is evaluated to be reasonable.

d) The line loss

The 4% loss estimated in the ECR is considered appropriate as being within the usual range of 2% to 5% depending on the length of transmitting line.

As a summary of the above arguments, JCI judges that the net grid-connected electricity generation is appropriately worked out as the input value for the investment analysis.

Though the IRR calculations in the investment analysis use only fixed input values as specified by the code (SL16-95)/11/, it is considered appropriate. For an application of variable input values to financial analysis, appropriate tools/guidance with corresponding benchmark IRRs shall be officially provided to project participants and DOEs.

JCI considers that the investment analysis is conducted appropriately with conformance of EB38 paragraph 54 and the relevant guidance/7/, based on the code (SL16-95)/11/.

Hence JCI concludes that the project activity cannot be considered financially attractive.

2. Sensitivity analysis

The sensitivity analysis has been validated with two steps: 1) assessment of $\pm 10\%$ variation results and 2) assessment of likelihood of variations of parameters to reach the benchmark IRR complying with relevant guidance, and tool.

1) The $\pm 10\%$ variation analysis is conducted using the two parameters, A) total static investment, and B) power revenue, complying with relevant guidance, tool, and the code (SL16-95).

The result of the PDD/2/ shows that within the $\pm 10\%$ variation range, the IRRs calculated do not exceed the benchmark 10%: at (-) 10% of total static investment, the IRR reaches at 9.51%, and at (+) 10% of power revenue, the IRR reaches at 9.5 %.

2) According to the calculation results of the PDD/2/, to reach the benchmark, the total static investment needs to decrease by 14% or the power revenue to increase by 15%.

It is unlikely that the total static cost can be decreased by 14%. As 73% of the total static investment had been already incurred by the ex-project owner when the current project owner took over by the project activity and therefore, the portion of further investment to complete the project was 27% of the total investment. The 14% reduction of the total investment means more than 50% reduction of the further investment ($14/27 \times 100 = 52\%$) for the current project owner, which is considered unfeasible.

It is also unlikely that the power revenue increases by 15%. The power revenue is decided by the tariff and the net grid-connected electricity generation; however, neither of them is likely to increase by 15%, which is validated below:

A) Tariff

The actual tariff of the project activity is already fixed to 0.181RMB/kWh as evidenced with the PPA/58/. The 15% increase over 0.192 RMB/kWh estimated in the ECR is equivalent to 22% increase over the actual tariff (0.181 RMB/kWh), which is considered unlikely. The tariff may increase to some extent in future due to hike of commodity prices, but at the same time other costs, such as O&M cost would increase even prior to the tariff increase and at higher rates. This suggests that to have the financial impact

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

equivalent to net 22 % increase, the tariff itself needs to increase by far beyond the 22%, to offset the financial negative impacts by other cost increases, which is not considered realistic.

It shall be also noted that that in PRC, the tariff is strictly controlled to remain lower levels by the central and local government as an important price policy, considering its negative impacts on overall economical development in the country, especially in rural areas like the Project site in Sichuan province.

B) Net grid-connected electricity generation

As demonstrated in the above section, the value of the net grid-connected electricity generation remains stable and is unlikely to increase by over 15% as the annual average over coming 30 years. Practically, estimated monthly average 8,650kWh/month (=103,830 MWh/y/12) is already close to 8,880kWh/month of the actual monthly average generation in flood season (from May through October assumed in the ECR). As the actual monthly average in dry season dropped to 5,698 MWh/month (from November through April assumed in the ECR), below that of the flood season by 36%, it is considered that there is no sufficient room left for a 15% increase of the net grid-connected electricity generation.

For a reference, the PDD/2/ additionally calculated the IRR based on a conservative assumption of 90% of the coefficient of effective electricity (the maximum estimate in the code of SL16-95) and worked out it to be 8.75%, yet below the benchmark 10%.

JCI validates that the above arguments clearly demonstrate that it is unlikely that the project IRR may exceed the benchmark within reasonable variations of financial parameters. JCI, therefore concludes that the result of the above investment analysis with use of the benchmark analysis is robust and then the project activity is financially unattractive.

6.4 Barrier analysis

With the above arguments, it is concluded that the proposed CDM project activity is unlikely financially attractive, the Barrier Analysis has been skipped according to "Tool for the demonstration and assessment of additionality (Version 05.2) /4/.

6.5 Common practice analysis

Common practice analysis has been validated with below three steps: 1. Criteria for identification, 2. Identification of similar activities, and 3. Analysis of identified similar activities.

1. Criteria for identification

For identification of similar activities, the additionality tool requires to consider criteria: 1) location, 2) investment circumstance, 3) scale, 4) technologies, and 5) financing condition.

To comply with these requirements, the PDD/2/ applied three conditions for identification of similar activities: 1) located in Sichuan province, 2) construction started after 10th February 2002, and 3) with installed capacity below 50MW, which are considered appropriate complying with the additional tool.

1) located in Sichuan province

In PRC, tariff, project site conditions and investment circumstances differ province by province. Each province has his own tariff policy and set the standard tariff effective within the province published by the Price Bureau of the province. The physical condition of a project site is determined largely by the river water flow condition, which is affected by weather conditions which vary province by province. And general conditions for investment differ province by province, as each province has their own policy on hydropower project investments. Therefore application of the criteria, located in Sichuan province is reasonable and appropriate.

2) construction started after 10th February 2002

Application of this condition is appropriate and complies with the additional tool/4/. On 10th February 2002, the State Council published the notice on Issuing Electric Power Sector Reform Program which has largely affected the investment scheme for hydropower projects. Especially small-scale private investors were affected, as with the reform some financial supports by the government were cancelled, and instead financial competitions were introduced for cost saving, while state-owned investors still can keep enjoying some financial benefits provided by the government. These were confirmed with relevant information provided by the project participant. As such, investment circumstances for hydropower

projects were fundamentally changed after the reform, it is considered appropriate to include only hydropower projects of which construction started after 10th February 2002.

3) with installed capacity above 15MW and below 50MW

Application of these criteria is considered appropriate. The PDD/2/ specifies the criteria of installed capacity below 50MW according to the classification of the code SL16-95, which has been widely used for financial evaluation for hydropower investments in PRC. And below 15MW is specified as a small-scale CDM project by CDM EB. This specified range, therefore, represents not only the physical capacity range, but also the range of the same financial scheme for investments in hydropower projects. Therefore this criteria is considered reasonable and complies with the context of the additional tool/4/.

Subjected projects are all hydropower projects constructed within a few years in PRC, and it automatically indicates that those projects were all relying on a broadly similar technology, satisfying the criteria 4) technologies. The criteria 5) financing condition is discussed in the below analysis section.

4) invested by small private company, not by neither state-owned/-holding, nor foreign capital

This represents and complies with the additionality tool requirements of above 2) investment circumstance, and 5) investment condition. Compared with small private companies like the project participant, state-owned/-holding and foreign capital companies have significantly advantageous access to financing and strong resistant capability against financial risks.

JCI judges that the criteria above have been specified appropriately with conformance with the additional tool/4/.

2. Identification of similar activities

1) located in Sichuan province, with installed capacity above 15MW and below 50MW, and construction started after February 2002

Referring to 2006 and 2007 China Water Resources Yearbook as the data source, the PDD/2/ first identified 25 hydropower stations located in Sichuan province with installed capacity above 15MW and below 50MW. Then the list was narrowed down to 7 stations through screening of the condition of its construction start date, after 10th February 2002, as shown in Table B.7 of the PDD/2/.

2) invested by only small private company, neither state-owned/-holding, nor foreign capital

With this screening, two power stations are appropriately identified as a similar project activity: Baishuihe Hydropower Station and Shazui Hydropower Station.

3. Analysis of identified similar activities

The distinctions between the project activity and identified two similar project activities are clearly demonstrated in the Table B.9 of the PDD/2/. The similar project activities have over 20% longer annual operation hours and 60% higher tariff, compared with those of the project activity. This means that as a total, the similar project activities can earn almost 90% much power sales revenue annually per/kW of installed capacity than the project activity ($120\% \times 160\% = 190\%$). If the project activity can have the similar economical conditions as the similar project activities have, the project IRR far exceeds the benchmark as indicated in the sensitivity analysis result: with 15% power sales revenue increase, the project IRR reaches the benchmark 10%. The existence of the similar activities, therefore, does not contradict the claim that the project activity is not financially attractive.

JCI concludes the above common practice analysis clearly demonstrates that in this province, unless otherwise invested by state-owned/-hold, or foreign capital companies; or private small-scale companies who could use an economically advantageous project site together with higher tariff, it is unlikely that a small-scale company, like the project participant, invests in a hydropower project. The project activity, therefore, is not business as usual.

6.6 Conclusion of assessment of additionality

JCI concludes that the PDD/2/ clearly demonstrates as shown in the above that the project activity is additional, not financially attractive and therefore, would not occur without CDM revenue provision. Serious consideration of CDM prior to the project decision by the project participant is clearly and sufficiently demonstrated. And appropriate actions and events were taken by the project participant to achieve CDM, well justifying the time gap after the project decision up to the publication of the PDD/1/. The investment and sensitivity analyses clearly demonstrate the project activity is not financially viable without CDM revenue.

7. Monitoring plan

1) Parameters to be monitored ex-post

The PDD/2/, in section B.7.1.Data and parameters monitored, specifies to monitor the following parameters ex-post:

- A) Electricity supplied by the project activity to the grid (EG_y)
- B) Total electricity produced by the project activity including the electricity supplied to the grid and the electricity to internal loads (TEG_y)
- C) Installed capacity of the proposed project (Cap_y)
- D) Area of the reservoir measured in the surface of the water (A_{py})

JCI cross-checked these parameters with the relevant methodology/5/ and tool/3/, and confirmed that these parameters are fully comply with those required to this kind of project activities.

2) Monitoring of EG_y and TEG_y

The implementation plan of monitoring of two parameters, (EG_y) and (TEG_y), described in the PDD/2/ was validated as follows:

A) Equipment for monitoring

JCI considers that the equipment installation plan is in accordance with the CDM requirement and a Chinese code “Technical Administrative Code of Energy Metering (DL/T448-2000)”. The accuracy required to each ammeter has been appropriately pre-set as well as monitoring frequency and maintenance interval.

B) Monitoring organization

The project participant plans to set up a CDM department cover entire processes of the monitoring: from daily data readings through internal audits of monitoring reports.

Since QA manager is not included in the planned organization, FAR-1 was issued to request assignment of the QA manager who needs to be independent from the operation units.

C) Monitoring manual

The manuals to cover entire CDM-related operation are expected to be compiled by the CDM consultant by the commissioning of the project activity. The project participant commissioned the CDM consultant to compile the manuals.

With this regard, JCI has issued the finding of FAR-2 to ensure that the manual be prepared before commissioning of the project activity.

D) Training on monitoring

Under the control of the CDM manager, all staff involved in the CDM activity are planned to receive appropriate training by the CDM consultant who has been commissioned the task by the project participant, as a scope of CDM consultation.

JCI judges that the above monitoring plan would be appropriately implemented complying with the relevant tool and methodology, provided the project participant executes and resolve the two FARs sufficiently before the commissioning of the project activity.

3) Monitoring of Cap_y and A_{PJ}

According to the PDD/2/, the monitoring of A_{PJ} is planned to be conducted every year after commissioning of the project activity when the reservoir becomes full. And the monitoring of Cap_y is expected to be conducted every year. These programs are fully comply with the relevant methodology/5/.

As a summary of the above arguments, JCI judges that the monitoring plan described in the PDD/2/ complies with relevant methodology/5/ and tool/2/, and is sufficient to ensure the achievement of emission reductions by the project activity.

JCI also assessed that the project participant is capable of implementing the monitoring plan as planned. This assessment result was obtained during the on-site visit through discussions with the key staff of the power station, and some experienced engineers who had worked for other power stations and also the fact that SJEPG has already run another hydropower station registered as a CDM project which has been already explained in the investment analysis section.

8. Sustainable development

JCI confirmed that the LoA issued by DNA of the host Party PRC confirms the contribution of the proposed CDM project activity to the sustainable development of the host Party, which has been already described in Section IV 1. Approval.

9. Local stakeholder consultation

In addition to the invitation conducted by the EIA author Environmental Protection Science Institute of Sichuan Province, the project participant conducted another invitation of stakeholder comments.

The invitation was taken place on 6 September 2007, distributing 50 sheets of the questionnaire to local representatives with a variety of age, gender, education, occupations. 48 out of the 50 sheets were returned with comments, and summarized in the PDD/2/.

In summary, 1) Almost all respondents supported the project activity; 2) they expected economical benefits from the project activity; and 3) they believe the project activity will give no significant adverse impacts on local environment as long as appropriate mitigation measures are taken.

As one of the on-site assessment processes, JCI interviewed with five local residents (three farmers and two power station operators) living near the project site, and confirmed that they were all supportive, satisfied with the project activity in terms of contributions to local society by 1) the improvement of infrastructure, such as construction of bridges, banks, and roads around the project site; and 2) the offer of new job opportunities.

Based on the above, JCI judges that the project activity, supported by local stakeholders, gives no significant adverse impacts on local environment, and instead contributes to the development of local economy and to the improvement of infrastructure.

10. Environmental impacts

An Environmental Impact Assessment (EIA) was conducted by the author Environmental Protection Science Institute of Sichuan province to ensure that the project complies with relevant national, regional and local regulations, and its report was issued in March 2004 and then approved by the Environmental Protection Bureau of Leshan City on 8 March 2004.

The EIA report /19/ refers to anticipated environmental impacts by the project activity both during the construction period and after the operation start, and suggested mitigation measures against anticipated pollution of water and air, noise, solid waste, and soil/water erosion. No significant ecological impact on the local area was anticipated.

Through the observation during the on-site assessment, JCI confirmed that appropriate mitigation measures had been taken as described in the PDD/2/ and no serious issues were observed. JCI judges that given the Project Participant would take necessary mitigation measures after the operation start as well as during the construction period, anticipated environmental impacts by the project activity would be controlled at a minimum level.

11. Comments by Parties, Stakeholder through the consultation process

The PDD version 01 of 26 March 2008 was made publicly available on JCI's climate change website (<http://jci-plant.or.jp/projects/projectsdetailsVAL08004.htm>) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 8 April 2008 to 7 May 2008.

Two questions were received during the period.

CDM Validation Report for Sichuan Tiejue 25MW Hydro Power Project

(Question-1) The value for coal-fired power plant's Efcoal,Adv,y in Annex3 is wrong

(Question-2) The values for Lambda Oil and Lambda Gas in Annex 3 are wrong


Our responses are as follows:

(Response to Question-1)

The value used in the PDD is different from that published by PRC DNA, but employs the data on supercritical power plants, for demonstrating conservativeness in the calculations. It, therefore, is not considered necessary to change the value.

(Response to Question-2)

The two values are wrong as indicated in the comment, and therefore, are already corrected by the project participant in the PDD/2/.

	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

APPENDIX A CDM VALIDATION PROTOCOL –Version 00

1. INTRODUCTION

This document is prepared as the Validation Protocol on Sichuan Xiaohogou 12.6MW Small-scale Hydro Power Project. The validation protocol is prepared for the following purposes:

- To ensure that, in accordance with the Validation Verification Manual version 01 (Annex 3, CDM-EB44, “VVM”), and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.
- To ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.
- To assess whether the project design of the proposed CDM project activity meets the CDM requirements, using objective evidence, and to assess the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document.

The validation protocol is consisted of the following two types of tables, which are effective for the purposes of validation above.

Table 1 contains the checklist with questions along with the thematic chapter of VVM.

Table 2 shows the corrective actions or clarifications which are requested to be taken in Table 1 and the response from the PP.

<Index>:

Table 1 Requirements Checklist.....Page -1-1

Table 2 Resolution of Corrective Actions and Clarification Requests..... page -2-1

2. CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

If, during the validation of a project activity, issues are identified that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, these issues shall be ensured that are correctly identified, discussed and concluded in the validation report.

➤ **CAR** : a corrective action request (**CAR**) is raised, if one of the following occurs:

- (a) The PPs have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

➤ **CL** : a clarification request (**CL**) is raised, if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

➤ **FAR** : a forward action request (**FAR**) is raised, during validation to highlight issues related to project implementation that require review during the first verification of the project activity.

FARs shall not relate to the CDM requirements for registration.

The CARs and CLs are resolved or “closed out” only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidences that satisfy the requirements. If this is not done, the project activity will not be recommended for registration to the CDM EB.

All CARs, CLs and FARs will be reported on in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes.


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
1.	Approval	Para. 44-50 VVM	--	--
	<Requirement to be validated> All Parties involved have approved the project activity.	Para. 44 VVM	--	--
1.1	Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? Each letter confirms that:	Para. 45 VVM	No LoAs of each Party	CAR-1
(a)	The Party is a Party to the Kyoto Protocol	ditto		
(b)	Participation is voluntary	ditto		
(c)	The proposed CDM project activity contributes to the sustainable development of the country	ditto		
(d)	It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	ditto		
1.2	Is the LoA unconditional with respect to (a) to (d) above?	Para. 46, VVM	No LoAs of each Party	CAR-1
1.3	Has the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and if in doubt, shall verify with the DNA that the letter of approval is valid for the proposed CDM project activity under validation?	Para. 47 VVM	No LoAs of each Party	CAR-1
	A list of DNAs is available on the UNFCCC CDM website. < http://cdm.unfccc.int/index.html >	List of DNAs	–	
1.4	Is the authenticity of the letter of approval in doubt?	Para. 48 VVM	No LoAs of each Party	CAR-1
1.5 (a)	Has a letter of approval been received from each Party involved, with clearly referencing the letter itself and any supporting documentation?	Para. 49 VVM	No LoAs of each Party	CAR-1
(b)	Whether this letter received from the project participants or directly from the DNA?	ditto	No LoAs of each Party	CAR-1
2.	Participation	Para. 51-54 VVM	--	--
	<Requirement to be validated> All project participants have been listed in a consistent manner in the project documentation, and their participation in the project activity has been approved by a Party to the Kyoto Protocol.	Para. 51 VVM	--	--
2.1	Are the project participants listed in tabular form in section A.3 of the PDD, and this information is consistent with the contact details provided in annex 1 of the PDD?	Para. 52 VVM	Yes	
	Has the participation of each project participant been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation?	ditto	No LoAs of each Party	CAR-1
	Are no entities other than those approved as project participants included in these sections of the PDD?	ditto	No	
2.2	Has the approval of participation been issued from the relevant DNA and if in doubt it shall be verified with the DNA that the approval of participation is valid for the proposed project participant?	Para. 53 VVM	No LoAs of each Party	CAR-1


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
3.	Project Design Document	Para. 55-57 VVM	--	--
	<Requirement to be validated> The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html	Para. 55 VVM PDDs Forms	--	--
3.1	Is the PDD in accordance with the applicable CDM requirements for completing PDDs? http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html (Refer to the PDD Completeness checklist prepared by JCI)	Para. 56 VVM	No. GHG emission reduction scenario has not been described in section A.2.	CAR-2
4.	Project Description	Para. 58-64 VVM	--	--
	<Requirement to be validated> The PDD shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.	Para. 58 VVM	--	--
4.1	Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements, is accurate and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity?	Para. 59 VVM	No. Descriptions of the PDD are insufficient.	CL-3, CL-4, CL-5
4.2	For proposed CDM project activities in existing facilities or utilizing existing equipments, a physical site inspection shall be conducted to confirm that the description in the PDD reflects the proposed CDM project activity for the following types of CDM project activities unless other means are specified in the methodology:	Para. 60 VVM	NA	
(a)	Large scale project (if yes, skip below (b) and (c))	ditto	Yes	
(b)	Non-bundled small scale project with emission reductions exceeding 15,000 tonnes per year (if yes, skip 4.3 below)	ditto	NA	
(c)	Bundled small scale project, each with emission reductions not exceeding 15,000 tonnes per year; in such case the number of physical site visits can however be based on sampling, if the sampling size is appropriately justified through statistical analysis.	ditto	NA	
4.3	For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year a physical site visit may be conducted as appropriate.	Para. 61 VVM	NA	
4.4	For all other proposed CDM project activities not referred to in above paragraphs 4.2 – 4.3, the validation shall be undertaken by reviewing available designs and feasibility studies (FSR) and may be conducted comparison analysis to equivalent projects, as appropriate. The physical site visit can be conducted to assess the plan.	Para. 62 VVM	NA	
	If a physical site inspection is not undertaken for proposed CDM project activities, this shall be appropriately justified.	ditto	NA	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
4.5	In case that the proposed CDM project activity involves the alteration of an existing installation or process; Does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	Para. 63 VVM	NA	
5.	Baseline and monitoring methodology	Para. 65-95 VVM	--	--
(a)	General requirement	Para. 65-67 VVM	--	--
	The baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board.	Para. 65 VVM	--	--
	If the project participants intend to use a new baseline and monitoring methodology, it shall, before submitting a request for registration of the project activity, forward the proposed methodology, together with the draft PDD, to the CDM Executive Board for review, in accordance with the latest procedure for submitting and considering proposed new methodologies. http://cdm.unfccc.int/Reference/Procedures/meth_proc02_v13.pdf	Para. 65 VVM	--	--
	To ensure that the project activity meets this general requirement, the DOE shall determine whether: (a) The selected methodology is applicable to the project activity; (b) The selected methodology had been correctly applied.	Para. 66 VVM	--	--
	The DOE shall ensure that the selected methodology applies to the project activity and has been correctly applied with respect to following: (a) Project boundary; (b) Baseline identification; (c) Algorithms and/or formulae used to determine emission reductions; (d) Additionality; ¹⁴ 14 See Chapter V, sections E6 below. (e) Monitoring methodology. ¹⁵ 15 See Chapter V, sections E7 below.	Para. 67 VVM	--	--
5.	Baseline and monitoring methodology	Para. 65-95 VVM	--	--
(b)	Applicability of the selected methodology to the project activity	Para. 68-76 VVM	--	--
	<Requirement to be validated> The selected baseline and monitoring methodology previously approved by the CDM Executive Board, is applicable to the project activity.	Para. 68 VVM	--	--
5.1	Is the methodology correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology available on the UNFCCC CDM website?	Para. 69 VVM	Yes	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
5.2	Does the project activity apply a selected approved methodology in which the applicability conditions of the methodology are met and the project activity is not expected to result in emissions other than those allowed by the methodology?	Para. 70 VVM	Yes. The appropriate methodology is applied and no emission other than those allowed by the methodology is expected.	
	Is the choice of methodology justified and the project participants have shown that the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein?	ditto	Yes	
	Is the documentation referred to in the PDD and its content correctly quoted and interpreted in the PDD?	ditto	Yes	
	If the comparable information is available from sources other than that used in the PDD, cross check the PDD against the other sources to confirm that the project activity meets the applicability conditions of the methodology.	ditto	NA (by DOE)	
5.3	<p>The applicability of the selected methodology to the proposed CDM project activity cannot be made a determination by the DOE, then the clarification request of the methodology shall be submitted by the DOE in accordance with the guidance provided by the CDM Executive Board.</p> <p>“CLARIFICATION FOR PROJECT PARTICIPANTS ON WHEN TO REQUEST A REVISION, CLARIFICATION TO AN APPROVED METHODOLOGY OR DEVIATION” http://cdm.unfccc.int/EB/031/eb31_repan12.pdf and “Guidance on criteria for consolidations and revision of methodologies” http://cdm.unfccc.int/EB/027/eb27_repan10.pdf</p>	<p>Para. 71 VVM</p> <p>Annex 12 EB31</p> <p>Annex 10 EB27</p>	NA (by DOE)	
5.4	<p>In case that the the applicability conditions to proposed CDM project activity cannot be determined whether it is complied with the methodology or not;</p> <p>Is revision request to or deviation from the methodology necessary in accordance with the guidance provided by the CDM Executive Board?</p> <p>1. http://cdm.unfccc.int/EB/031/eb31_repan12.pdf and http://cdm.unfccc.int/EB/027/eb27_repan10.pdf.</p>	<p>Para. 72 VVM</p> <p>Annex 12 EB31</p> <p>Annex 10 EB27</p>	NA	
5.5	If the clarification of, revision to or deviation from a methodology is requested, a request for registration cannot be submitted until the CDM Executive Board has approved the proposed deviation or revision.	Para. 73 VVM	NA	
5.6	Under no circumstance shall be considered the submission of a request for registration as a means of seeking clarification from the CDM Executive Board on the applicability of a methodology.	Para. 74 VVM	NA	
5.	Baseline and monitoring methodology	Para.65-95 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
(c)	Project boundary	Para.77-79 VVM	--	--
	<Requirement to be validated> The PDD shall correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity.	Para. 77 VVM	--	--
5.7	Based on documented evidence and corroborated by a site visit where required by the section 4.1- 4.4 above;	Para. 78 VVM	No. The PDD correctly delineated the boundary; however, the wired-diagram shall be provided to comply with the PDD guideline.	CAR-4
	Is the delineation in the PDD of the project boundary correct and meets the of the selected baseline methodology.			
	Are all sources and GHGs required by the methodology included within the project boundary.			
	In case that the methodology allows project participants to choose whether a source or gas is to be included within the project boundary; Have the project participants justified that choice?			
	Is the justification provided reasonable, based on assessment of supporting documented evidence provided by the project participants and corroborated by observations if required?	ditto	NA	
15.	Baseline and monitoring methodology	Para.65-95 VVM	--	--
(d)	Baseline identification	Para.80-87 VVM	--	--
	<Requirement to be validated> The PDD shall identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity.	Para. 80 VVM	--	--
	Any procedure contained in the methodology to identify the most reasonable baseline scenario, has been correctly applied. If the selected methodology requires use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario, the methodology on the application of these tools shall be confirmed. In such cases, the guidance in the methodology shall supersede the tool. The each step in the procedure described in the PDD against the requirements of the methodology shall be checked.	Para. 81 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
5.8	In case that the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario; Are all scenarios that are considered by the project participants and are supplementary to those required by the methodology, reasonable in the context of the proposed CDM project activity ? Are no reasonable alternative scenario excluded?	Para. 82 VVM	Yes	
5.9	Is the baseline scenario identified reasonable by validating the assumptions, calculations and rationales used, as described in the PDD?	Para. 83 VVM	Yes	
	Are the documents and sources referred to in the PDD correctly quoted and interpreted?	ditto	Yes	
	The information provided in the PDD with other verifiable and credible sources, such as local expert opinion, if available, shall be cross checked.	ditto	NA (by DOE)	
5.10	Are all applicable CDM requirements taken into account in the identification of the baseline scenario for the proposed CDM project activity, including "relevant national and/or sectoral policies and circumstances."? (See paragraph 45 CDM M&P; Annex 3 to the report of the meeting of the CDM EB22) < http://cdm.unfccc.int/EB/022/eb22rep.pdf >	Para. 84 VVM Para. 45 CDM M&P Annex 3, CDM EB22	Yes	
	Are all relevant policies and circumstances identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	ditto	Yes	
5.11	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 proposed CDM project activity?	Para. 85 VVM	No. More specific justifications of non-availability of other renewable resources.	CL-6
5.	Baseline and monitoring methodology	Para.65-95VVM	--	--
(e)	Algorithms and/or formulae used to determine emission reductions	Para.88-92VVM	--	--
	<Requirement to be validated> The steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions shall comply with the requirements of the selected baseline and monitoring methodology.	Para. 88 VVM	--	--
5.12	Have equations and parameters in the PDD been correctly applied by comparing them to those in the selected approved methodology?	Para. 89 VVM	Yes	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
	In case that the methodology provides for selection between different options for equations or parameters;		Yes. Ccorrect equations and parameters have been used, and appropriate justifications are provided.	
	Has adequate justification been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided)?	ditto		
	Have the correct equations and parameters been used, in accordance with the methodology selected?			
5.13	Is the justification given in the PDD for the choice of data and parameters used in the equations appropriate?	Para. 90 VVM	Yes	
	In case that data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period;			
	Are all data sources and assumptions appropriate?	ditto	No. Though appropriate data sources are employed, there are some issues on the calculations.	CL-15, CL-16, CL-17
	Are calculations correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions?			
	If data and parameters will be monitored on implementation and hence become available only after validation of the project activity;	ditto	Yes	
	Are the estimates provided in the PDD for these data and parameters reasonable?			
6.	Additionality of a project activity	Para.93-119VVM	--	--
	<Requirement to be validated> The PDD shall describe how a proposed CDM project activity is additional. In accordance with paragraph 43 of the CDM M&P “A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity”.	Para. 93 VVM Para. 43 CDM M&P	--	--
6.1	Are the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the demonstration of additionality assessed?	Para. 93 VVM	Yes	
	Is the presented evidence assessed critically, using local knowledge and sectoral and financial expertise?	ditto	Yes	
6.2	Is the tools and documents provided by the CDM Executive Board to demonstrate the additionality of proposed CDM project activities considered, as well as specific complementary or alternative requirements included in approved CDM methodology?	Para. 94 VVM	Yes	
6.	Additionality of a project activity	Para.93-119VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
(a)	Prior consideration of the clean development mechanism While specific elements of the assessment of additionality are discussed in further detail in Section 6.3 –6.15 below, not all elements discussed below will be applicable to all proposed CDM project activities	Para.96-102VVM	--	--
	<Requirement to be validated> If the project activity start date is prior to the date of publication of the PDD for stakeholder comments it shall be demonstrated that the that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.	Para. 96 VVM	--	--
6.3	Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms"? http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf Glossary of CDM terms Version 03	Para. 97 VVM	No. The starting date of the project shall be in accordance with "Glossary of CDM terms"	CAR-3
	If the reported date is not in accordance with the glossary; Is a CAR raised to ensure that the start date is correctly reported in a revised PDD?	ditto	NA (by DOE)	
	In case that the project activities require construction, retrofit or other modifications; In particular, for project activities that require construction, retrofit or other modifications, is the date of commissioning not considered the project activity start date?	ditto	No	
6.4	Is it a new project activity (project activities with starting date on or after 02 August 2008) in accordance with the guidance from the Board?	Para. 98 VVM	No	
	or an existing project activity (project activities with a start date before 02 August 2008)? (See Annex 46 of EB 41 report) Guidance on the Demonstration and Assessment of Prior Consideration of the CDM	Annex 46, EB 41	Yes	
6.5	For a new project activity with a start date on or after 2 August 2008 and for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the Executive Board before the project activity start date; Had PPs informed the Host Party DNA and/or the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status? Is it ensured by means of confirmation from the DNA or UNFCCC secretariat?	Para. 99 VVM	NA	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
	If such a notification has not been provided by the project participants; Is It determined that the CDM was not seriously considered in the decision to implement the project activity?	ditto	NA (by DOE)	
6.6	For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, the project participant's prior consideration of the CDM is assessed through document reviews and shall satisfy following requirements:	Para. 100 VVM		
(a)	Evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project.	ditto	No. Demonstration of the prior consideration by the project participants is insufficient.	CL-12
	Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity.	ditto	No. The same as the above	CL-12
(b)	Reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.	ditto	No. The same as the above.	CL-12
	Evidence to support this should include, inter alia, • contracts with consultants for CDM/PDD/methodology services,	ditto		
	• Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds),	ditto		
	• Evidence of agreements or negotiations with a DOE for validation services,	ditto		
	• Submission of a new methodology to the CDM Executive Board,	ditto		
	• Publication in newspaper,	ditto		
	• Interviews with DNA,	ditto		
	• Earlier correspondence on the project with the DNA or the UNFCCC secretariat.	ditto		
6.7	If evidence to support the serious prior consideration of the CDM as indicated above is not available, was the CDM not considered in the decision to implement the project activity?	Para.101 VVM	NA (by DOE)	
	Is It determined that the CDM was not seriously considered in the decision to implement the project activity?	ditto	NA (by DOE)	
6.	Additionality of a project activity	Para. 93-119 VVM	--	--
(b)	Identification of alternatives	Para. 103-105 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
	<Requirement to be validated> The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required (e.g., methodology ACM0002).	Para.103 VVM	--	--
6.8	Whether the list of alternatives given in the PDD is assessed and ensured or not that:	Para.104 VVM	-	
(a)	The list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity;	ditto	Yes	
(b)	The list contains all plausible alternatives that are considered, on the basis of local and sectoral knowledge, to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity.	ditto	Yes	
(c)	The alternatives comply with all applicable and enforced legislation.	ditto	Yes	
6.	Additionality of a project activity	Para. 93-119 VVM	--	--
(c)	Investment analysis	Para. 106-112 VVM	--	--
6.9	<Requirement to be validated> If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity; Whether the PDD shall provide evidence that the proposed CDM project activity would not be:	Para.106 VVM	--	--
(a)	The most economically or financially attractive alternative; or	ditto	NA	
(b)	Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).	ditto	Yes, applied	
6.10	Through which one of the following approaches Project participants show this?: <i>It should be noted that paragraph 14 of the "Guidance on the assessment of investment analysis" (EB39, Annex 35) and the requirements of specific methodologies may preclude the use of one of these options in certain scenarios</i>	Para.107 VVM Annex 35 EB39	-	
(a)	Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity;	ditto	NA	
(b)	The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;	ditto	NA	
(c)	The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	ditto	Yes	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
6.11	Is the PDD comply with the latest version of the “Guidance on the Assessment of Investment Analysis” as provided by the CDM Executive Board? (See Annex 45 of EB 41 report)	Para.108 VVM Annex 45 EB 41	No. The two kinds of IRRs (with/without CER revenue) shall be provided for comparison	CL-7
6.12	The accuracy of financial calculations are carried out for any investment analysis:	Para.109 VVM		
(a)	Is a thorough assessment conducted for all parameters and assumptions used in calculating the relevant financial indicator? Are the accuracy and suitability of these parameters determined using the available evidence and expertise in relevant accounting practices?	ditto	No. More detailed explanations / justifications shall be provided to the input values used in the analysis.	CL-1
(b)	The parameters should be cross-checked against third-party or publicly available sources, such as invoices or price indices;	ditto	NA (by DOE)	
(c)	Are feasibility study reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	ditto	NA (by DOE)	
(d)	Are assessement for the correctness of computations carried out and documented by the project participants?	ditto	No. Spreadsheets of the calculations shall be provided.	CL-8, CL-11
(e)	Are assessment for the sensitivity analysis by the project participants conducted to determine under what conditions variations in the result would occur, and the likelihood of these conditions?	ditto	No. Calculations of variations of parameters necessary to reach the benchmark shall be conducted, and the likelihood of the variations worked out shall be assessed.	CL-9, CL-10
6.13	Whether the suitability of any benchmark applied in the investment analysis is confirmed or not:	Para.110 VVM	--	
(a)	The type of benchmark applied is suitable for the type of financial indicator presented;	ditto	Yes. The benchmark is specified by the Code set by PRC.	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
(b)	Any risk premiums applied in determining the benchmark is reflected by the risks associated with the project type or activity;	ditto	No	
(c)	It is 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 involved and the same benchmark has been applied	ditto	Yes. There is reference of the project participant's decision, as they had invested in another CDM project of hydropower plant	
	or if there are verifiable circumstances that have led to a change in the benchmark.	ditto	Not required	
6.14	The Board clarified that in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities, it is required to ensure that: (See paragraph 54 of the report of the meeting of the CDM EB38)	Para.111 VVM Para. 54 CDM EB38	--	--
(a)	Has the FSR been the basis of the decision to proceed with the investment in the project? Is the period of time between the finalization of the FSR and the investment decision sufficiently short to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?	ditto	Yes. The static investment cost used in the financial analysis is inconsistent with that of the PDR; however it was assessed by a chartered expert complying with the relevant guidelines.	
(b)	Are the values used in the PDD and associated annexes fully consistent with the FSR?	ditto	Yes. Some values are inconsistent; however, their justifications are provided.	
	Where inconsistencies occur; Was the appropriateness of the values confirmed?	ditto	Yes	
(c)	On the basis of its specific local and sectoral expertise, confirmation should be provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision.	Ditto	NA (by DOE)	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
6.	Additionality of a project activity	Para. 93-119 VVM	--	--
(d)	Barrier analysis Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a CDM project activity	Para.113-116 VVM	--	--
6.15	<Requirement to be validated> If barrier analysis has been used to demonstrate the additionality of the proposed CDM project activity; The PDD shall demonstrate that the proposed CDM project activity faces barriers that:.	Para.113 VVM	--	--
(a)	Is the barrier that prevents the implementation of this type of proposed CDM project activity?	ditto	NA	
(b)	Is the barrier that do not prevent the implementation of at least one of the alternatives?	ditto	NA	
6.16	Issues that have a clear direct impact on the financial returns of the project activity cannot be considered barriers and shall be assessed by investment analysis. (Defined in this context as those issues whose impacts can be expressed in monetary terms with reasonable certainty) Whether this does not refer to either	Para.114 VVM	NA	
(a)	Risk related barriers, for example risk of technical failure, that could have negative effects on financial performance,	ditto	NA	
(b)	or Barriers related to the unavailability of sources of finance for the project activity.	ditto	NA	
6.17	A two-step process is applied to assessing the barrier analysis performed, as follows:	Para.115 VVM	-	
(a)	<u>Step-1 Determine whther the barriers are real</u> The available evidence and/or undertake interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) are assessed to determine whether the barriers listed in the PDD exist.	ditto	NA	
	The existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics.	ditto	NA	
	If existence of a barrier is substantiated only by the opinions of the project participants, this barrier is not considered to be adequately substantiated.	ditto	NA	
	If a barrier is not real or is not supported by sufficient evidence, which is judged on the basis of sectoral or local expertise, it shall raise a CAR to have reference to this barrier removed from the project documentation.	ditto	NA	


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
(b)	<p><u>Step-2 Determine whether the barriers prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives.</u></p> <p>Since not all barriers present an insurmountable hurdle to a project activity being implemented, it is judged on the basis of local and sectoral expertise that a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of <i>at least one of the possible alternatives</i>, in particular the identified baseline scenario.</p>	ditto	NA	
6.	Additionality of a project activity	Para. 93-119 VVM	--	--
(e)	Common practice analysis	Para.117-119 VVM	--	--
	<p><Requirement to be validated></p> <p>For large-scale CDM project activities, <u>unless the proposed project type is first-of-its kind</u>, common practice analysis shall be carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality.</p> <p>This is a test to complement the investment analysis (Step 2 of the additionality tool) or barrier analysis (Step 3 of the additionality tool) to confirm that the project activity is not widely observed and commonly carried out in the region..</p>	Para.117 VVM	--	--
6.18	It is judged on the basis of local and sectoral expertise to assess the followings,	Para.118 VVM		
(a)	Is the geographical scope (e.g. the defined region) of the common practice analysis appropriate for the assessment of common practice related to the project activity's technology or industry type?	ditto	No. Conditions to identify similar project activities are not clearly defined.	CL-14
(b)	If a region other than the entire host country is chosen, is the explanation why this region is more appropriate assessed?	ditto	Yes	
	Using official sources and local and industry expertise; Is it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	ditto	Yes	
(c)	If similar and operational projects, other than CDM project activities, are already "widely observed and commonly carried out" in the defined region; Is it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	ditto	No. More deep analysis on the distinctions is required.	CL-2
7.	Monitoring plan	Para. 120-122 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
	<Requirement to be validated> The PDD shall include a monitoring plan. This monitoring plan shall be based on the approved monitoring methodology applied to the proposed CDM project activity.	Para. 120 VVM	--	--
7.1	The two-step process to assessing compliance with this requirement is applied, as follows	Para.121 VVM	--	
(a)	<u>Step-1 Compliance of the monitoring plan with the approved methodology</u> (i) By means of document review, are the list of parameters required by the selected approved methodology identified?	ditto	Yes	
	(ii) Does the monitoring plan contain all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology?	ditto	Yes	
(b)	<u>Step-2 Implementation of the plan</u> By means of review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection of the proposed CDM project activity site in accordance with Section 4.1-4.4, the followings are assessed,:	ditto	-	
	(i) Are the monitoring arrangements described in the monitoring plan feasible within the project design?	ditto	Yes	
	(ii) 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 proposed CDM project activity can be reported ex post and verified?	ditto	No. Specifications of the ammeters, appropriate training program and manual shall be provided.	CL-18, CL-19, CL-20,
8.	Sustainable development	Para. 123-125 VVM	--	--
	<Requirement to be validated> CDM project activities shall assist Parties not included in Annex I to the Convention in achieving sustainable development.	Para.123 VVM	--	--
8.1	Is the letter of approval by the DNA of the host Party included the contribution of the proposed CDM project activity to the sustainable development of the host Party?	Para.124 VVM	Yes	
9.	Local stakeholder consultation	Para. 126-128 VVM	--	--
	<Requirement to be validated> Local stakeholders shall be invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website. For definition of stakeholders see glossary of CDM terms <http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf>	Para.126 VVM Glossary of CDM terms	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

TABLE 1 REQUIREMENTS CHECKLIST

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	CAR, CL FAR
9.1	By means of document review and interviews with local stakeholders as appropriate, are followings determined?;	Para.127 VVM		
(a)	Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;	ditto	Yes	
(b)	The summary of the comments received as provided in the PDD is complete;	ditto	No. Summary table shall be aligned appropriately.	CL-13
(c)	The project participants have taken due account of any comments received and have described this process in the PDD.	ditto	Yes	
10.	Environmental impacts	Para. 129-131 VVM	--	--
	<Requirement to be validated> Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity in accordance with paragraph 37(c) of the CDM modalities and procedures.	Para. 129 VVM Para. 37(c) CDM M & P	--	--
10.1	By means of a document review and/or using local official sources and expertise, have the project participants undertaken an analysis of environmental impacts and, if required by the host Party, an environmental impact assessment?	Para. 130 VVM	Yes, the EIA report was compiled and officially approved.	


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project			

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CAR Corrective Action Requests				
CAR-1	The project shall have the written approval of voluntary participation from the DNA of each party involved.	1, 2	A file of the LoA from PRC NDA was sent to JCI. The LoA from Netherlands has also sent to JCI.	OK. The two LOAs were received and confirmed that their contents are sufficiently meet the CDM requirement. The finding of CAR-1 was resolved and closed.
CAR-2	Additional descriptions are required in complying with the Guidelines for GL-PDD to cover: 1) The purpose of the project activity 2) GHG reductions scenario by the project activity 3) The PP's view on the contribution of the project activity to the sustainable development	3.1	The description of the project has been modified according to the GL-PDD. The purpose of the project has been added; The GHG reductions and why these reductions are achieved have been specified in PDD (Version 02); and 3) The PP's view on the contribution to sustainable development has all been included in the PDD.	OK. Appropriate descriptions were added to section A.2 of the PDD (Version 02) in complying with the Guidelines. The finding of CAR - 2 was resolved and closed.
CAR-3	In complying with GL-PDD, additional descriptions shall be provided to further explain technological aspects of the project activity.	6.3	Reflecting the new guidelines for completion of PDD, descriptions of technologies to be employed have been enforced.	OK. Appropriately descriptions of the technologies were described in section A.4.3 of the PDD (Version 02). The finding of CAR -3 was resolved and closed.
CAR-4	As per the Guidelines for PDD Completion, a wired-diagram shall be provided to delineate the project boundary, including all the equipment, systems, flows of mass/energy, emissions sources/gasses, and monitoring variables.	5.7	A wired-diagram delineating the project boundary has been provided in section B.3 of the PDD.	OK. An appropriate wired-diagram is additionally described in the PDD (Version 02) to delineating the boundary of the project activity. The finding of CAR -4 was resolved and closed.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project			

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CAR-5	To comply with the definition by Glossary of CDM terms (version 04), the starting date of the project activity shall be revised. The current project start date 01/04/2004 defined as the start date of project construction by ex-project owner does not comply with the new definition of the date by the term	6.3	The current project start date has been revised to the date of the contract purchase of the project activity 11/01/2007 by the current project owner from the ex-project owner.	OK. The project starting date was revised from 01/04/2004 on which the construction started by the ex-project owner, to 11/01/2007 on which the contract of the purchase of the Tiejue project was signed. JCI confirmed that the revised project start date complies with Glossary of CDM terms (Version 04) and Para 7 of Guidance on the Assessment of Investment Analysis (Version 02). The finding of CAR - 5 was resolved and closed.
CL	Clarification Requests			
CL-1	Backgrounds and/or data sources of key input values used in the investment analysis shall be explained with appropriate evidence.	6.11	Regarding the investment cost, tariff detailed breakdown and classification result have been provided with supporting documents (evidence).	OK. Supporting documents of static investment cost and tariff were provided and confirmed appropriate. Other key input values are to be cross-checked with data of JCI database on PRC hydropower projects. The finding of CL-1 was resolved and closed.
CL-2	Re-examine the essential distinctions in comparison of the project activity with identified similar project activities, and add more convincing explanations on the distinctions.	6.18	A comparable table was provided to clearly distinct between the project activity and the similar projects identified.	OK. Distinctions between the two are clearly demonstrated in the table provided in the PDD (Version 02). The finding of CL-2 was resolved and closed.
CL-3	This section shall be completed within one page as instructed by the Guidelines for PDD completion.	4.1	This section has been revised within the space limitation of one page.	The section was shortened within one page. The finding of CL-3 was resolved and closed.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project			

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CL-4	Detailed explanations of the water control system shall be provided. The power density shall also be calculated and its results be provided at an appropriate section.	4.1	Description of type of water control system has been specified in section A.2.of the PDD (Version 02). Relevant power density calculation has also been provided in section of the emission reductions.	OK. Appropriate descriptions of the water control system and relevant calculation have been provided. The finding of CL-4 was resolved and closed.
CL-5	Descriptions of technologies and designs to be used for the project activities shall be added.	4.1	The technologies and designs to be in the project activity were added to the PDD.	Ok. Appropriate descriptions on the technologies and designs have been added. The finding of CL-5 was resolved and closed.
CL-6	It is requested to describe more specifically about the reason of non-availability of renewable energy resources other than hydropower in the local area.	5.11	More detailed information about the reason of non-availability of renewable energy resources have been added in section B.4. of the PDD	OK. Current situation of the availability of other renewable resources in the region was appropriately added to the PDD. The finding of CL-6 was resolved and closed.
CL-7	The two kinds of IRR figures, with and without CERs' revenue shall be calculated and described in the PDD for comparison.	6.11	The calculation results of the two kinds of IRR (with and without CERs revenue) have been added.	OK. Appropriately the two kinds of IRRs were calculated and its results are described in the PDD (Version 02) The finding of CL-7 was resolved and closed.
CL-8	The calculation sheets of spreadsheets in excel active version shall be attached to the PDD to demonstrate in a transparent manner.	6.12	The spreadsheets of the calculations are attached to the PDD.	OK. The spreadsheets were attached to the PDD and its calculations were confirmed to be appropriate. The finding of CL-8 was resolved and closed.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project			

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CL-9	Guidance on the Assessment of Investment Analysis (Version 02) requires an explanation of the appropriateness of magnitude of the fluctuation range of each parameter. (Trends from the past at the project decision with CDM application can be an answer.)	6.12	Explanations of the variations of the two parameters, static investment and tariff, are provided.	OK. It was confirmed that a supplemental analysis is conducted and its result demonstrates that without CERs it is unlikely that the project IRR exceeds the benchmark. The finding of CL-9 was resolved and closed.
CL-10	Necessary variations of static investment cost and tariff to reach the benchmark IRR shall be provided to complement the result of sensitivity analysis.	6.12	Supplemental analysis is provided to enforce the result of sensitivity analysis.	OK. Necessary variations of static investment and tariff were properly calculated. Then unlikelihood of the variations to reach the benchmark has been clearly and transparently demonstrated. The finding of CL-10 was resolved and closed.
CL-11	It is requested to provide the spreadsheets of calculation results of the sensitivity analysis, so that readers can reproduce and confirm the results.	6.12	The spreadsheets required are attached.	OK. Appropriate spreadsheets are attached to the PDD. The finding of CL-11 was resolved and closed.
CL-12	Since the project started before the date of validation, to comply with the new Guidelines for PDD completion(version07) and relevant guidance, the following are requested: 1. Provide an appropriate explanation with a timeline and relevant evidence to demonstrate how CDM application was seriously considered prior to the decision on the project activity. 2. Provide also an appropriate explanation of key events/activities taken by PP with a timeline and relevant evidence to achieve CDM application, for justifying the time gap between the project decision with CDM application and publication of the PDD for global stakeholder consultation.	6.12	1. A timeline with appropriate comments on prior consideration of CDM was additionally described in the PDD (Version 02) and relevant evidence was provided. 2. Key events/activities with a timeline to achieve CDM were described in the PDD and relevant evidence was provided.	OK. 1. Appropriate timeline has been provided and necessary evidence was provided. 2. A timeline with comments to achieve CDM was described and relevant evidence was provided. As a conclusion, with the two timelines and provided evidence, the prior consideration of CDM was clearly demonstrated in a transparent manner. The finding of CL-12 was resolved and closed.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project			

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CL-13	Stakeholders' comments on negative impacts by the project activity shall be also described in the report section of the stakeholder consultation.	9.1	The comments on negative impacts have been added.	OK. Comments on negative impacts are added to the report section to improve the transparency of the survey. The finding of CL-13 was resolved and closed.
CL-14	Conditions of identification of similar projects shall be clearly defined in the PDD.	6.18	More detail information is added to the PDD in terms of definition of the boundary for identification.	OK. The boundary for identification of similar projects has been appropriately described in the PDD. The finding of CL-14 was resolved and closed.
CL-15	It is requested to correct values of lambda oil and lambda gas in Table A9 of Annex 3, which are checked in the process of global stakeholder consultation.	5.13	The two values are corrected, as requested. These errors are derived from the errors of the data source.	OK. The two values are corrected appropriately. The finding of CL-15 was resolved and closed.
CL-16	The electricity import expected from the CCPG to the project activity shall be incorporated in the equations of calculations of the project emission.	5.13	Relevant equations for the emission reduction calculations were revised to incorporate electricity import by the project activity from the Grid	OK. Equations of emission calculations were revised to reflect anticipated electricity import by the project activity from the Grid. The finding of CL-16 was resolved and closed.
CL-17	As an increase of the flooded area is anticipated, the power density of the project activity shall be calculated, and of which result shall be reflected to the project emission estimation	5.13	The flooded area and the calculation of the power density have been described in the section of project emission reduction calculations.	OK. The power density of the project activity was calculated and of which result is appropriately added to the PDD (version 02). The finding of CL-17 was resolved and closed.



	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL- 08/005	Rev.No 00
CDM Validation Protocol for Sichuan Tiejue 25 MW Hydro Power Project				

Table 2. Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in Table 1	Summary of project owner response	Validation team Conclusion
CL-18	Technical specification of the meters shall be provided (accuracy; mono, or bi-direction).	7.1	Technical specification sheet of the ammeter is provided and necessary information on the specification has been additionally described in the PDD (version 02).	Ok. The PDD was revised to incorporate the meter technical specifications and its sheet was provided for confirmation. The finding of CL-18 was resolved and closed.
CL-19	It is requested to explain the training program in more details and more specifically.	7.1	Planned training program detail has been additionally described in the PDD (version 02).	OK. Necessary information was provided and described in the PDD. The finding of CL-19 was resolved and closed.
CL-20	Calibration and maintenance procedures of the metering system shall be described in the PDD. Though the set up as part of manuals is expected, a brief explanation shall be provided, since they are one of key parameters for ensuring smooth monitoring processes.	7.1	Brief descriptions of the calibration and maintenance have been provided in the PDD (version 02).	OK. The calibration and maintenance procedures of the metering system have been described in the PDD. The finding of CL-20 was resolved and closed.
FAR	Forward Action Requests			
FAR-1				
FAR-2				

Abbreviations:

GL-PDD	GUIDELINES FOR COMPLETING THE SIMPLIFIED PROJECT DESIGN DOCUMENT (CDM-SSC-PDD) AND THE FORM FOR PROPOSED NEW SMALL SCALE METHODOLOGIES (CDM-SSC-NM) (Version 05)
AMS-I.D.	Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories (version 13)
GD-AIA	EB41 Annex45: Guidance on the Assessment of Investment Analysis: (Version 02)
GD-CDM	EB41 Annex 46: GUIDANCE ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF CDM
GOT	EB41 Para 67: Glossary of CDM Terms (Version 04)
ATT- A	Attachment A to Appendix B (Appendix B of simplified modalities and procedures for small-scale CDM project activities)

	JCI CDM Center	APPENDIX B	No : JCI-CDM-VAL-08/005	Rev.No00
CDM Validation Protocol for Sichuan Tiejue 25MW Hydro Power Project				

APPENDIX B

CERTIFICATE OF APPOINTMENT OF VALIDATION TEAM

Certificate of Appointment of Validation Team

Project Title	Sichuan Tiejue 25MW Hydro Power Project,
Applied Methodology	ACM0002 Ver.07 Sectoral Scope 1

Date: 08/07/2008

Designated Operational Entity: Japan Consulting Institute (JCI)

Reflecting the competence criteria of JCI, this is to certify the appointment of validation team of JCI specified below for the CDM project activity above, as per CDM Project Activity Registration Form, "F-CDM-REG" adopted at the 24th Meeting of CDM Executive Board, and Validation Procedure established by JCI CDM Center.

Signature

Akio Yoshida,

Executive Director, JCI CDM Center

Date: 15. July 2008

Client: KOE Environmental Consultancy, Inc. (Japan)

Reflecting the curricula vitae provided, this is to agree the validation team of JCI specified below for the CDM project activity above, as per Validation Procedure established by JCI CDM Center.

It is also agreed that Mr. Mutsuo KATO of JCI participates in the validation activities of the said project for the quality issues under its quality management scheme.

Signature

(Name) Lu Yu Hui

(Title) CEO

Validation Team

Validation Team	Name	Assigned Role
Leader	Takayuki ABE	All relevant issues
Member	Toshiaki TAKEDA	CDM auditor

Technical Reviewer	Masaki OKADA	Energy Industries
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01 Dec 2008

10 Dec. 2008