



Industrie Service

Validation Report

Aqua Power Limited

Validation of the “Lohgarh, Chakbhai and Sidhana
Mini Hydroelectric Projects” project, India

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Validation of the “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” project, India

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Summary: The Certification Body "Climate and Energy" has been ordered by Aqua Power Limited to perform a validation of the above mentioned project. Using a risk based approach, the validation of this project has been performed by document reviews and on-site inspection, audits at the locations of the project and interviews at the offices of the project developer and the project owner. As the result of this procedure, it can be confirmed that the submitted project documentation is in line with all requirements set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board. Hence, TÜV SÜD requests the registration of the “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” project, India under the CDM. Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of annual emission reductions of 25 347 tonnes CO _{2e} over a crediting period of ten years – 253 467 tonnes CO _{2e} in total - represents a reasonable estimation using the assumptions given by the project documents.				
Work carried out by:	<ul style="list-style-type: none">Michael Rumberg (Project manager, GHG lead auditor, Auditor Environmental Management Systems (ISO 14001))Klaus Nürnberger (Lead auditor Energy Certification, Technical expert, GHG auditor - trainee)Sunil Kathuria (GHG auditor, Local expert)		Internal Quality Control by: Werner Betzenbichler	



Abbreviations

AE	Applicant Operational Entity
APL	Aqua Power Limited
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
DOE	Designated Operational Entity
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
TÜV SÜD	TÜV Industrie Service GmbH TÜV SÜD Group
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

Aqua Power Limited (APL) has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” project. The validation serves as a design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

The audit team has been provided with a draft PDD in June 2005. Based on this documentation a document review and a fact finding mission in from of an on site audit has taken place. Afterwards the client decided to revise the PDD according the clarification requests indicated in the audit process. The final PDD version submitted in September 2005, which has undergone a renewed document review, serves as the basis for the assessment presented herewith. A revised final PDD version submitted in March 2006 finally responded to the open issue regarding the determination of the baseline emission factor as discussed in chapter 3.2 of this report.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Hydro Power Plants

- Grid connected power installations
- Monitoring concepts
- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Michael Rumberg is head of the division CDM/JI at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. Before entering this company he worked as an expert for renewable energy, forestry, environmental issues, climate change and sustainability within the environmental branch of an insurance company. His competences are covering risk assessments, quality and environmental auditing (EMS auditor), baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol.

Klaus Nürnberger is head of the division energy certification at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of verification and certifications processes for electricity production based on renewable sources. The division has assessed more than 600 plants and sites all over Europe. He has received extensive training in the CDM and JI validation processes and participated already in several CDM and JI project assessments.

Sunil Kathuria is a electrical engineer and works as a lead auditor for quality and environmental management systems (according to ISO 9001 and ISO 14001) at TÜV South Asia TÜV SÜD Group. He is based in New Delhi. In his position he is responsible for the auditing of management systems and CDM projects. He has received extensive training in the CDM validation process and participated already in several CDM project assessments.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (RUMBERG/KATHURIA)
- Environmental and Social Impact Assessment (RUMBERG/ KATHURIA)
- Skills in environmental auditing (ISO 14000, EMAS) (ALL)
- Quality assurance (RUMBERG / KATHURIA)
- Hydro Power Plants (ALL)
- Grid connected power installations (ALL)
- Monitoring concepts (ALL)
- Political, economical and technical random conditions in host country (KATHURIA)

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body “climate and energy”:

- Werner Betzenbichler (head of certification body “climate and energy”)

1.3 GHG Project Description

The purpose of the project is to generate electricity by utilizing water flowing through the existing canal system. Lohgarh with a total installed capacity of 2.0 MW, Chakbhai with 2 MW and Sidhana with 1.2 MW will generate electricity and sell it to the Punjab State Electricity Board through Power Purchase Agreement Contract.

Project participant is Aqua Power Limited.

The project starting date is July 9, 2003. The start of the 10 year non renewable crediting period is November 20, 2004. The expected operational time is 30 years.

2 METHODOLOGY

The validation of the project consists of the following three phases:

- Desk review
- Follow-up interviews
- Resolution of clarification and corrective action requests

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in annex 1 to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	Reference	Conclusion	Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.	Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	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.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification is used when the validation team has identified a need for further clarification.

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

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. The project design document underwent a revision addressing clarification requests issued by TÜV SÜD. The audit team has been provided with a draft PDD in June 2005. The final PDD version was submitted in September 2005. A revised final PDD version submitted in March 2006 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In the period of July 20 and 23, 2005, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of APL were interviewed. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
APL	<ul style="list-style-type: none">➤ Project design➤ Technical equipment➤ Sustainable development issues➤ Baseline determination➤ Additionality➤ Crediting period➤ Monitoring plan➤ Management system➤ Environmental impacts➤ Stakeholder process➤ Approval by the host country

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communications between the Client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses given are summarized in chapter 3 below and documented in more detail in the validation protocol in annex 1.

3 VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

- 1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in annex 1.
- 2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in annex 1. The validation of the project resulted in four Corrective Action Requests and two Clarification Requests.
- 3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests is summarized.
- 4) The final conclusions for validation subject are presented.

The validation findings relate to the project design as documented and described in the final project design documentation.

3.1 Project Design

3.1.1 Discussion

The project participant is Aqua Power Limited, India. No project participant from an Annex I Party is involved in the project. The participating Party, India as the host Party meets all relevant participation requirements, but no Letter of Approval has been issued so far.

The objective of the project is to make use of the renewable energy source hydro power and to feed the generated electricity to the grid.

The project itself does qualify as a Small Scale Project as it fulfils the requirements defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM by being a project in the category Type-1 i) “renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts

The project activity is not a debundled component of a larger project activity according to the rules for “determining the occurrence of debundling” as they are outlined in Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM project activities. Currently there are other small scale project activities already in the process of applying for registration. They are done by different project participants, even if the companies are partly owned by the same persons. But as the projects are not within a distance of 1 km the debundling does not take place.

The PDD does clearly define the project's spatial boundaries. The project involves the

implementation of three projects at Lohgarh, Chakbhai & Sidhana. Thus, all components and facilities used to mitigate GHGs or which may form a potential source of GHGs are covered. Information regarding the capacity of the installation is described in the PDD as well as supported by corresponding documentation.

The project design engineering does reflect current good practices. During feasibility studies carried out in advance to the project implementation, consulting and engineering companies confirmed the appropriateness of the employed technology. In additional studies the availability of water discharges at each project site and duration has been reviewed and assessed. The project is hence professionally managed. A SCADA system is installed for online control of processes.

The project shall provide the employment to about 30 persons and also contribute in infrastructure around the villages.

As India has the objective to make use of renewable energy sources and operates on own ministry, the Ministry for Non Conventional Energy Sources (MNES), the project is in line with sustainable development policies of the country. In the Letter of Approval, to be issued in advance to the registration of the project under CDM, the Government of India moreover confirms that the project contributes to sustainable development in the country.

The project has obtained different permissions and licences for erection and operation of the plant. All relevant corresponding documents have been verified during the audit on site. Moreover the necessity for an environmental clearance of the project has been assessed.

The project equipment can be expected to run for the whole project period and it can not be expected that it will be replaced by more efficient technologies.

The funding for the project does not lead to a diversion of official development assistance, as according to the information obtained by the audit team, ODA does not contribute to the financing of the project.

The starting date defined in the PDD – July 9, 2003 - does comply with the information the audit team obtained on site. The expected life time of 30 years is considered to be plausible from technical point of view.

During the validation process the audit team obtained the information and evidenced that the start of project activities has been before the registration date of the first clean development mechanism project. But the way considering CDM revenues in the project planning stage has not been clearly documented yet.

3.1.2 Findings

Corrective Action Request No. 1:

A Letter of Approval from the Indian DNA has not been submitted yet.

Response:

A Letter of Approval dated October 28, 2005, issued by the government of India has been submitted to the audit team. The document contains all relevant elements specified by the EB.

Clarification Request No. 2:

The PDD refers to the starting date of the projects as being July 2003 and describes this private initiative as being the second (next to another CDM project activity) being implemented in the state of Punjab. At the same time the audit team has reviewed a document which demonstrates that PEDA, Punjab State and APL already agreed in August 2001 to implement this project. As the first evidence of considering CDM is dated back to March 2003 only, the audit team asks the project proponent to clarify how CDM has been seriously considered when proceeding with the project.

Response:

The project proponent has by further document submission given clear evidence that by the time of financial closure the CDM has been considered. Financial closure has been in July 2003.

Moreover the client has extensively and in a traceable manner explained that fact that the agreement referred to by the audit team does not automatically lead to a project implementation as long as no definitive final decision on project financing has been made.

3.1.3 Conclusion

The project does comply with the requirements.

3.2 Baseline and Additionality

3.2.1 Discussion

The selected baseline methodology is generally in line with the baseline methodologies provided for the relevant project category

The application of the baseline methodology is not considered to be appropriate as the chosen grid is the state grid whereas the regional grid is considered to be the most suited one by the audit team.

This opinion is also substantiated by a clarification note given by the methodology panel to the EB, dated October 24, 2005. (see link under: <http://cdm.unfccc.int/methodologies/Clarifications>).

The baseline determination has been adjusted according to guidance given by the Executive Board in its 23rd meeting allowing the use of IPCC default factors for the determination of the carbon emission factor. (see link under <http://cdm.unfccc.int/EB/Meetings>).

Relevant national and sectoral policies of PEDA have been taken into account as the role of the State Electricity Boards or the energy policy of the Government of India. The project is in line with Non Conventional Energy Policies.

The PDD describes that the project is not a likely baseline scenario according to various barriers faced by the project. The barrier due to prevailing practice describes that the project is one of the first privately financed projects in the state of Punjab and hence considered a first of its kind.

This indicates that the project is not considered to be the baseline scenario.

References have been made to all data sources used.

3.2.2 Findings

Corrective Action Request No. 2:

The regional grid should form the basis for the determination of the baseline emission factor. To be modified.

Response:

The project proponent has submitted a revised PDD which bases the baseline determination on regional grid data.

Corrective Action Request No. 4:

The data vintage should be the most recent data by PDD submission and not refer back to 2002-2003.

Response:

The data has been updated to 2004-2005 data which is considered to be the most recent one.

Clarification Request No. 1:

The barrier due to prevailing practice describes that the project is one of the first privately financed projects in the state of Punjab and hence considered a first of its kind. This indicates that the project is not considered to be the baseline scenario. But the same should be documented by written evidence.

Response:

A newsletter from MNES documents that the project belongs to the first projects privately financed in the state of Punjab.

3.2.3 Conclusion

The project does comply with the requirements.

3.3 Monitoring Plan

3.3.1 Discussion

The selected monitoring methodology is in line with the monitoring methodologies provided for the relevant project category as the Simplified Modalities and Procedures for Small-Scale CDM project activities ask for the metering of the electricity generated by the renewable technology.

The monitoring methodology is applicable to the project being considered and gives opportunity for real measurements of achieved emission reductions.

A monitoring of the baseline emissions is only partly necessary as the emission factor is determined ex ante and will not be monitored. The only indicator mandatory to be monitored is

the electricity fed to the grid. This parameter is properly described in the monitoring plan. Sealed meters installed at each site in separately allocated metering rooms.

The data shall be stored in the soft form and shall be able to be retrieved. The company is in process of installing a net based software package which will enable on line data recording and monitoring and also it's accessibility at corporate office.

The PDD elaborates on the overall responsibility and project management and monitoring planning. The description is considered sufficient given the project type. In addition an internal document describes in detail the process. The Project Manager is appointed to look after the plant assisted by the Assistant Plant Manager. In addition the Head of Projects looks after the day-to- day activities of the plants.

The project does not need any special trainings because the hydro project technology is well established. However, the initial familiarisation via training is covered in the scope of the contractor.

3.3.2 Findings

None

3.3.3 Conclusion

The project does comply with the requirements.

3.4 Calculation of GHG Emissions

3.4.1 Discussion

The project spatial boundaries are clearly described.

Details of direct and indirect emissions are discussed in the PDD in an appropriate manner. All aspects are covered by the current approach. Only carbon dioxide (CO₂) emissions have been considered.

The calculations resulting in the final numbers have been submitted. The application of the baseline methodology is correct but refers to the state grid rather than to the regional grid. To be modified as described in CAR 2.

3.4.2 Findings

None

3.4.3 Conclusion

The project does comply with the requirements.

3.5 Environmental Impacts

3.5.1 Discussion

The environmental impacts can be seen as being low. But no environmental aspects have been discussed in the PDD at all. The legislation does not require an EIA for this type of project. According to clause 3(b) of Environment Impact Assessment Notification No. S.O.60(E) dated 27th January, 1994, EIA is not required for such projects. But an environmental license for the site is necessary. The project sites have been given “No objection certificates” by the Punjab State Pollution Control Board.

Negative environmental effects are not expected to be created by the project. Given the nature of the project design this seems to be reasonable.

Transboundary effects are not expected as the project site is far from the national boundary. As no significant environmental impacts are expected, such impacts have not influenced the project design.

3.5.2 Findings

Corrective Action Request No. 3:

Environmental impacts are not described in detail. To be added.

Response:

Required additional information has been included in the revised PDD.

3.5.3 Conclusion

The project does comply with the requirements.

3.6 Comments by Local Stakeholders

3.6.1 Discussion

The Gram Panchyats of the villages closer to the each project site has been consulted. The proceedings have been conducted in the regional language to make them understand true nature of the project and have invited comments through the meetings held.

A formal stakeholder consultation process is not required according to Indian legislation.

The comments to the project design have been recorded and provided. As all comments have been neutral or positive, the project design has not been changed due to stakeholder comments.

3.6.2 Findings

None

3.6.3 Conclusion

The project does comply with the requirements.



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

A global public stakeholder process on the UNFCCC website has taken place from September 15, 2005 for 30 days. Until the end of the stakeholder process, October 14, 2005, no comment has been received.

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects” project, India. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and subsequent decisions by the CDM Executive Board.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project does meet all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by TÜV SÜD for registration with the UNFCCC under the CDM.

By avoiding GHG emissions from fossil fired power plants, the project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the barrier due to prevailing practice demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of annual emission reductions of 25 347 tonnes CO_{2e} over a crediting period of ten years – 253 467 tonnes CO_{2e} in total - represents a reasonable estimation using the assumptions given by the project documents.


The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2006-03-16

A handwritten signature in black ink, consisting of a large, stylized 'W' and 'B' intertwined.

Werner Betzenbichler
**Head of certification body “climate
and energy”**

Munich, 2006-03-16

A handwritten signature in black ink, consisting of a stylized 'M' and 'R' followed by a long horizontal stroke.

Michael Rumberg
Project Manager

Annex 1: Validation Protocol

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	☑	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	☑	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	☑	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	<p>CAR 1</p> <p>☑</p>	<p>The project is a unilateral project. The audit team has not received a Letter of Approval from the Indian government submitted by the client yet.</p> <p><u>Corrective Action Request No. 1:</u> A Letter of Approval needs to be submitted to the audit team.</p>
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	☑	Table 2, Section E.1 to E.4



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	<input checked="" type="checkbox"/>	Table 2, Section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	<input checked="" type="checkbox"/>	The funding for the project does not lead to a diversion of official development assistance as according to the information obtained by the audit team ODA does not contribute to the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	<input checked="" type="checkbox"/>	India has established a designated national authority.
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	<input checked="" type="checkbox"/>	India is a Party to the Kyoto Protocol and has accessed the Protocol at 26 Aug 2002.
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	<input checked="" type="checkbox"/>	Table 2, Section A.1



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	<input checked="" type="checkbox"/>	The project design document does conform with the Small Scale CDM Project Design Document format (version 01) valid by the time of PDD submission to the audit team.
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	<input checked="" type="checkbox"/>	Table 2, Section A.1.3 and B.1
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	<input checked="" type="checkbox"/>	Table 2, Section G
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	<input checked="" type="checkbox"/>	Table 2, Section F
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	<input checked="" type="checkbox"/>	A global public stakeholder process on the UNFCCC website has taken place from September 15, 2005 for 30 days. Until the end of the stakeholder process, October 14, 2005, no comment has been received.

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	1, 2, 3, 6, 15, 18, 21	DR, I	The project itself does qualify as a Small Scale Project as it fulfils the requirements defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM by being a project in the category Type-1 i) “renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	1, 2, 3, 6, 15, 18, 21	DR, I	The project activity is not a debundled component of a larger project activity according to the rules for “determining the occurrence of debundling” as they are outlined in Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM project activities. Currently there is no other small scale project activity already registered or in the process of applying for registration - done by the same project participant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.3. Does proposed project activity confirm to one of the project categories defined for	1, 2, 3, 6,	DR, I	Yes, the project confirms with the project category I.D. “Grid connected renewable electricity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
small scale CDM project activities?	15, 18, 21		generation".		
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	1, 2, 3, 6, 15, 18, 21	DR, I	Yes, the PDD does clearly define the project's spatial boundaries. The project involves the implementation of three projects at Chakbhai , Lohgarh & Sidhana.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	1, 2, 3, 6, 15, 18, 21	DR, I	Yes, the PDD does correctly define the project's system boundaries including the plants Chakbhai , Lohgarh & Sidhana. Thus, all components and facilities used to mitigate GHGs or which may form a potential source of GHGs are covered. Information regarding the capacity of the installation is described in the PDD as well as supported by corresponding documentation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.3. Does the project design engineering reflect current good practices?	1, 2, 3, 5, 6, 8, 10, 11, 15, 18, 21	DR, I	Yes, the project design engineering does reflect current good practices. During feasibility studies carried out in advance to the project implementation, consulting and engineering companies confirmed the appropriateness of the employed technology. In additional studies the availability of water discharges at each project site and duration has been reviewed and	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			assessed. The project is hence professionally managed. A SCADA system is installed for online control of processes.		
A.2.4. Will the project result in technology transfer to the host country?	1, 2, 3, 6, 15, 18, 21	DR, I	No, the project does not lead to a technology transfer to the host country as the project makes use of an existing domestic technology.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	1, 2, 3, 6, 15, 18, 21	DR, I	No, the project does not need any special trainings because the hydro project technology is well established. However, the initial familiarisation via training is covered in the scope of the contractor.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1, 2, 3, 6, 15, 18, 21	DR, I	The project shall provide the employment to about 30 persons and also contribute in infrastructure around the villages.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2. Will the project create any adverse environmental or social effects?	1, 2, 3, 6,	DR, I	The project is expected to create no adverse environmental or socio-economic effects.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	15, 18, 21				
A.3.3. Is the project in line with sustainable development policies of the host country?	1, 2, 3, 6, 15, 18, 21	DR, I	As India has the objective to make use of renewable energy sources and operates on own ministry, the Ministry for Non Conventional Energy Sources (MNES), the project is in line with sustainable development policies of the country. In the Letter of Approval, to be issued in advance to the registration of the project under CDM, the Government of India moreover confirms that the project contributes to sustainable development in the country.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.4. Is the project in line with relevant legislation and plans in the host country?	1, 2, 3, 6, 15, 18, 21	DR, I	The project has obtained different permissions and licences for erection and operation of the plant. All relevant corresponding documents have been verified during the audit on site. Moreover the necessity for an environmental clearance of the project has been assessed.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1, 2, 3, 15, 16, 18, 21	DR, I	Yes, the selected baseline methodology is generally in line with the baseline methodologies provided for the relevant project category	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.1.2. Is the baseline methodology applicable to the project being considered?	1, 2, 3, 15, 16, 18, 21	DR, I	Yes, the selected baseline methodology is applicable to the project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	1, 2, 3, 15, 16, 18, 21, 22	DR, I	<p>The PDD describes that the project is not a likely baseline scenario according to various barriers faced by the project.</p> <p>The barrier due to prevailing practice describes that the project is one of the first privately financed projects in the state of Punjab and hence considered a first of its kind. This indicates that the project is not considered to be the baseline scenario.</p> <p><u>Clarification Request No. 1:</u> But the same should be documented by written evidence.</p>	CR 1	<input checked="" type="checkbox"/>
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1, 2, 3, 4, 15, 16, 18, 20, 21	DR, I	<p>The application of the baseline methodology is not considered to be appropriate as the chosen grid is the state grid whereas the regional grid is considered to be the most suited one by the audit team. This opinion is also substantiated by a clarification note given by the methodology panel to the EB, dated October 24, 2005. (see link under: http://cdm.unfccc.int/methodologies/Clarifications)</p>	CAR 2 and 4	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p><u>Corrective Action Request No. 2:</u> The regional grid should form the basis for the determination of the baseline emission factor. To be modified.</p> <p><u>Corrective Action Request No. 4:</u> The data vintage should be the most recent data by PDD submission and not refer back to 2002-2003.</p>		
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	1, 2, 3, 4, 15, 16, 18, 21	DR, I	Yes, relevant national and sectoral policies of PEDAs have been taken into account as the role of the State Electricity Boards or the energy policy of the Government of India. The project is in line with Non Conventional Energy Policies.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.4. Is the baseline selection compatible with the available data?	1, 2, 3, 4, 15, 16, 18, 21	DR, I	See B.2.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1, 2, 3, 4, 15, 16, 18, 21	DR, I	See B.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	1, 2, 3, 8, 18, 21	DR, I	The starting date defined in the PDD – July 9, 2003 - does comply with the information the audit team obtained on site. The expected life time of 30 years is considered to be plausible from technical point of view.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	1, 2, 3, 8, 18, 21	DR, I	The crediting period is clearly defined.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.1.3. Is it assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project?	1, 2, 3, 8, 13, 14, 18, 21, 23	DR, I	<p>During the validation process the audit team obtained the information and evidenced that the start of project activities has been before the registration date of the first clean development mechanism project. But the way considering CDM revenues in the project planning stage has not been clearly documented yet.</p> <p><u>Clarification Request No. 2:</u> The PDD refers to the starting date of the projects as being July 2003 and describes this private initiative as being the second (next to another CDM project activity) being implemented in the state of Punjab. At the same time the audit team has reviewed a document which demonstrates that</p>	CR 2	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			PEDA, Punjab State and APL already agreed in August 2001 to implement this project. As the first evidence of considering CDM is dated back to March 2003 only, the audit team asks the project proponent to clarify how CDM has been seriously considered when proceeding with the project.		
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes, the selected monitoring methodology is in line with the monitoring methodologies provided for the relevant project category as the Simplified Modalities and Procedures for Small-Scale CDM project activities ask for the metering of the electricity generated by the renewable technology.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.2. Is the monitoring methodology applicable to the project being considered?	1, 2, 3, 12, 15, 18, 19,	DR, I	Yes, the monitoring methodology is applicable to the project being considered.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	21				
D.1.3. Is the application of the monitoring methodology transparent?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes, the application of the monitoring methodology is transparent.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes, the monitoring methodology gives opportunity for real measurements of achieved emission reductions.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	No project emissions are evident in the project as the plant is a hydro power plant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1, 2, 3,	DR, I	See above. In D.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	12, 15, 18, 19, 21				
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above. In D.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above. In D.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	1, 2, 3, 12, 15, 18,	DR, I	No leakage is evident in the project as no equipment is transferred from other sites.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	19, 21				
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above in D 3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above in D 3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above in D 3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in	1, 2,	DR,	A monitoring of the baseline emissions is only	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
particular for baseline emissions, reasonable?	3, 12, 15, 18, 19, 21	I	partly necessary as the emission factor is determined ex ante and will not be monitored. The only indicator mandatory to be monitored is the electricity fed to the grid. This parameter is properly described in the monitoring plan. Sealed meters installed at each site in separately allocated metering rooms.		
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes as the electricity produced is a key parameter for daily operations it will be possible to monitor this indicator.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes, the data shall be stored in the soft form and shall be able to be retrieved. The company is in process of installing a net based software package which will enable on line data recording and monitoring and also it's accessibility at corporate office.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	The PDD elaborates on the overall responsibility and project management and monitoring planning. The description is considered sufficient given the project type. In addition an internal document describes in detail the process. The project manager is appointed to look after the plant assisted by assistant plant manager. In addition the head of projects looks after day to day activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	The PDD elaborates on the overall responsibility and project management and monitoring planning. The description is considered sufficient given the project type. The actual implementation has to be checked in verification.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.3. Are procedures identified for training of monitoring personnel?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	No, the project does not need any special trainings because the hydro project technology is well established. However, the initial familiarisation via training is covered in the scope of the contractor.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.4. Are procedures identified for emergency preparedness for cases where	1, 2, 3,	DR, I	No emergency situation with unintended emission has to be expected.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
emergencies can cause unintended emissions?	12, 15, 18, 19, 21				
D.5.5. Are procedures identified for calibration of monitoring equipment?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes the power purchase agreement defines the necessary procedures.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes the power purchase agreement defines the necessary procedures.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	Yes the power purchase agreement defines the necessary procedures.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how	1, 2, 3, 12,	DR, I	See above in D 5.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
to process performance documentation)	15, 18, 19				
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	See above in D 5.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	As the project performance can be easily obtained from the amount of electricity produced, the compliance can be checked on daily basis without further audits.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.11. Are procedures identified for project performance reviews?	1, 2, 3, 12, 15, 18, 19, 21	DR, I	As the project performance can be easily obtained from the amount of electricity produced, the performance is reviewed on daily & then monthly basis.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.12. Are procedures identified for corrective actions?	1, 2, 3, 12, 15, 18,	DR, I	See above in D 5.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	19, 21				
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1, 2, 3, 4, 15, 18, 21	DR, I	Given the project design, no project emissions are to be expected.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1, 2, 3, 4, 15, 18, 21	DR, I	See above E.1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1, 2, 3, 4, 15, 18, 21	DR, I	See above E.1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.1.4. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 4, 15, 18, 21	DR, I	See above E.1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.5. Have conservative assumptions been used?	1, 2, 3, 4, 15, 18, 21	DR, I	See above E.1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	1, 2, 3, 4, 15, 18, 21	DR, I	See above E.1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1, 2, 3, 4, 15, 18, 21	DR, I	No leakage is evident in the project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.2. Are potential leakage effects properly accounted for in the calculations (if	1, 2, 3, 4,	DR, I	See above in E.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
applicable)?	15, 18, 21				
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1, 2, 3, 4, 15, 18, 21	DR, I	See above in E.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1, 2, 3, 4, 15, 18, 21	DR, I	See above in E.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.5. Have conservative assumptions been used (if applicable)?	1, 2, 3, 4, 15, 18, 21	DR, I	See above in E.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1, 2, 3, 4, 15, 18, 21	DR, I	See above in E.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1, 2, 3, 4, 15, 18, 21	DR, I	The application of the baseline methodology is correct but refers to the state grid rather than to the regional grid. To be modified as described in CAR 2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes, all aspects related to direct and indirect baseline emissions are captured in the project design.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes, and only CO2 has been chosen as a relevant source.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.5. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 4, 15, 18,	DR, I	Yes, the calculations of the baseline emission are documented in a complete and transparent manner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	21				
E.3.6. Have conservative assumptions been used?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	1, 2, 3, 4, 15, 18, 21	DR, I	Yes in case the projects is implemented as planned.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of	1, 2, 3, 6,	DR, I	According to clause 3(b) of Environment Impact Assessment Notification No. S.O.60(E)dated 27 th	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
the project activity?	7, 9, 15, 18, 21		January, 1994, EIA is not required for such projects.		
F.1.2. Does the project comply with environmental legislation in the host country?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	Yes. The project sites have been given "No objection certificates" by the Punjab State Pollution Control Board.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.3. Will the project create any adverse environmental effects?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	No, the project is not expected to create any adverse environmental effects.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	No, the environmental aspects have not been discussed in the PDD. <u>Corrective Action Request No. 3:</u> Environmental impacts are not described in details. To be added.	CAR 3	<input checked="" type="checkbox"/>
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	1, 2, 3, 6, 7, 9, 15,	DR, I	Yes the Gram Panchyats of the villages closer to the each project site has been consulted.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	18, 21				
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	Yes the proceedings have been conducted in the regional language to make them understand true nature of the project and have invited comments through the meetings held.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	A stakeholder consultation process is not required according to Indian legislation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.4. Is a summary of the comments received provided?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.5. Has due account been taken of any comments received?	1, 2, 3, 6, 7, 9, 15, 18, 21	DR, I	All comments received so far are neutral or positive.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* MoV = Means of Verification, DR= Document Review, I= Interview

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>The audit team has not received a Letter of Approval from the Indian government submitted by the client yet.</p> <p><u>Corrective Action Request No. 1:</u></p> <p>A Letter of Approval needs to be submitted to the audit team.</p>	Table 1	A Letter of Approval dated October 28, 2005, issued by the government of India has been submitted to the audit team. The document contains all relevant elements specified by the EB.	<input checked="" type="checkbox"/>
<p>The application of the baseline methodology is not considered to be appropriate as the chosen grid is the state grid whereas the regional grid is considered to be the most suited one by the audit team. This opinion is also substantiated by a clarification note given by the methodology panel to the EB, dated October 24, 2005. (see link under: http://cdm.unfccc.int/methodologies/Clarifications)</p> <p><u>Corrective Action Request No. 2:</u></p> <p>The regional grid should form the basis for the determination of the baseline emission factor. To be modified.</p>	B.2.2	The project proponent has submitted a revised PDD which bases the baseline determination on regional grid data.	<input checked="" type="checkbox"/>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>No, the environmental aspects have not been discussed in the PDD.</p> <p><u>Corrective Action Request No. 3</u></p> <p>Environmental impacts are not described in details. To be added.</p>	F.1.4	Required additional information has been included in the revised PDD.	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No. 4:</u></p> <p>The data vintage should be the most recent data by PDD submission and not refer back to 2002-2003.</p>	B.2.2	The data has been updated to 2004-2005 data which is considered to be the most recent one.	<input checked="" type="checkbox"/>
<p>The barrier due to prevailing practice describes that the project is one of the first privately financed projects in the state of Punjab and hence considered a first of its kind. This indicates that the project is not considered to be the baseline scenario.</p> <p><u>Clarification Request No. 1:</u></p> <p>But the same should be documented by written evidence.</p>	B.2.1	A newsletter from MNES documents that the project belongs to the first projects privately financed in the state of Punjab.	<input checked="" type="checkbox"/>
<p>During the validation process the audit team obtained the information and evidenced that the start of project activities has been before the registration date of the first clean development mechanism project. But the way considering CDM revenues in the project</p>	C.1.3	The project proponent has by further document submission given clear evidence that by the time of financial closure the CDM has been considered. Financial closure has been in July 2003.	<input checked="" type="checkbox"/>




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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
<p>planning stage has not been clearly documented yet.</p> <p><u>Clarification Request No. 2:</u> The PDD refers to the starting date of the projects as being July 2003 and describes this private initiative as being the second (next to another CDM project activity) being implemented in the state of Punjab. At the same time the audit team has reviewed a document which demonstrates that PEDDA, Punjab State and APL already agreed in August 2001 to implement this project. As the first evidence of considering CDM is dated back to March 2003 only, the audit team asks the project proponent to clarify how CDM has been seriously considered when proceeding with the project.</p>		<p>Moreover the client has extensively and in a traceable manner explained that fact that the agreement referred to by the audit team does not automatically lead to a project implementation as long as no definitive final decision on project financing has been made.</p>	

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Annex 2: Information Reference List

Final Report 2006-03-16	Validation of the “Lohgarh, Chakbhai and Sidhana Mini Hydroelectric Projects”, India Information Reference List	Page 2 of 2	 Industrie Service
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Reference No.	Document or Type of Information
15	Approved Baseline & Monitoring Methodology ASM I.D, UNFCCC 2005
16	UNFCCC: CDM. Tool for Demonstration and Assessment of Additionality approved by EB (EB 16 Annex 1)
17	Validation & Verification Manual, IETA / World Bank (PCF) http://www.vvmanual.info
18	Final Project Design Document, submitted September 2005
19	Monitoring, recoding and reporting of data and calibration of monitoring equipment, Aqua Power Limited, submitted September 2005
20	Determination of relevant grid boundaries in India, CDM Methodology Clarification Form, issued by the CDM Methodology Panel on October 24, 2005 (see link under: http://cdm.unfccc.int/methodologies/Clarifications)
21	Revised Final Project Design Document, submitted March 2006
22	Newsletter Akshaj Urja / Renewable Energy, MNES, March – June 2005, submitted November 2005
23	Loan sanction letters for the projects, dated July 2003- April 2004, submitted November 2005