VALIDATION REPORT DODSON-LINDBLOM HYDRO POWER PRIVATE LIMITED

VALIDATION OF THE 12 MW HYDROPOWER PLANT IN BHANDARDARA, MAHARASHTRA, INDIA

REPORT NO. BVQI/INDIA/13.49

REVISION NO. 02

BUREAU VERITAS QUALITY INTERNATIONAL

Report No: BVQI/INDIA/13.49 rev. 02

VALIDATION REPORT

Date of first issue: 27/04/2006	Project No.: BVQI/INDIA/13.49
Approved by: Ashok Mammen	Organisational unit: BVQI Holdings S. A.
Client: Dodson – Lindblom Hydro Power Private Limited (DLHPPL)	Client ref.: Mr. Prem Paunikar

Summary:
Bureau Veritas Quality International (BVQI) has made a validation of the CDM project 12 MW hydropower plant in Bhandardara in Maharashtra, India of M/s. Dodson – Lindblom Hydro Power Private Limited (DLHPPL) (hereafter called "the project") located in Bhandardara, Akola Taluka, Ahmednagar district, Maharashtra, India on the basis of 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 rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan (November 2005); ii) follow-up interviews with project stakeholders (November 2005); iii) resolution of outstanding issues and the issuance of the final validation report and opinion (December 2005 – August 2006). The overall validation, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (BMS, September 2003), which were audited by the UN CDM Accreditation Team in December 2004.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is BVQI's opinion that the project correctly applies the baseline and monitoring methodology AMS I.D version 9 dated 28/07/2006, Grid connected renewable electricity generation and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: BVQI/INDIA/13.49	Subject Group: GHG/CDM	
Report title: Dodson – Lindblom Hydro Power Private Limited (DLHPPL)		
Work carried out by: Sandeep Lele H. B. Muralidhar Sameer Pendse [Observer]		
Work verified by: Ashok Mammen		
Date of this revision: 07/08/2006	Rev. No.: 02	Number of pages: 46

Indexing terms

☒ No distribution without permission from the Client or responsible organisational unit

☐ Limited distribution

☐ Unrestricted distribution

Abbreviations change / add to the list as necessary

BMS	BVQI Management System
BVQI	Bureau Veritas Quality International
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CH_4	Methane
CL	Clarification Request
CO_2	Carbon Dioxide
CPP	Captive Power Plant
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
FDIS	Final Draft International Standard
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardization
MoV	Means of Verification
MP	Monitoring Plan
NGO	Non Government Organisation
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
DLHPPL	Dodson – Lindblom Hydro Power Private Limited
GOMID	Government of Maharashtra Irrigation Department
GOMWRD	Government of Maharashtra Water Resources Department
MSEB	Maharashtra Stare Electricity Board
MSETCL	Maharashtra State Transmission Company Limited

Table of Contents *Page*

1 INTRODUCTION

Dodson – Lindblom Hydro Power Private Limited (DLHPPL) (hereafter called "the client") has commissioned Bureau Veritas Quality International (BVQI) to validate its CDM project 12 MW hydropower plant in Bhandardara in Maharashtra, India (hereafter called "the project") at Bhadardara, Akola Taluka, Ahmednagar district, Maharashtra, India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all Client projects. The validation is an independent third party assessment of 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 Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

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. BVQI has, based on the recommendations in the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004), 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.

1.3 GHG Project Description

The project activity (BH-1) is constructed at the foot of a hill adjacent to the Bhandardara dam. BH-1 was originally built by the Government of Maharashtra Irrigation Department [GOMID] now known as Government of Maharashtra Water Resources Department [GOMWRD], with a single hydropower generating unit of 10 MW in 1984. In Maharashtra state, all state owned hydroelectric plants are constructed by Government of Maharashtra Water Resources Department [GOMWRD] and handed over to Maharashtra State Electricity Board [MSEB] for operation and maintenance. The generating unit at BH-1 was commissioned in 1986 and entered commercial operation in 1987. After operating for eight years, a mishap occurred which severely damaged the entire plant and the plant ceased to operate. The rehabilitation and operation of this plant was awarded on a lease, own, operate and transfer basis to Dodson – Lindblom International Inc (DLI), an Ohio, USA, based company. DLI is part of DLZ Corporation in the midwestern United States. An operating company by the name of Dodson – Lindblom Hydro Power Private Limited (DLHPPL) was formed to implement and operate the hydropower plants in India. The financial closure of the project was completed in March 2000. DLHPPL started the construction of BH-1 in April 2000 and commissioned the project activity in July 2001. According to the PDD, the work virtually involved construction of new power plant. PDD states that the accident had caused such damage that entire plant had to be reconstructed. The generated power from the project activity is connected to state electricity grid owned and operated by Maharashtra State Transmission Company Ltd [MSETCL].

1.4 Validation team

The validation team consists of the following personnel:

Mr.	Sandeep Lele	BVQI India	Team Leader, GHG Validator
Mr.	H. B. Muralidhar	BVQI India	GHG Validator
Mr.	Sameer Pendse	BVQI India	Trainee GHG Validator, Observer
Dr.	Ashok Mammen	BVQI India	Internal reviewer

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (BMS, September 2003) which were audited by the CDM Accreditation Team in December 2004.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004). 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 organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

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

The completed validation protocol is enclosed as Appendix A 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**), a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements 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 several 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 Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3**	**Summary of project owner response**	**Validation conclusion**
If the conclusions from the 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 Tables 2 or 3 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 Tables 2/3, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by Dodson – Lindblom Hydro Power Private Limited (DLHPPL) and additional background documents related to the project design and baseline, i.e. Indian Law, Kyoto Protocol, Guidelines for completing CDM-SSC-PDD and F-CDM-SSC-Subm , Approved small scale methodology AMS I.D, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

The following documents were used as references to the validation work, in addition to internal BVQI procedures: IETA/PCF – Validation and Verification Manual (v. 3.3, Mar 2004); ISO FDIS 14064-3 - Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions; ISO FDIS 14064-2 - Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.

To address BVQI corrective action and clarification requests Dodson – Lindblom Hydro Power Private Limited (DLHPPL) revised the PDD and resubmitted it on August 2006.

The validation findings presented in this report relate to the project as described in the PDD on August 2006.

2.2 Follow-up Interviews

On 10/11/2005 & 11/11/1005 BVQI performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Out of these days, site was visited on 10/11/2005 and Mumbai office was visited on 11/11/2005. Representatives of Dodson – Lindblom Hydro Power Private Limited (DLHPPL) were interviewed (see References). The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Dodson – Lindblom Hydro Power Private Limited (DLHPPL)	➢ Management views on sustainable development, technical issues of the project, baseline, considerations for CDM, baseline data, stakeholder consultation
Bunge India Limited, Consultant	➢ Methodology, baseline, monitoring plan, additionality of the project activity, start date of the project activity

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for BVQI positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

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 original project design documents and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where BVQI 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 Appendix A. The validation of the Project resulted in **7** Corrective Action Requests and **5** Clarification Requests.
3) The conclusions for validation subject are presented.

3.1 Project Design

The water released from the Bhandardara reservoir for irrigation purposes is conducted to a turbine in the power plant and jetted on to the turbine. This action rotates the turbine, which in turn causes the rotation of the alternator connected to the turbine, thereby producing electricity. One 12 MW Francis type turbine is installed in BH1. The generated electricity from the project activity after auxiliary consumption is exported to MSETCL grid.

The control of the release of water for irrigation needs is exercised from Bhandardara dam by the irrigation authority.

In the absence of the project activity, electricity generated by the power plant would have been procured from the grid that is dominated by fossil fuel based thermal power plants. This option would have resulted in higher GHG emissions than those emitted in the project activity.

BVQI recognises that Dodson – Lindblom Hydro Power Private Limited (DLHPPL) Project is helping India fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because it -

- provides job opportunities to the local people
- economic well being through investment in the project activity
- improves deficit in electricity generation in the state of Maharashtra

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Certified Emissions Reductions (CERs) under the CDM, based on an analysis, presented in the PDD, of investment, technological and hydrological and other barriers, and prevailing practice.

The project design is sound and the geographical (the project location) and temporal (30 years) boundaries of the project are clearly defined.

The project participant [DLHPPL] have confirmed in the PDD that this project activity is not a debundled component of any large scale project that is already registered or for which the request for registration is submitted. Project participant [DLHPPL] also confirmed that they have a plan to undertake a similar activity in the vicinity of the project activity and that the other project is not registered nor requested for registration.

3.2 Baseline

The Dodson – Lindblom Hydro Power Private Limited (DLHPPL) Project uses the approved baseline methodology AMS I.D (Grid connected electricity generation, version 9 dated 28/07/2006).

The project activity meets the applicability conditions of the methodology for the following reasons :

1. The project is a renewable energy generation unit based on hydropower
2. The project activity supplies electricity to and displaces electricity from the western regional grid which mainly comprises coal based power plants
3. The project activity does not involve nonrenewable electricity generation
4. The project activity does not involve biomass combined heat and power [cogeneration systems]
5. The installed capacity of power generation [12 MW] is less than the threshold 15 MW for small scale projects. Further the aggregate installed capacity or the total output of the new unit is lower than the 15 MW threshold.
6. Although the project activity involved rehabilitation of an old destructed plant, it essentially was a complete refurbishment of the entire power

generating equipment. It did not involve replacing old units for more efficient units.

The project activity does not affect the power generation by the other power plant BH – 2 since this is located 10 Km downstream of the project activity. All the water released from the dam, either through the project activity or bypassing it does eventually reach BH – 2.

This version of the methodology AMS I.D does not require publishing the methodology for 30 days period. Hence the EB decision to re-publish the PDD in case of change in the version of the methodology does not apply.

Initially, the validation team considered that in the absence of the project activity, the project participant [DLHPPL] would have installed another hydropower plant at some other location [being the core business of the participant, [DLHPPL]] and hence the baseline scenario would be a hydropower plant. However, on investigation of registered projects, the validation team realized that there are registered CDM projects, which are the core businesses of the respective project participants. The examples include small hydropower project # 098 by M/s. Dharmshala Hydropower Limited, wind mill project # 064 by M/s. Inner Mongolia North Long Yuan Wind Power Company Limited. We further note that the CDM modalities & procedures under clause 45-b mention that the baseline shall be established on a project specific basis. Hence another hydropower plant is not considered as a baseline scenario.

The two possible alternative baseline scenarios are the following:
(a) Proposed project activity without CDM benefits;
(b) Generation of equivalent power from grid connected thermal power plants

The baseline options considered do not include those options that:
- do not comply with legal and regulatory requirements or
- depend on key resources such as fuels, materials or technology that are not available at the project site

.
As per the project participant [DLHPPL], alternative ‘a’ above is not feasible since it faces prohibitive barriers as explained in the PDD. The project activity faced the following barriers :
Investment / Financial barriers -
(a) The delay in obtaining approvals increased the cost of the project activity upto 1.5 times. Without recourse to escalation, this had a direct impact on the projected bottom line.
(b) Notwithstanding the increase in cost, the tariff was reduced.
(c) The participant obtained part of loan at a steep rate of 16% from the local funding agency. Participant had to approach foreign agency for

the rest of the loan since finding local lender was difficult for such type of project.

(d) Over and above these, the participant [DLHPPL] were aware about the delay in payments from the local electricity boards.

Hydrological risks –

(e) The release of water from the dam is based on the irrigation demands of the downstream command area. This has an element of uncertainty in addition to the normal rainfall variations.

(f) The initial commitments by the authority with respect to availability of water for the project activity did not materialise during subsequent negotiations. This resulted in reduced loading of the power generation facility to the tune of 75%.

Prevailing practice –

(g) There were only two small scale projects in the state of Maharashtra before the project activity. The overall penetration of small hydropower was only 1.56%

In spite of the promotion of hydropower by government through a policy, the participant [DLHPPL] were unlikely to take up the project to begin with or to drop the project after initial hurdles. Therefore in the opinion of the validation team, the project activity is additional.

Alternative B is therefore considered as the baseline alternative. This is also in line with the methodology AMS I.D.

During the interviews, the participant [DLHPPL] provided evidence in the form of internal memos dated 1999 that the participant [DLHPPL] were considering the CDM benefits in making the decision on the project investment. These memos referenced articles on carbon markets and India's potential. The documented communication between DLHPPL and the irrigation department provide evidence that the construction of the project started in April 2000. The record of first daily joint meter reading dated 27/07/2001 provides evidence that the power generation started on this date. The validation team therefore concludes that the first real action in terms of construction started in April 2000.

3.3 Monitoring Plan

The Project uses the approved monitoring methodology AMS I.D (Grid connected renewable electricity generation, version 9 dated 28/07/2006). Refer discussions on the applicability of the methodology at section 3.2 above.

The monitoring plan involves metering of electricity generated and net exports to the grid. It also involves monitoring of number of trippings of the power plant on account of the grid failure since this affects the life of the power plant. The project emissions on account of the power imported during the idle hours are also monitored.

3.4 Calculation of GHG Emissions

As per AMS I.D, the baseline emission sources considered are fossil fuel fired power plants connected to the western regional electricity grid. Earlier for calculation of baseline emissions, the project participant [DLHPPL] had considered the state grid as the relevant grid. However, this was revised to regional grid based on validation team's clarification request and in line with the latest recommendations from the UNFCCC in this regard.

As required under AMS I.D, the baseline emissions are calculated as per clause 9.a using a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology ACM0002. The build margin was calculated using the most recent data available viz. upto the year 2004 - 05. The data indicated that 20% of the current generation was higher than the generation by the most recent 5 plants in the western regional grid. The approximate operating margin was calculated using the 3 year data vintages [viz. 2002-03, 2003-04 & 2004-05], the most recent publicly available statistics available at the time of the PDD submission. The detailed algorithms were submitted to BVQI and have been verified by the validation team to be correct.

Since the project activity is renewable energy source, the project emissions (CO_2) are considered to be zero. However, it was noticed during the site visit that the project activity imports electricity when the power plant is not operating. The participant [DLHPPL] have agreed that the imports whenever exceed 1% of the exports, will be considered as material project emissions and will be accounted for in the calculation of the emission reductions.

Although no documentary evidence was provided, the project participant [DLHPPL] confirmed that the old equipment was disposed as scrap since it was badly damaged and beyond functional use. Hence it was not possible that leakage could occur on account of the old equipment. There is no equipment transfer involved in the project activity. Further, the

validation team noted that the turbine configuration of vertical design also will limit the application and will not be suitable for normal modes of fuel based power generation. The validation team therefore agrees that the leakage is not applicable.

The estimated annual average of approximately 29,802 tCO2e over the 7 years crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project activity.

3.5 Sustainable Development Impacts

No significant environmental impacts have been identified from the project activity. According to the PDD and as verified during the site visit, there is no air and water pollution from the project activity. The project activity was constructed at the foot of the existing dam as a rehabilitation project. The project activity did not increase the size of the reservoir. Hence there was no land inundation and corresponding impacts on account of the project activity.

The project participant [DLHPPL] have also analyzed the social impacts of the project activity. The analysis does not identify any significantly adverse social impacts.

According to the PDD, this CDM initiative would contribute towards:

- job opportunities to the local people
- economic well being through investment in the project activity
- improving deficit in electricity generation in the state of Maharashtra

In view of above positive impacts and contribution towards the country's goal of sustainable development and improvement in quality of life of local population, the development and implementation of systems for the CDM project '12 MW hydropower plant in Bhandardara in Maharashtra, India' were recommended by the Dodson – Lindblom Hydro Power Private Limited (DLHPPL) management. The clearance of this CDM initiative by Dodson – Lindblom Hydro Power Private Limited (DLHPPL) would facilitate the process of sustainable energy production.

3.6 Comments by Local Stakeholders

Local stakeholder consultation was effected through provision of document summarizing the environmental social review [ESR] of the project activity. The local stakeholders were informed about the availability of the document through public notices in the local newspaper. The document was also made available for public viewing at the project site during the period 21/06/2005 to 20/07/2005. No comments were received during the stakeholder consultation process.

Although this mechanism of local stakeholder consultation may not be considered a proactive and a best possible way, the validation team did not have strong reservations about it. This was so mainly since the project activity did not involve construction or increase in capacity of dam. Correspondingly, there were no significant aspects on account of the project activity itself. The local stakeholders were less likely to be adversely affected by the project activity which is limited to power generation.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the validator shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organisations and make them publicly available.

BVQI published the project documents on the UNFCCC CDM website (http://cdm.unfccc.int) on 08/11/2005 and invited comments within 07/12/2005 by Parties, stakeholders and non-governmental organizations.

No comments were received during this period.

5 VALIDATION OPINION

BVQI has performed a validation of the Dodson – Lindblom Hydro Power Private Limited (DLHPPL) Project in India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan (November 2005); ii) follow-up interviews with project stakeholders (November 2005); iii) the resolution of outstanding issues and the issuance of the final validation report and opinion (December 2005 – August 2006).

Project participant/s used the barrier analysis for demonstration of the addionality for small scale CDM projects in line with Attachment A to the

Appendix B of the simplified modalities and procedures for small scale project activities. In line with this, the PDD under section B.3 provides analysis of investment, financial, hydrological and other risks and prevailing practice to determine that the project activity itself is not the baseline scenario. In the opinion of the validation team, the following barriers discussed in the PDD provide a sound case of the additionality of the project activity :

Investment / Financial barriers -

(a) The delay in obtaining approvals increased the cost of the project activity upto 1.5 times. Without recourse to escalation, this had a direct impact on the projected bottom line.
(b) Notwithstanding the increase in cost, the tariff was reduced.
(c) The participant obtained part of loan at a steep rate of 16% from the local funding agency. They had to approach foreign agency for the rest of the loan since finding local lender was difficult for such type of project.
(d) Over and above these, the participant [DLHPPL] were aware about the delay in payments from the local electricity boards.

Hydrological risks –

(e) The release of water from the dam is based on the irrigation demands of the downstream command area. This has an element of uncertainty in addition to the normal rainfall variations.
(f) The initial commitments by the authority with respect to availability of water for the project activity were not honoured during subsequent negotiations. This resulted in reduced loading of the power generation facility to the tune of 75%.

Prevailing practice –

(g) The publicly available data indicates that there were only two small scale projects in the state of Maharashtra before the project activity. The overall penetration of small hydropower was only 1.56%

By generating electricity from hydropower, the project is likely to result in reductions of GHG emissions by displacing electricity that would have otherwise been procured from the grid. An analysis of the barriers and risks 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 and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (August 2006) and the subsequent follow-up interviews have provided BVQI with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 REFERENCES

Category 1 Documents:

Documents provided by Dodson – Lindblom Hydro Power Private Limited (DLHPPL) that relate directly to the GHG components of the project.

/1/ The project design document, version 3, dated 04/08/2006

/2/ Approved methodology AMS I.D, version 09 dated 28/07/2006

/3/ Attachment A to Appendix B of the simplified modalities and procedures for small scale CDM projects.

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

/4/ Letter to Irrigation department of Government of Maharashtra reference SV/MHB-02/209 dated 06/04/2000 by DLHPPL requesting transfer of assets and the land to enable start of the work

/5/ Letter by Irrigation department of Government of Maharashtra reference SE/HPDC/D.I/BDR.I/PVT/96 dated 19/04/2000 to DLHPPL mentioning that the assets and the land was transferred to DLHPPL on 10/04/2000 in response to the above mentioned letter.

/6/ Inter-office Memo dated 19/11/1999 for considering carbon credits as mechanism likely to be in place in future & Bhandardara I is likely to be eligible for the same.

/7/ Inter-office Memo dated 17/11/1999 referencing various articles on potential carbon market and potential in India.

/8/ Power purchase agreement dated 21/01/1999 among Maharashtra State Electricity Board [MSEB], Irrigation department – Government of Maharashtra and DLHPPL

/9/ Record dated 27/07/2001 of the first joint meter reading.

/10/ Letter from DLHPPL to IDBI dated SV/G-15/2778 dated 3/June/1998 in reference to proposal ref. SV/G-15/2775 dated June 01, 1998 for additional documents for loan proposal.

/11/ Letter from IREDA for sanctioning the loan (Ref. No. 221/1467/98/M&M/IREDA dated 18/06/99 – Interest mentioned is 16%

/12/ E – Mail dated 11/11/2005 clarifying management stand on carbon credits

/13/ Eighth Annual Report (Audited) for F.Y. 04-05 – Schedule C – Schedule of fixed assets. Dated 31/08 /05

/14/ Original copy of Public notice for inviting comments from Public.

/15/ Environmental Social Review [ESR] common for all projects of DLHPPL

Persons interviewed:

List persons interviewed during the validation, or persons that contributed with other information that are not included in the documents listed above.

/1/	Mr. Prem Paunikar	Director, DLHPPL
/2/	Mr. Shahikant Desai	Dy. General Manager, Operations, DLHPPL
/3/	Mr. R. V. Jadhav	Plant Manager, DLHPPL
/4/	Mr. B. T. Gurav	Shift Engineer, DLHPPL
/5/	Mr. A. R. Patel	Shift Engineer, DLHPPL
/6/	Mr. S. K. Ghodekar	Shift Engineer, DLHPPL
/7/	Mr. R. G. Vijapurkar	Shift Engineer, DLHPPL
/8/	Mr. Ilango Bharathi	Bunge India Limited, Consultant

- o0o -

APPENDIX A : COMPANY CDM PROJECT 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	Yes	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	Yes	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.	Yes	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	Yes	Table 2, Section 1.3.3
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	Yes	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic	Kyoto Protocol Art. 12.5.c, Simplified Modalities and	Yes	Table 2, Section B.3

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Procedures for Small Scale CDM Project Activities §26		
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)	Yes	Declaration by DLHPPL at Annex 2 of the PDD and by VROM, the DNA of Netherlands in their letter of approval of the participation.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	Yes	Government of India has designated the National Clean Development Mechanism (CDM) Authority under Ministry of Environment & Forest to act as DNA. Source http://cdm.unfccc.int/DNA
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	Yes	Date of accession – 26/08/2002 Source http://unfccc.int/parties_and_observers/parti

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
			es/items/2109.php
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	Yes	Table 2, Section A.1
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	Yes	Reference 1 to this checklist
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	Yes	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	Yes	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	Yes	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	Yes	Source http://cdm.unfccc.int/Projects/Validation

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 assessed 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- 3	DR	Yes. The project involves electricity generation from a renewable source of water from a dam. The installed capacity is 12 MW, which is less than the threshold of 15 MW for small-scale project.	OK	OK
A.1.2. The small-scale project activity is not a debundled component of a larger project activity?	1- 3	DR	This is justified in section A.4.5 of the PDD.	OK	OK
A.1.3. Does proposed project activity conform to one of the project categories defined for small-scale CDM project activities?	1- 3	DR	The project activity is a small hydropower project. It conforms to type I.D project activity.	OK	OK
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- 3	DR I	This is explained in section B.4 of the PDD.	OK	OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	1- 3	DR I	These include water diversion structure, power canal, penstock, powerhouse, power evacuation system to the grid and tailrace canal. For	OK	OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
boundaries clearly defined?			system to the grid and tailrace canal. For calculation of baseline emission factor, the electricity grid is also included in the project boundary. This is defined in section B.4 of the PDD.		
A.2.3. Does the project design engineering reflect current good practices?	1- 3	DR I	The project design is based on an established technology. It involves Francis turbine, which is widely used turbine type for power generation. It can therefore be considered to reflect current good practice.	OK	OK
A.2.4. Will the project result in technology transfer to the host country?	1- 3	DR	No. The equipment was purchased from local suppliers.	OK	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	1- 3	DR I	The project does not need extensive training. The persons in charge of the operations are qualified and competent. The equipment supplier trained them.	OK	OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1- 3	DR I	This is explained in section A.2 of the PDD. These include pollution free power generation and job opportunities, improvement of basic amenities, help towards mitigation of power deficit in the state of Maharashtra.	OK	OK
A.3.2. Will the project create any adverse	1- 3	I	The project activity does not involve construction or	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
environmental or social effects?			increase in capacity of a dam. There are no significantly adverse environmental or social impacts.		
A.3.3. Is the project in line with sustainable development policies of the host country?	1- 3	I	The host country approval is not obtained.	CAR 1	OK
A.3.4. Is the project in line with relevant legislation and plans in the host country?	1- 3	DR	The India legislation allows hydropower plants in line with the hydropower policy of the Government of Maharashtra.	OK	OK
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1- 3	DR I	Yes. The baseline is calculated using the average of the 'approximate operating margin' and the 'build margin' in line with clause 9.a of the approved methodology AMS I.D	OK	OK
B.1.2. Is the baseline methodology applicable to the project being considered?	1- 3	DR	Yes, the baseline methodology type I.D is applicable to the project. The project activity fully meets the applicability conditions of the methodology. This is justified in section B.2 of the PDD.	OK	OK

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- 3	DR I	This is attempted through barrier analysis at section B.3 of the PDD. The following discussions provide sound arguments towards the additionality of the project activity : 1. As shown in the PDD, there are only two private SHPs operating in the state of Maharashtra in addition to the project activity. This shows that the prevailing practice in private sector is not to invest in SHPs. 2. The water release to the project activity is governed by the irrigation requirements of the downstream area. The authorities changed the norms earlier agreed for the quantity of water released in the post monsoon season. Further, increase in irrigation demand beyond the maximum capacity of the project activity in the post monsoon season reduced the annual power generation capacity of the project activity. 3. The participants had to obtain half the debt at higher rates of 16% from local lenders. With lack of availability of further local debts, the rest half had to be obtained from foreign lenders.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			4. The project cost shot up 1.5 times the estimates on account of two year delay in obtaining various permits from the authorities. 5. As a result of increase in capital cost, the tariff became stiff for the participants posing a significant investment barrier. 6. Delayed payments by the state electricity board due to cash crunch situations further aggravates the issues. The core business of the project participants [DLHPPL] is hydropower plants. In the absence of the project activity, the company would have established another hydropower plant. The additionality is not discussed from this perspective.	CAR 2	OK
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1- 3	DR	For the additionality, the prevailing practice for India as a country is discussed. However, prevailing practice for Maharashtra state is not analysed. The fuel consumption is calculated though readily available on websites of authorities. The emission factor for Gas taken same as that for Naphtha though it is different in IPCC.	CAR 3	OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	1- 3	DR I	Relevant national / sectoral policies are not evident in the discussions.	CL 1	OK
B.2.4. Is the baseline selection compatible with the available data?	1- 3	DR	Refer section B.2.1 above.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1- 3	DR	Refer section B.2.1 of this checklist.	-	-
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- 3	DR	Yes. The project started on 10/04/2000. The project operational lifetime is expected to be 30 years.	OK	OK
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	1- 3	DR	Yes. Renewable crediting period of 7 years is chosen, starting from 27/07/2001.	OK	OK
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- 3	DR	Yes. AMS I.D is selected and is relevant for the project category.	OK	OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	1- 3	DR	The project activity fully meets the applicability conditions of the project activity. This is justified in section B.2 of the PDD.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.1.3. Is the application of the monitoring methodology transparent?	1- 3	DR	The project imports electricity from the MSEB grid through a feeder different from the feeder used for exporting the generated power. The imported quantity is not accounted in the monitoring plan. There is a provision to use invoices instead of sale receipts. The use of the invoices is not defined in the monitoring plan as a crosscheck measure. The monitoring plan requires hourly monitoring of generation. In practice this is done two hourly.	CAR 4	OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1- 3	DR	Refer section D.1.3 above.	-	-
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- 3	DR	Project emissions are considered as nil. The project activity involves occasional power generation using Diesel generator sets. The breakers in the switchyard are SF_6 gas based. The likely emissions from these sources are not accounted by the monitoring plan.	CL 2	OK
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1- 3	DR	Refer D.2.1 above.	-	-
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	Refer D.2.1 above.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1- 3	DR	Refer D.2.1 above.	-	-
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- 3	DR	The old equipment was reportedly disposed of as scrap. There is no documentary evidence of the current status of this scraped equipment. As per the project participants, the old equipment was not in workable condition. Moreover, the vertical orientation of the generator and the design of the turbine are not suitable for use in any fossil fuel based generation plant. The equipment used in the project activity is new and not transferred from any other activity. The leakage therefore could be considered as zero.	OK	OK
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1- 3	DR	Refer D.3.1 above.	-	-
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	Refer D.3.1 above.	-	-
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1- 3	DR	Refer D.3.1 above.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1- 3	DR	Refer section B.2.1 above. Further, the state grid and not the regional grid is selected for calculations of baseline emissions.	- CL 3	- OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1- 3	DR	Refer D.4.1 above	-	-
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	The relevant indicators are planned to be monitored once for the entire project activity over the first crediting period.	OK	OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1- 3	DR	The monitoring plan at section D.3 of the PDD requires archiving of data only for two years and not for two years after the crediting period.	CAR 5	OK
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- 3	DR I	Yes. Refer section D.5 of the PDD.	OK	OK
D.5.2. Is the authority and responsibility for monitoring measurement and reporting clearly described?	1- 3	DR I	Yes. This is defined in section D.5 of the PDD. The project personnel are experienced and competent.	OK	OK
D.5.3. Are procedures identified for training of	1- 3	DR	Procedures are available for training of personnel.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
monitoring personnel?		I	Records of training were available.		
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1- 3	DR I	Refer D.5.6. The situation could lead to severe emergency situation.	-	-
D.5.5. Are procedures identified for calibration of monitoring equipment?	1- 3	DR I	Yes. Records of calibration were maintained. At section D.4 of the PDD, it is stated that in case the main meter calibration error is outside the permissible limits and check meter is within limits, the check meter data will be sued only for the month. This implies that for the period since last calibration, incorrect data will be used from the faulty main meter for measurement of emissions reductions. The traceability to national / international standards is not defined for the calibration of generation meters.	CAR 6	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1- 3	DR I	The maintenance plan indicates monitoring of tripping due to grid failure. Specific maintenance steps are identified if the tripping happens for a predefined number of times. Although records of such failures are maintained, the information is not verified to ensure that the number of failures is less than prescribed.	CAR 7	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1- 3	DR I	Yes. The procedures are identified for monitoring, measurements and reporting. The project personnel are fairly familiar with the procedures.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1- 3	DR I	Yes. The procedures are implemented for day-to-day records management. Refer section D.4.4 of this checklist.	-	-
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1- 3	DR I	Yes. This is defined in section D.4 of the PDD. Refer section D.4.4 of this checklist.	-	-
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1- 3	DR I	Though there are no specific internal audits conducted, the Director of the project company monitors the project activity from the head office on a regular basis.	OK	OK
D.5.11. Are procedures identified for project performance reviews?	1- 3	DR I	The Director also conducts such reviews.	OK	OK
D.5.12. Are procedures identified for corrective actions?	1- 3	DR I	Procedures are established for corrective and preventive actions.	OK	OK
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and	1- 3	DR	Yes. This is explained in section D.2 of the PDD.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
indirect project emissions captured in the project design?					
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1- 3	DR	CO_2 is evaluated. Refer D.2.1 of this checklist	-	-
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1- 3	DR I	Project emissions are considered as nil. Refer D.2.1 of this checklist	-	-
E.1.4. Are the calculations documented in a complete and transparent manner?	1- 3	DR	Refer E.1.3 above.	-	-
E.1.5. Have conservative assumptions been used?	1- 3	DR	Refer E.1.3 above.	-	-
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	1- 3	DR	Refer E.1.3 above.	-	-
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.	1- 3				
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1- 3	DR I	Leakage is to be considered if the equipment is transferred. Refer D.3.1 of this checklist.	-	-
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	1- 3	I	Refer E.2.1 above.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1- 3	I	Refer E.2.1 above.	-	-
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1- 3	DR	Refer E.2.1 above.	-	-
E.2.5. Have conservative assumptions been used (if applicable)?	1- 3	DR	Refer E.2.1 above.	-	-
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1- 3	DR	Refer E.2.1 above.	-	-
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- 3	DR	The baseline boundary is defined in section B.4 of the PDD. Refer section B.2.1 of this checklist	-	-
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1- 3	DR	Yes.	OK	OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1- 3	DR	Yes, CO_2.	OK	OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1- 3	DR	State grid and not the regional grid is considered for baseline emission calculations. Refer D.4.1 above.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3.5. Are the calculations documented in a complete and transparent manner?	1- 3	DR I	Errors are noted in the formula for emission reduction and legend under section E.1.2.4 of the PDD. E.g. EF_B. Refer section B.2.1 of this checklist.	CL 4	OK
E.3.6. Have conservative assumptions been used?	1- 3	DR	As per clause 9.a of AMS I.D, an average of 'approximate operating margin' and 'build margin' is used for arriving at the baseline emission factor.	OK	OK
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1- 3	DR	Refer E.3.4 above.	-	-
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- 3	DR	Refer section B.2.1 of this checklist.	-	-
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1- 3	DR	The project activity estimated cost was about Rs. 365 M. EIA is not required for such projects. Documentation available with the project participants also mentions that pollution clearance is not required for this project.	OK	OK
F.1.2. Does the project comply with environmental legislation in the host country?	1- 3	I	Refer F.1.1	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F.1.3. Will the project create any adverse environmental effects?	1- 3	DR	Not applicable. This is explained in section F.1 of the PDD.	OK	OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1- 3	DR I	Yes, under section F.1 of the PDD and in the Environmental social review [ESR].	OK	OK
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	1- 3	DR I	No specific stakeholders were consulted. The ESR report was made available to the local stakeholders. The notice to this effect was published in the local newspaper in local Marathi language. Since the project activity does not lead to any significant aspects, validation team accepted this mechanism.	OK	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1- 3	DR I	Actual notice was given in a local Marathi language newspaper. The PDD mentions that the notice was given in Hindi language.	CL 5	OK
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- 3	DR I	Not applicable.	OK	OK
G.1.4. Is a summary of the comments received provided?	1- 3	DR I	No comments were received. Hence no summary provided.	OK	OK
G.1.5. Has due account been taken of any comments received?	1- 3	DR I	Refer G.1.4 above.	-	-

* 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 2	Summary of project owner response	Validation team conclusion
CAR 1 The host country approval is not obtained.	1.3.3	The host country approval is obtained on 29/03/2006.	The host country approval is verified and found satisfactory. The corrective action response is closed.
CAR 2 The core business of the project participants [DLHPPL] is hydropower plants. In the absence of the project activity, the company would have established another hydropower plant. The additionality is not discussed from this perspective.	2.2.1	The project activity is the first and only hydropower project and the project activity is undertaken as CDM project activity. Please find attached the proof that the project is undertaken considering CDM incentives and revenues.	The project participants, during the discussions on the subject matter, informed that there are a few already registered project activities for which the project type is core business of the project developer. E.g. SHP project nos. 098 by M/s. Dharmshala Hydro Power Limited, etc. We verified this information found it correct. UNFCCC CDM EB have already registered projects by the participants having the core business as the project activity [e.g. wind mill project # 064 in China by Inner Mongolia North Long Yuan Wind Power Company]. Considering the already registered project referenced above, it can be

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
			concluded that the participants having the core business same as the CDM project activity does not necessarily negate the additionality of the project activity. We further note that as per clause 45 b of the modalities & procedures of CDM, the baseline is to be established on a project specific basis. The corrective action request is closed.
CAR 3 For the additionality, the prevailing practice for India as a country is discussed. However, prevailing practice for Maharashtra state is not analysed. The fuel consumption is calculated though readily available on websites of authorities. The emission factor for Gas is taken same as that for Naphtha though it is different in IPCC.	2.2.2	The total installed capacity of private small hydropower plants (SHP) in Maharashtra state is 18 MW including the DLHPPL project activity of 12 MW. The total installed capacity and allocated capacity from central sector for Maharashtra state is 15,375 MW. The share of private small hydropower plants in Maharashtra is 0.1 % only. Hence, investment in small hydropower plant in Maharashtra is not common prevailing practice. The total installed capacity of hydro	The project participants have provided the details of prevailing practice in Maharashtra from publicly available sources with respect to the project activity. The information indicates that the share of hydropower installations in private sector in Maharashtra is negligibly small. The consumption data is available for coal. The data of gas and naphtha consumption is largely not available. This is verified from the publicly available sources.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		based power plants is 2902 MW (www.mahatransco.com) and thermal based power plants is 11591 MW in Maharashtra. The total installed capacity is 15375 MW, balance being nuclear, waste heat recovery plant and non conventional energy. Hence, the share of hydro generation is 18.8 % only where as thermal is 75.38%. This shows that the state is predominantly thermal and hence hydro generation is not a Business as Usual scenario in Maharashtra. Regarding national scenario, same has been explained in PDD under section B.3 under prevailing practice. The same has been included in revised PDD in section B.3. under Prevailing practice in Maharashtra . The same has been included in revised PDD in section B.3. under Prevailing practice in Maharashtra . Since the fuel consumption for all fuel sources are not available directly from publicly available data, the fuel	The value for natural gas is 20.2. The response is considered sufficient. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		consumption is calculated through generation, efficiency and calorific value which are available from publicly available data and the reference for the sources are also given. The exact break up of power produced from naphtha and gas based power plants are not available as these units consume both the fuels. Since the emission factor for Gas is 20.2 t C/ TJ and emission factor for Naphtha is 20 t C / TJ, lower conservative value of 20 t C/TJ has been considered for calculation of emission factor. The emission factor 15.3 is for Dry Natural gas and for Natural gas used in power plants in India value of 20.2 is being used.	
CAR 4 The project imports electricity from the MSEB grid through a feeder different from the feeder used for exporting the generated power. The imported quantity is not accounted in the monitoring plan. There is a provision to use invoices instead of sale receipts. The use of the invoices is not	4.1.3	When the plant is under operation, power required for operation and for lighting is consumed from the generated power and only the net energy is exported to the grid, which is measured and considered for calculation of emission reductions.	The monitoring data provided by the project participants indicates that the imports by the project activity, which happens only when the power plant is not generating, are negligible. Further, the participants have confirmed that if the imports exceed 1%, they will consider these as project emissions

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
defined in the monitoring plan as a crosscheck measure. The monitoring plan requires hourly monitoring of generation. In practice this is done two hourly.		When the plant does not produce electricity, the project activity imports electricity only for lighting. Since this electricity imported is negligible (ranging from 0.1 – 0.2%) and hence not considered. When the imports exceed 1 %, the emissions due to grid electricity imports, same will be considered as project emissions. The same has been mentioned in section D.2 in revised PDD. Invoices shall also be considered for cross checking. The same is reflected in revised PDD – Version 03 under section D.3.2 The generation shall be monitored hourly.	consider these as project emissions. The revised PDD now provides for cross checking of the data by invoices. The response from the project participants is considered sufficient. The corrective action request is closed. The hourly monitoring is for the verifier to check.
CAR 5 The monitoring plan at section D.3 of the PDD requires archiving of data only for two years and not for two years after the crediting period.	4.4.4	Data shall be archived for two years after crediting period and the same has been incorporated in the revised PDD in D.3.	The changes in the PDD are found to be appropriate. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR 6 At section D.4 of the PDD, it is stated that in case the main meter calibration error is outside the permissible limits and check meter is within limits, the check meter data will be used only for the month. This implies that for the period since last calibration, incorrect data will be used from the faulty main meter for measurement of emissions reductions. The traceability to national / international standards is not defined for the calibration of generation meters.	4.5.5	As soon as main meter is found to be in error, it shall be rectified. During this period of non availability of main meter, check meter will be used. Since check meter is within permissible limits, data will not be incorrect. Every time readings of main meter and check meter will be recorded. For billing purposes only main meter will be considered. Only when main meter is in error, check meter readings will be used and for previous reading, check meter previous reading will only be used. The calibration of meters is done by MSETCL as per IS standards.	The revised PDD now reflects that the data will be used from the check meter in case the main meter calibration error is outside the limits. When this method is used, the check meter data is likely to be used for the month in which the error is detected. Under extreme situations, it may happen that the meter error was developed in the month before and was detected in the current month. However, for such cases, the uncertainty in the readings will be limited for one month only. Moreover, it is only to the extent of the error in the main meter. Hence this provision is considered to be satisfactory. The calibration of the meters by authority MSETCL is also satisfactory. The corrective action request is closed.
CAR 7 The maintenance plan indicates monitoring of tripping due to grid failure. Specific maintenance steps are identified if the tripping happens for a predefined number of times.	4.5.6	Number of trippings due to grid failure are recorded and now verified with the allowable predefined number for the equipment. It is well within the limit.	The monitoring of trippings is now included under section D.3 of the PDD. The response is considered sufficient. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Although records of such failures are maintained, the information is not verified to ensure that the number of failures is less than prescribed.		Monitoring plan is introduced to verify and record number of failures against allowable.	
CL 1 Relevant national / sectoral policies are not evident in the discussions.	2.2.3	The national /sectoral policies are discussed in Barrier analysis.	The national, state and sectoral policies are summarised appropriately in the PDD under section B.3. The clarification request is closed.
CL 2 Project emissions are considered as nil. The project activity involves occasional power generation using Diesel generator sets. The breakers in the switch yard are SF_6 gas based. The likely emissions from these sources are not accounted by the monitoring plan.	4.2.1	The diesel generator sets are used as a standby power only when the plant is not under operation and when MSETCL power is also not available and therefore the usage of the DG set is very less. The DG power 0.15 MWh for the year 2002, 0.09 MWh for the year 2003, 0.12 MWh for the year 2004 and no DG power was consumed for the year 2005. Hence, the emissions from running of DG set are negligible. The exhausts from DG sets are vented off to atmosphere through stacks. The breakers at the thermal power plant also would have similar breakers	The data provided by the project participants on the power generation in last 3 years from DG sets indicates that the emissions from the use of DG set is negligible. It is also correct that SF6 emission would occur in the baseline scenario. The SF6 emissions under baseline and project activity could be considered to be equivalent. Hence both the exclusions are accepted.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		and as the emissions from SF6 gas based breakers are negligible, it has not been considered.	The clarification request is closed.
CL 3 Further, the state grid and not the regional grid is selected for calculations of baseline emissions.	4.4.1	Regional grid is now considered for estimation of baseline emission factor as per recent guidelines of UNFCCC. The same has been forwarded to BVQI	The PDD is revised based on consideration of western regional grid. This is in line with the version 8 of the AMS I.D. The clarification request is closed.
CL 4 Errors are noted in the formula for emission reduction and legend under section E.1.2.4 of the PDD. E.g. EF_B.	5.3.5	Typographical errors are now corrected in the revised PDD version 03	The error is corrected properly in the revised PDD. The clarification request is closed.
CL 5 Actual notice was given in Marathi language newspaper. The PDD mentions that the notice was given in Hindi language.	7.1.2	The error is now corrected in revised PDD.	The error is corrected properly. The response is considered sufficient. The clarification request is closed.

1. Guidelines for completing the simplified project design document, version 01 dated 8th July 2005
2. Appendix B of the simplified modalities and procedures for small scale CDM project activities.
3. Indicative simplified baseline and montiroing methodologies – ASM I.D, version 09 dated 28/07/2006

- o0o -