
VALIDATION REPORT

M/s Astha Projects (India) Limited

**5 MW UPPER AWA SMALL
HYDROPOWER PROJECT IN
HIMACHAL PRADESH, INDIA**

Date of issue:	Project No.:
30/11/2006	CDM.Val0555
Project title	Organisational unit:
5 MW Upper Awa Hydropower Project in Himachal Pradesh, India	SGS Climate Change Programme
Revision number	Client:
6.0; 12/09/2007	M/s Astha Projects (India) Limited

Summary

SGS India Pvt. Ltd., an affiliate of SGS United Kingdom Ltd. Has made a validation of the CDM project activity “5 MW Upper Awa Hydropower Project in Himachal Pradesh, India” by Astha Projects (India) Limited at Kalani village of Kangra district in the state of Himachal Pradesh 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 project falls under small scale category and scope 1. Energy Industries (Renewable/ Non-renewable sources).

The scope of validation is the independent and objective review of the project design document, baseline study and monitoring plan and other relevant document of the project. The information in this document is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

The overall validation process, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (UK.PP.12 issue 2 dated 01/07/2005).

The first output of the validation process is a list of Corrective Actions Requests and New Information Requests (CAR and NIR), presented in Annex 3 of this document. There are total 12 CAR and 5 NIR were raised on present project activity. Taking into account this output, the project proponent revised its project design document.

In summary, it is SGS's opinion that the proposed CDM project activity correctly applies the baseline and monitoring methodology as mentioned in approved methodology adopted for the proposed project activity and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Subject:		
CDM validation		Indexing terms
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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reductions
CFE	Consent for Establishment
CFO	Consent for Operation
CO ₂	Carbon Dioxide
COP/MOP	Conference of parties serving as the meeting of parties to Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environment Impact Assessment
EPPCB	Himachal Pradesh State Environment Protection & Pollution Control Board
ERCHP	Electricity Regulatory Commission of Himachal Pradesh
GHG	Green House Gas(es)
GWh	Giga watt hour
HIMURJA	Himachal Pradesh Government Energy Development Agency
HP	Himachal Pradesh
HPSEB	Himachal Pradesh State Electricity Board
I	Interview
IPCC	Intergovernmental Panel on Climate Change
ISHC	International Stakeholder Consultation
kWh	Kilo watt hour
MNES	Ministry of Non Conventional Energy Sources
MoEF	Ministry of Environment and Forest
MoV	Means of Verification
MP	Monitoring Plan
MW	Mega watt
MT	Metric Tonne
NIR	New Information Request
NGO	Non Government Organisation
NOC	No Objection Certificate
PDD	Project Design Document
PPA	Power Purchase Agreement
SHP	Small Hydro Power
UNFCCC	United Nations Framework Convention for Climate Change

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Annex 1: Local Assessment

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Annex 3: Overview of Findings

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1 Introduction

1.1 Objective

M/s Astha Project (India) Limited has commissioned SGS to perform the validation of the project: “5 MW Upper Awa Hydropower Project in Himachal Pradesh, India” with regard to the relevant requirements for CDM project activities. 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 seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

1.2 Scope

The scope of the validation 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. SGS has 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 proposed CDM project activity is to generate electricity using hydro potential available in Awa Khad, a tributary of river Binwa in Beas basin in Kangra District of Himachal Pradesh. The generated electricity will be exported to Himachal Pradesh State Electricity Board (HPSEB), a state owned power utility looking after electricity generation, transmission and distribution. The project erection and commissioning contract was signed with the contractor on 15th December 2005. As per the terms of this contract document the project activity erection work would start from 15th January 2006 and the work will be completed upto 31st December 2007. The project will start operation and subsequently emission reductions from January 2008.

Baseline Scenario:

The baseline scenario is the production of an equivalent amount of electricity by power stations in the Northern Grid which will have more emissions when compared with the project activity.

With Project Scenario:

The power exported from the project activity will be provided to the Northern regional grid of India, leading to displacement of carbon-intensive electricity by electricity from a renewable energy source and thus contributes to conservation of coal, a non-renewable natural resource and also reduced GHG emissions.

Leakage:

As per the methodology AMS I-D version 10 dated 23rd December 2006; applicable for the project activity, leakage is to be considered if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. However this is not the case for present project activity and hence no leakage is considered.

Environmental & Social Impacts:

According to project developer, there is no long term negative environmental and social impact expected due to the project activity. The various environmental and social impacts like noise, air pollution, population displacement etc. related to the project activity are short term impacts and will be prominent during project construction phase only.

1.4 The names and roles of the validation team members

Name	Supplier	Role
Mr. Shivananda Shetty	SGS India	Team Leader / Lead Auditor
Mr. Sanjeev Kumar	SGS India	Assessor
Mr. Vikrant Badve	SGS India	Local Assessor (Trainee)

Statement of Competence of team members are attached at Annex IV.

2 Methodology

2.1 Review of CDM-PDD and additional documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline. Additional information can be required to complete the validation, which may be obtained from public sources or through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. The results of this local assessment are summarized in Annex 1 to this report.

2.2 Use of the validation protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>The various requirements are linked to checklist questions the project should meet.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.</i>

The completed validation protocol for this project is attached as Annex 2 to this report

2.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- I. mistakes have been made with a direct influence on project results;
- II. validation protocol requirements have not been met; or

III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

2.4 Internal quality control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3 Determination Findings

3.1 Participation requirements

The host Party for this project is India. India has ratified the Kyoto protocol on 26th Aug 2002. Initially Host country approval from Indian DNA was not provided by the project proponent and hence CAR (1) was raised. In response to CAR (1) project proponent submitted a copy of Letter of Approval from Indian DNA (reference number 4/12/2006-CCC) dated 14th June 2006. This was verified with the original copy during site visit. Thus CAR (1) was closed. A copy of same letter is submitted with this report.

No Annex I Party has been identified in the PDD by the project proponent and therefore no further Letter of Approval was required. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex I Party, a Letter of Approval from DNA of Annex 1 party will need to be submitted.

3.2 Baseline selection and additionality

The project has applied baseline as mentioned in para 9 of the small scale methodology AMS I-D version 10 dated 23rd December 2006 for “Grid connected renewable electricity generation” as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The proposed CDM project activity is to generate electricity using hydro potential available in Awa Khad, a tributary of river Binwa in Beas basin in Kangra District of Himachal Pradesh and will fall under the category AMS I-D of the appendix B.

The project proponent has adopted the barrier analysis for demonstration of the additionality for the present project activity. In the barrier analysis project proponent has mentioned barriers due to prevailing practise and Investment. In order to get all the related documents on which basis the project was shown additional, CAR (14) was raised.

In response to CAR (14) project proponent has rephrased section B.3 in the PDD version 2 which includes information on the barriers discussed with relevant references. The references provided by the project proponent under section B.3 has been cross-checked and found satisfactory. The following paragraph presents a brief discussion on the issues discussed in barrier analysis and used to prove the additionality of the present project activity.

In section B.3 of PDD version 2 (section B.5 of PDD version 6) project proponent has mentioned that the contribution of the small hydro power projects is 1748 MW; when total installed power capacity in India is 126089 MW. Also in the northern region where the project activity is located the contribution of the small hydro projects is 525 MW against 33957 MW of the total installed power capacity in the northern region which is only 1.54%. Even if contribution by the small hydro power project is compared with the total capacity of hydro project (which includes small and large hydro projects) in India; it is found that small hydro projects contribute only 5% of the total hydro capacity. The information provided by the project proponent was verified with the data from CEA i.e. document on power scenario at a glance as on 30th June 2006 and relevant pages from MNES annual report 2005-06 were checked for the concern information and was found satisfactory. Thus it is a fact that the power generation from the small hydro power plant is not a common practice in the northern region of India.

In the northern region contribution of Himachal Pradesh in small hydro power project is 112.5 MW, out of which 89.5 MW power capacity is already feeding to the grid and owned by the Govt. of HP. As per HPSEB report the identified potential for small hydro in HP is 750 MW which indicates that only 15% of

total SHP potential was harnesses hence in order to harness more potential the state government has opened this sector for private investors under HIMURJA program. This indicates that SHP plant is not a common practice in Himachal Pradesh for power generation.

The project proponent has decided to undertake the present project activity on 10th March 2005 and also opt for CDM funds for this project as he was aware of the huge investment required for this project activity on account of;

- a) Remoteness of the project location and lack of infrastructure in the project activity area.
- b) Possibility of natural calamity like landslides, floods etc.
- c) Risk in operation of the plant as the discharge data used for estimation of power potential is based on the simulation study.

Project proponent has constructed approach road upto project site which will be used to carry the construction material to the site. The road will be useful to local villagers once the construction work of the project activity is completed. Project proponent also implemented all the measures to avoid the landslides and packed loosely held boulders so that they should not cause problem during transportation and construction work. Project proponent made additional investment to develop the necessary infrastructure facilities. This was verified during the validation site visit and interview with the project proponent.

The project proponent has calculated IRR for both the project activities without considering CDM revenue and with considering CDM revenue. This was calculated as 10.79% without CDM revenues and 14.05% considering the CDM revenues over a period of 10 years. The benchmark for the project activity was calculated considering the Weighted Average Cost of Capital which comes out to be 13.04%. Thus after considering the CDM revenues the benchmark value of 13.04% is crossed, which indicates the significance of CDM revenues for the project activity. The excel spreadsheet has been provided by the project proponent and same has been checked for the calculations. The assumptions used in the IRR calculation are mentioned in table C.3 and same found relevant and acceptable.

There is only one source of revenue from the SHP plant i.e. sale of the electricity generated. The electricity from SHP will be purchased by HPSEB at Rs. 2.50/ kWh which is comparatively low when compared with the price offered to electricity generated by other power sources in the same region. Thus SHP plant is a risk bearing option when compared with the other power generating options. The project proponent in rephrased version 2 of the PDD has given a list of small hydro power project activities which are registered with UNFCCC for seeking CDM funds. This list makes it very clear that project proponents setting up small hydro power projects under HIMURJA scheme with capacity more than 3 MW are looking CDM funds as one of the way to reduce the investment barrier faced by them during project commissioning. The information provided under section B.3 was found satisfactory after cross-checking it with the references provided and also with PPA signed between project proponent and HPSEB. The copies of the documents were submitted with the validation report.

Considering these facts about SHP it is clear that the present project activity is not a common practice and it is additional activity which is bearing investment risk. CAR (14) was closed.

3.3 Application of Baseline methodology and calculation of emission factors

The proposed CDM project activity is the 'Grid connected energy generation from small hydro power project of capacity 5MW' and uses baseline methodology as described under Type AMS I-D for "Grid connected Renewable Energy generation" as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities. It has been checked from the purchase specifications that the installed power capacity is not more than 15 MW and hence the present project activity comes under small scale category of the CDM activities as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The CAR (12) was raised as Project proponent; in version 01 of the PDD did not mention the version of the small scale methodology used for the present project activity. In response to CAR (12) project

proponent made it clear that version 10 of AMS I-D; dated 23rd December 2006 was used for the present project activity. The necessary correction has been made in the rephrased version 4 of the PDD, which was cross-checked by the validator and found acceptable. Hence CAR (12) was closed.

The parameters for baseline and project activity were listed in table B.1 of PDD for calculating net energy exported to the northern grid. The local assessor checked the background information used for calculating baseline emissions during the site visit. Also the calculations for baseline activity are included in emission reduction calculation spreadsheet. The baseline emission calculations and emission reductions were found to be in order during the desk review and during the local assessments at the site. The emission reduction figures would further be checked during verification.

The project proponent in version 01 of the PDD is not clear regarding the formula used for calculating baseline emissions where he has considered net power generated from the project activity as the power which is to be displaced from the grid. But actually net power exported from the project activity has to be considered for calculating baseline emissions. Hence CAR (08) was raised asking project proponent to make required change. Responding to the CAR (08) project proponent has corrected the formula. The correction made has been cross-checked in rephrased version 2 of the PDD and found acceptable. Hence CAR (08) was closed.

It was mentioned in the PDD version 01 that the net energy exported from the present project activity will be 24.18GWh_e per year which will contribute in reduction of GHG emissions. Project proponent at the time of PDD submission does not provided spreadsheet giving the grid emission factor calculations and emission reduction calculations for baseline and project activity; hence CAR (13) was raised. Responding to CAR (13) project proponent provided the excel spreadsheet for grid emission factor calculation and emission reduction calculations on account of energy savings. Also project proponent has asked to submit the reference used for the PLF of small hydro power plant. Responding to this project proponent voluntarily collected data from HPSEB in excel spreadsheet with the data from Dehar SHP which was operated by the project proponent and in year 2005-2006 the plant has recorded PLF of 58.75%. This was taken as reference for the present activity. The excel spreadsheet was checked for the formulae used and same are found satisfactory, hence accepted. Thus CAR (13) was closed.

The grid emission factor calculated as weighted average of all existing generation sources for the northern region is calculated as 723 tCO₂/GWh_e.

The CAR (03) was raised as the PDD version 01 does not reflect any information on the financial analysis and calculation of grid emission factor. In response to the CAR (03) project proponent made it clear that the additionality of the present project activity is demonstrated by barrier analysis and hence no information on financial analysis has been included in the PDD. Regarding the information on grid emission factor calculation project proponent has included an annex 6 which was giving detailed information on the calculation of the grid emission factor. The information provided under this annex has been verified with the data from CEA and found acceptable. Hence CAR (03) was closed.

3.4 Application of Monitoring methodology and Monitoring Plan

The monitoring plan given in version 01 of the PDD is as per para 13 of the small scale methodology AMS I-D version 10 dated 23rd December 2006 for "Grid connected renewable electricity generation" as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The NIR (16) was raised as version 01 of the PDD was not clearly mentions how electricity exported to grid is monitored at plant site. Also the PDD does not mention about provision of check-meter and QA and QC procedure for data monitoring practice. The project proponent in his response to NIR (16) made all necessary corrections required and added Annex 5 separately mentioning monitoring plan for data monitoring. This monitoring plan gives details regarding location of power measuring meters in the power plant and check meters. It was also checked that all the necessary parameters have been

included in the monitoring plan given in annex 5 of the rephrased PDD version 2 (section B.7 of the PDD version 6). Hence NIR (16) was closed.

3.5 Project design

The PDD version 01 has been prepared as per the guidelines mentioned in version 02 of CDM-SSC-PDD. The PDD for the present project activity when checked against these guidelines and the format of PDD, it has found that the some of the sections are not as per the guidelines for small scale PDD. The CAR (02) was raised for the same. In response to CAR (02) project proponent made all the required corrections in the rephrased PDD. The corrections made by the project proponent are found to be satisfactory; the CDM-SSC-PDD has been changed to version 3 as version 02 is no longer valid. This was acceptable and hence CAR (02) was closed out. The project technology details from the purchase specifications was made available to the validator during site visit, the documents were used to verify the concern information given in the PDD.

The project boundary given in version 01 of the PDD was not clear as it is not mentioned in the boundary that whether grid system was inside the boundary or outside the boundary, CAR (15) was raised for the same. The project proponent made required corrections in the project boundary and same are included in the rephrased PDD version 2. The correction made in the rephrased PDD version 2 has been found acceptable. Hence CAR (15) was closed.

Section A.4 of the PDD describes the gross power generated from the project activity and net power exported from the project activity. But the assumptions made in the power generated and power export calculations are not found correct hence NIR (09) was raised asking project proponent to provide correct calculations for power generated and net power export. In response to NIR (09) project proponent mentioned that auxiliary consumption of 8% of the total power generated by the project activity. Also it was made clear from project proponent that the auxiliary consumption will be recorded and is subject to annual verification. The explanation given was satisfactory and acceptable. Hence NIR (09) was closed.

The version 01 of the PDD does not mention regarding training requirement for the plant operators and commissioning trials, NIR (10) was raised for the same. In response to the NIR (10) project proponent submitted document mentioning terms and conditions of Limited International Bidding (LIB) for the project activity which indicates that the supplier of the project technology will have to provide training regarding project activity to the operators and will also conduct trial run for 72 hours for the project activity. The explanation document was submitted to the validator and found acceptable. Hence NIR (10) was closed.

The starting date of the project activity as per version 01 of the PDD is 1st December 2005. A CAR (11) was raised as no evidence was provided for this date. Project proponent in response to this CAR (11) provided a contact agreement with M/s MCS Construction Pvt. Ltd., Hyderabad dated 15th December 2005; which mentions that the project activity erection work will start on 15th January 2006 and thus project activity start date was corrected as 15th January 2006. The correction has been done in the rephrased version 2 of the PDD and found acceptable. Hence CAR (11) was closed.

3.6 Environmental Impacts

During site visit the compliance with local environmental regulations in that EIA requirement for the project activity was checked and also project proponent was asked to submit concern approvals from the state pollution control board and MoEF. The project proponent has already confirm that he had all approvals with him as without which it is not possible to start the project activity. The project proponent has submitted approvals from HP Environment Protection and pollution control board, Dept. of Irrigation and Public health and approval from MoEF in regard of use of forest land for the project

activity. A copy of all these approvals has been verified during the site visit and also submitted with the registration form.

Project proponent mentioned that EIA is not required for the present project activity as per the MoEF guidelines which mention that the projects with investment more than US \$ 21.74 millions are required to undergo EIA study, since the total cost of the proposed project is only US \$ 6.34 millions. But when referred to the MoEF guidelines given in S.O.1533 dated 14th September 2006 it was found that the project activity category i.e. 1(c). A river valley project was listed in schedule which mentions project activities that requires EIA clarification. Hence CAR (17) was raised asking the clarification from the project proponent. In response to the CAR (17) project proponent clears that only projects greater than or equal to 50 MW capacity are eligible for this condition. The explanation given by the project proponent was sufficient and accepted. Hence CAR (17) was closed. And it was accepted that EIA is not required for the present project activity.

3.7 Local stakeholder comments

The project proponent in version 01 of the PDD has mentioned the identified local stakeholders for project activity. NIR (04) was raised asking project proponent to provide the comments given by the identified local stakeholders. Project proponent has submitted a copy of letter from local village panchayat and copy of NOC and Approvals from the concern Govt. department, these submitted with the registration form. Thus NIR (04) is closed.

In order to verify whether the project details were made publicly available and how the public comments on the project activity were invited; NIR (05) was raised. In response to NIR (05) the project proponent provided a copy of notification vide No: MPP-F(2)-49/2004(NES) dated 7th February 2005 and which was published in newspaper on 28th February 2005 to the validator during site visit. This clarified the transparency in the LSC process and NIR (05) was closed.

The summary of local stakeholders' comments were not clear in version 01 of the PDD hence CAR (06) was raised. Project proponent made necessary corrections and included corrected the summary of comments in the rephrased PDD. A copy of letters from the identified local stakeholders regarding their comments on project activity is also provided to the validator and same has been verified for any adverse impact to local community. It was also found that no public complain was registered with Govt. of HP on project activity as project proponent has obtained NOC and Approvals from concern Govt. departments for the project activity and copy of same was made available to validator. There is no adverse comment identified and CAR (06) was closed.

The CAR (07) was raised as the section G.3 in the PDD version 01 does not make it clear whether due account was taken of any comments received on project activity or not. In response to CAR (07) project proponent made it clear that there are no adverse comment on the project activity. The same was verified during local stakeholder consultation process. Hence CAR (07) was closed.

4 Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

4.1 Description of how and when the PDD was made publicly available

The PDD and the monitoring plan for this project were made available on the SGS website <http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=107> and were open for comments from ²4th May 2006 to ²2nd June 2006. Comments were invited through the UNFCCC CDM homepage.

4.2 Compilation of all comments received

The project was up loaded for International stakeholder consultation (ISHC) for a period of 30 days and received no comment. Also no adverse comment received during local stakeholder consultation.

4.3 Explanation of how comments have been taken into account

No adverse comment was received for the project activity.

5 Validation opinion

SGS has performed a validation of the project: “5 MW Upper Awa Hydropower Project in Himachal Pradesh, India” by M/s Astha Projects (India) Limited at Kalani village of Kangra district in the state of Himachal Pradesh India. The Validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by SGS for registration with the UNFCCC.

SGS has received confirmation by the host Party that the project activity assists it in achieving sustainable development.

By installing grid-connected 5MW small hydro power plant the project will lead to displacement of carbon-intensive electricity by the electricity from a renewable source and thus the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the barrier analysis involving investment barrier and barriers due to prevailing practice associated with project activity demonstrates that the proposed project activity was not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. The project is in construction stage and will start operations on 1st January 2008 as per the contract agreement signed with the civil contractor. The project will likely achieve the estimated amount of emission reductions.

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

6 List of persons interviewed

Date	Name	Position	Short description of subject discussed
29/07/2006	Mr. M Jayanth Reddy	Managing Director	Project proponents view on project activity and CDM funds
29/07/2006	Mr. Balagurunathan	Consultant	Technical description of project activity and baseline and data monitoring for project activity. Additionality of the project activity
29/07/2006	Ms. Pawana Devi	Gram Pradhan, Sapaidu	Local stakeholder consultation
29/07/2006	Mr. Rajesh Singh	Villager	Local stakeholder consultation

7 Document references

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ Letter of Approval from Host Country
- /2/ Statement on Modalities of communication
- /3/ PDD version 1 dated July 6, 2006
- /4/ PDD version 2 dated October 28, 2006
- /5/ PDD version 3 dated November 29, 2006
- /6/ PDD version 4 dated May 11 2007
- /7/ PDD version 5 dated July 2, 2007
- /8/ PDD version 6 dated July 17, 2007

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /1/ Board MoM
- /2/ Copy of Limited International Bidding with purchase specifications
- /3/ Project Commissioning order
- /4/ Agreement with HPSEB
- /5/ Techno-economic clearance from HPSEB
- /6/ Implementation agreement with Govt. of HP
- /7/ Copy of notification published in news paper dated 28th Feb. 2005
- /8/ Letter from Gram-Panchayat
- /9/ Clearance from MoEF
- /10/ NOC from Him-Urja, a state nodal agency for renewable energy projects
- /11/ NOC from Irrigation and Public Health Dept.
- /12/ Clearance from Himachal Pradesh Environment Protection and Pollution Control Board
- /13/ CEA documents regarding Power Scenario
- /14/ MNES Annual Report (2005-06) pages 57-60
- /15/ Relevant pages of Power Purchase Agreement
- /16/ Excel spreadsheet giving calculations for ER from project activity
- /17/ Excel spreadsheet on PLF for small hydro plants in Himachal Pradesh data from HPSEB.
- /18/ Excel spreadsheet on Grid emission factor calculation for Northern Region
- /19/ Excel spreadsheet for financial calculations

Annex 1: Local Assessment

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
12.1 To get copy Host Country Approval (HCA) letter from Project Proponent.	PDD F.1	DR	The letter (4/12/2006-CCC) has been obtained and verified with the original. The same was listed under heading Document references Category 1 of validation report UK.AR.6.CDM.Val0555	Y	Y
12.2 No ODA has been used for this project and to be confirmed during site visit.	PDD Annex 2	DR/I	The ODA issue was discussed during site visit with the project proponent. Project proponent has mentioned during the discussion that no ODA has been used for this project work and funds are made available through internal accruals.	Y	Y
12.3 Invitation for LSC meeting was sent to participate and communicate suggestions regarding the project activity. Documents are required to verify the same. Evidence of notice published for public hearing, copy of letter given to local panchayat and to the organizations listed as local stakeholder.	PDD G.1	DR	A copy of the notification vide No: MPP-F(2)-49/2004(NES) dated 7th February 2005 published in newspaper on 28th February 2005; seeking comments on the project activity have been obtained to verify the transparency in consultation process. The document was listed under heading Document references in Category 2 as /8/.	Y	Y
12.4 The regulatory approvals from concern Govt. Departments like Pollution Control Board, HIM-URJA, Irrigation and Public Health Dept., MoEF , HPSEB etc. required to verify that local/legal requirements have been met.	PDD G.1,G.2 and G.3	DR	The regulatory approvals from concern Govt. Departments have been obtained by the project proponent. A copy of each approval was submitted to the validator during site visit. The documents are listed under heading Document references in Category 2 as /6/, /7/, /10/, /11/, /12/ and /13/.	Y	Y
12.5 Local stakeholders' comments are required to be verified for any adverse comment.	PDD G.1,G.2 and G.3		There were no adverse comments found in the letter from local village panchayat. The same was verified	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
Due account of stakeholder comments received required to be verified..			during local stakeholder consultation and found satisfactory. The letter was listed under heading Document references in Category 2 as /9/.		
12.6 Project design engineering documents from the technology supplier are required to be checked. Copy of offer made/ specifications given by technology supplier.	PDD A.4		Purchase specifications for Project activity were obtained and verified for the project capacity. The document was listed under heading Document references in Category 2 as /2/.	Y	Y
12.7. It is required to be checked whether the project technology used is likely to be substituted by other or more efficient technologies within the crediting period.		I	Project proponent during the discussion on project activity made it clear that the present project activity will not be changed or substituted by other or more efficient technologies within the crediting period. It was also agreed by the project proponent that if there are any changes found in the project activity during verification then the CDM funding will not be available for the project activity even though it was registered. It was accepted by the project proponent.	Y	Y
12.8 A copy of Environmental Impact Assessment for the project activity.	PDD F.1		The project proponent mentioned in the PDD that the project is not eligible for carrying out EIA, the claim was cross checked from MoEF web-site http://envfor.nic.in/legis/eia/s01533.pdf and found that the project activity category i.e. River valley projects was listed in schedule which mentions project activities that requires EIA clarification.	CAR 17	Y CAR 17 closed
12.9 MoM of board meeting in which CDM was considered for the project activity.		DR	Project proponent has been submitted the MoM of board meeting in which CDM was considered for project activity. The same was verified during discussion with Managing Director of	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			the company and found accepted. Also the contract for project commissioning work was obtained. The documents were listed under heading Document references in Category 2 as /1/ and /3/.		
12.10 Quality Assurance (QA) and Quality Control (QC) procedures for data monitoring.	PDD D.4		Project proponent in earlier version 1 of the PDD did not mention regarding QA and QC procedures for data monitoring. During site visit project proponent agrees to update Section D.5 of the PDD with information on QA and QC procedure. The information has been updated in version 2 of the PDD which was found satisfactory.	Y	Y
12.11 Project implementation agreement between Govt. of Himachal Pradesh and Project proponent.		DR	The project implementation agreement between Govt. of HP and Project proponent has been submitted by the project proponent. A copy of the document was obtained and verified with original during site visit. Also project proponent submitted a copy of MoU with Govt. of HP. A copy of which was submitted to the validator and verified with the original during site visit. The documents were listed under heading Document references in Category 2 as /4/, /5/ and /15/.	Y	Y
12.12 Copy of reference from Central Electricity Authority reports.	PDD B.2	DR	Project proponent has submitted a copy of data from CEA. The document was verified with the data available on CEA web-site and listed under heading Document references in Category 2 as /14/.	Y	Y
12.13 Modalities of communication		DR	The document was submitted and same was listed under heading Document references Category 1 of validation	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			report UK.AR6.CDM.Val0555		
12.14 Calculation spreadsheet for a) emission reductions during project crediting period. b) emission factor	PDD E.2		Excel spreadsheet giving calculations for emission reductions and grid emission factor has been submitted by the project proponent. The calculations in the spreadsheet are checked and clarification was asked to project proponent on various assumption made for calculating power exported to the grid. The issue was raised in CAR13.	Pending	Y CAR 13 closed
12.15 Project Proponents view on additionality and baseline of the project activity.	PDD B.3	I	Project proponent has decided to put the small hydro project on 10th March 2005 in order to promote use of non-conventional energy. They decided to opt for the small-hydro option because of the potential available in HP. The project proponent identified investment barrier as one of the barrier to the project activity as the cost of construction for the SHPs with high head scheme is more. Also the project proponents have to make additional investments to develop the necessary infrastructure facilities like roads, safety against landslides etc. before implementation of the project which turns increase in the project cost.	Y	Y
12.16 How CDM funds will help project activity in order to mitigate the risk factor.		I	Project proponent looks after CDM funds as additional help for reducing the financial burden.	Y	Y

Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters Of Approval And UNFCCC Website) All CDM Project Activities

REQUIREMENT	Ref	MoV	Comment	Draft finding	Final Concl
1.1 The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	PDD	DR	Project will assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3. However, no Annex-1 participant has been identified so far.	Y	Y
1.2 The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily.	PDD	DR	The project activity is likely to contribute to sustainable development. Letter of approval from Host Country (India) Designated National Authority (DNA) to be submitted by the project proponent.	CAR1	Y CAR1 closed
1.3 All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	PDD/ UNF CCC Web- site	DR/ UNF CCC Web- site	Project is unilateral and India has ratified the protocol on 26 th August 2002 and is allowed to participate. http://unfccc.int/parties_and_observers/parties/items/2109.php	Y	Y
1.4 The project results in reductions of GHG emissions or increases in sequestration when compared to the baseline; and the project can be reasonably shown to be different from the baseline scenario.	PDD	DR	The baseline condition of the project activity is clear in PDD and the project will result in reductions of GHG emissions.	Y	Y

REQUIREMENT	Ref	MoV	Comment	Draft finding	Final Concl
1.5 Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days (45 days for AR projects), and the project design document and comments have been made publicly available	PDD	DR/ UNF CCC Web -site	Yes, the project is listed on UNFCCC website from 24 th May 2006 to 22 nd June 2006. http://cdm.unfccc.int/Projects/Validation/DB/HNDKJAQ11PIWKLD1458N3J4I0KRZC8/view.html The project was also listed on SGS climate change website from 24 th May 2006 to 22 nd June 2006. http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=107 Number of comments received - 0	Y	Y
1.6 The project has correctly completed a Project Design Document, using the current version and exactly following the guidance	PDD	DR	Project has not followed the version 2 of CDM-SSC-PDD correctly. Point A.2 is exceeding one (1) page limit. Point A.3 is not as per version 2 of guidelines for completing CDM-SSC-PDD. Point A.4.1.4 is exceeding one (1) page limit.	CAR2	Y CAR2 Closed The Project follows version 3 of CDM- SSC-PDD as the version 02 is no longer valid.
1.7 The project shall not make use of Official Development Assistance (ODA), nor result in the diversion of such ODA.	PDD	DR	No ODA has identified in PDD. Records to be checked during Site visit.	Site visit	Y

REQUIREMENT	Ref	MoV	Comment	Draft finding	Final Concl
1.8 For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?	PDD	DR	Not relevant as the project is not an AR project.	Not Applicable	Not Applicable
1.9 Does the project meet the additional requirements detailed in: Table 9 for SSC projects Table 10 for AR projects Table 11 for AR SSC projects	PDD	DR	This is an SSC project which comes under category AMS I-D and hence table 9 is applicable.	Y	Y
1.10 Is the current version of the PDD complete and does it clearly reflect all the information presented during the validation assessment?	PDD	DR	The version of PDD used by project proponent does not present the financial analysis and relevant information for calculating grid emission factor with few pending closure of CARs/ NIRs.	CAR3	Y CAR3 closed
1.11 Does the PDD use accurate and reliable information that can be verified in an objective manner?	PDD	DR	The PDD uses reliable information and can be verified in an objective manner. Pending closure of CAR3	Pending	Y CAR3 closed

Table 2 Baseline methodology/ies (Ref: PDD Section B and E and Annex 3 and AM) Normal CDM projects only

Table 3 Additionality (Ref: PDD Section B3 and AM) Normal CDM projects only

Table 4 Monitoring methodology (PDD Section D and AM) Normal CDM Projects only

Table 5 Monitoring plan (PDD Annex 4) Normal CDM Project activities only

Table 6 Environmental Impacts (Ref PDD Section F and relevant local legislation) Normal CDM Project Activities only

Table 7 Comments by local stakeholders (Ref PDD Section G) All CDM Project Activities

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.1 Have relevant stakeholders been consulted?	PDD	DR	PDD mentions concerned local stakeholders list. Comments from the local stakeholder are required to submit.	NIR4	Y NIR4 closed
7.2 Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	Information on how/media used to invite comments is not clear in the PDD.	NIR5	Y NIR5 closed
7.3 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD	DR	Stakeholder consultation process is not required as per regulation/laws in host country. However, the project participant has consulted the stakeholders as a requirement for CDM project.	Y	Y
7.4 Is a summary of the stakeholder comments received provided?	PDD	DR	The summary of the stakeholder comments is not clear in PDD.	CAR6	Y CAR6 closed
7.5 Has due account been taken of any stakeholder comments received?	PDD	DR	Information provided under this section is not clear.	CAR7	Y CAR7 closed

Table 8 Other requirements All CDM project activities

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.1 Project Design Document					
8.1.1 Editorial issues: does the project correctly apply the PDD template and has the document been completed without modifying/adding headings or logo, format or font.	PDD	DR	Pending closure of CAR2.	Pending	Y CAR2 closed
8.1.2 Substantive issues: does the PDD address all the specific requirements under each header. If requirements are not applicable / not relevant, this must be stated and justified.	PDD	DR	Formula provided under section E.1.2.4 step 1 is not clear. It is not clear that the electricity generation considered in formula is net generation or gross generation.	CAR8	Y CAR8 closed
8.2 Technology to be employed					
8.2.1 Does the project design engineering reflect current good practices?	PDD	DR	Project design engineering reflects current good practices. Explain why there is difference between the energy generated and energy exported to grid.	NIR9	Y NIR9 closed
8.2.2 Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	PDD	DR	Technology used for project activity is clear in PDD. PO/ specifications given to supplier need to check during site visit. Documents in support of technology to be use needs to check.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.2.3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?	PDD	DR	Not likely during the crediting period.	Site visit	Y
8.2.4 Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	PDD	DR	Training requirement and method of conducting the same is not clearly mentioned in PDD.	NIR10	Y NIR10 closed
8.3 Duration of the Project/ Crediting Period					
8.3.1 Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD	DR	Project activity starting date mentioned in PDD is 01-12-2005. Documentary evidence for the same is required. The operational lifetime of the project activity is 30 years and is defined in PDD.	CAR11	Y CAR11 closed
8.3.2 Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	PDD	DR	Project proponent has selected fixed crediting period for the project and is defined as 10 years. Crediting period starting date mentioned in PDD is 01-01-2008.	Y	Y
8.3.3 Does the project's operational lifetime exceed the crediting period?	PDD	DR	The project's operational life time exceeds the fixed crediting period of 10 years.	Y	Y

Table 9 Additional requirements for SSC project activities only

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
9.1 Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	PDD	DR	The project qualifies as a small scale CDM project activity as defined in paragraph 6 (c) (i) of decision 17/CP.7 as the capacity of the project is less than 15MW.	Y	Y
9.2 The project conforms to one of the categories listed in Appendix B to Annex II to Decision 21/CP8.	PDD	DR	Yes, project confirms SSC category under type AMS I-D ' Grid connected renewable electricity generation' Version of the methodology used for the project activity is not mentioned.	CAR12	Y CAR12 closed The project activity uses AMS I-D version 10 dated 23 rd December 2006
9.3 The small scale project activity is not a debundled component of a larger project activity?	PDD	DR	This project activity is not a debundled component of a larger project.	Y	Y
9.4 PDD has been prepared in accordance with appendix A of Annex II to Decision 21/CP8.	PDD	DR	Pending closure of CAR2	Pending	Y CAR2 closed
9.5 The project uses a simplified baseline and monitoring methodology specified in Appendix B. If not, they may propose changes to the meths or a new SSC project category.	PDD	DR	Pending closure of CAR12.	Pending	Y CAR12 closed

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
9.6 Are the emission reductions determined in accordance with the methodology described?	PDD	DR	Spreadsheets used for calculation of emission factor and emission reductions during entire crediting are not provided.	CAR13	Y CAR13 closed
9.7 Is there any bundling of SSC activities into one PDD? If so, does the monitoring plan consider sampling of activities? Refer to para 19 of Annex II. Also, note bundling provisions in SSC Briefing Note and SSC meths I C / I D and III D and Para 22e of Appendix B.	PDD	DR	There is no bundling of SSC activities into one PDD.	Y	Y
9.8 Is EIA required by host party? If not, none is required irrespective of SHC. If yes, has one been performed consistent with local requirements?	PDD	DR	EIA is not required for this project activity. Copy of MoEF notification stating that EIA is not required for this type of project is to be checked during Site visit. Consent to operate and establish from Himachal Pradesh Pollution Control Board to be checked during Site visit.	Site visit	Y CAR 17 closed

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<p>9.9.The project results in emission reductions that are additional in accordance with the following requirements:</p> <p>(Para 26) The project is additional if emissions are reduced below those in the absence of the project.</p> <p>(Para 27) Simplified baseline can be used; if not, baseline proposed shall cover all gases, sectors and sources listed in Annex A to the KP</p> <p>(Para 28) One or more barriers as detailed in attachment A to Appendix B to Annex II will be used to demonstrate that the project would not proceed without the CDM</p>	PDD	DR	<p>Project uses simplified baseline methodology AMS 1-D. Pending closure of CAR12.</p> <p>The investment barrier and other barriers mentioned in the PDD are not clear. IRR calculation sheet is not provided.</p>	<p>Pending</p> <p>CAR14</p>	<p>Y CAR12 closed</p> <p>Y CAR14 closed</p>
9.10 Leakage is calculated according to the provisions of the SSC methodologies in Appendix B.	PDD	DR	As per the methodology leakage is not applicable for the project activity.	Y	Y
9.11 The project boundary shall be constructed in accordance with the requirements of the SSC meths in Appendix B	PDD	DR	<p>Project boundary is not clear in PDD.</p> <p>Any extra on-site generation is not taken into consideration.</p>	CAR15	Y CAR15 closed
9.12 The Monitoring plan shall be consistent with the requirements of the SSC methodology in Appendix B and shall provide for the collection and archiving of data needed to determine project emissions, baseline emissions and leakage.	PDD	DR	<p>Yes, the monitoring plan for the project activity is consistent with the requirements of the SSC methodology.</p> <p>The monitoring plan consists of monitoring of two parameters i.e. Power exported to grid and grid emission factor.</p>	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
9.13 The monitoring plan shall present good monitoring practice appropriate to the circumstances of the project activity.	PDD	DR	Data monitoring plan presents good monitoring practise and the data achieved will be kept for 2 years after crediting period. Explain how electricity exported to grid is monitored. There is no provision for check meters.	Y NIR16	Y Y NIR16 closed
9.14 If project activities are bundled, separate monitoring plan shall be prepared for each of the activities or an overall plan reflecting good monitoring practice will be prepared, consistent with the above requirements	PDD	DR	The SSC project is a not a bundled project activity.	Y	Y

Table 10 Additional requirements for AR projects – Not applicable

Table 11 Additional requirements for SSC AR projects – Not applicable

Table 12 Additional information to be verified by local assessors / Site visit – Separate File attached

Annex 3: Overview of Findings

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.
[CDM.Val0555]

Description of table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Please note that this is an open list and more findings may be added as validation progresses.

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
1	CAR	Provide host country approval from Designated National Authority (DNA)	1.2
<p>Date: 21/09/2006</p> <ul style="list-style-type: none"> Host Country Approval received from Indian Designated National Authority is furnished as attachment. The project activity name is corrected in PDD and is now same as that in HCA. 			
<p>Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor] A copy of HCA letter (No.-F.No.4/12/2006-CCC) dated 14th June 2006 is submitted by the project proponent the same has been verified with the original letter.</p> <p>[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)</p>			

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
2	CAR	Project has not followed the version 2 of CDM-SSC-PDD correctly. Point A.2 is exceeding one (1) page limit. Point A.3 is not as per CDM-SSC-PDD version 2. Point A.4.1.4 is exceeding one (1) page limit.	1.6
<p>Date: 21/09/2006</p> <ul style="list-style-type: none"> Section A.2 is now revised and is not exceeding one page. Section A.3 is as per Version 2 of Guidelines for completing CDM SSC PDD. Section A.4.1.4 is modified and now it is within one page limit. 			

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]
Corrections made in section A.2, A.3 and A.4.1.4 are acceptable.

Date: 02/07/2007 [Vikrant] [Comment from Local Assessor]
The PDD template version has been changed and now it follows the version 03 of CDM-SSC-PDD as version 02 is no longer valid. This is acceptable

[Acceptance and close out] OK, Sanjeev (03/07/2007)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
3	CAR	The version of PDD used by project proponent does not present the financial analysis and relevant information for calculating grid emission factor with few pending closure of CARs/ NIRs.	1.10

Date: 21/9/2006

- Additionality of the project activity is demonstrated by barrier analysis. Under UNFCCC simplified modalities, project activity should seek to establish additionality of the project activity as per Attachment A to Appendix B, which lists various barriers, out of which at least 1 barrier shall be identified due to which the project would not have occurred any way. Project participants have indicated in the PDD, investment barriers which would have prevent implementation of the project activity. However as desired, the IRR analysis is worked out and the same is furnished separately for verification of the validator.
- Relevant information for calculating grid emission factor is furnished as attachment to the PDD.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The IRR sheet is checked for relevant information regarding the project activity and is acceptable.

The information provided in Annex 6 is checked from the relevant data from CEA and is acceptable.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
4	NIR	Comments from the local stakeholder are required to submit.	7.1

Date: 21/9/2006

- Copies of approvals received from each of the stakeholders with respect to the project activity will be furnished in the form of hard copies.
- Section G.1 of the PDD is revised by including Identification of stakeholders, Stakeholders involvements, Stakeholders comments etc. The project activity has not received any negative comments.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The copies of approvals from concern Govt. departments is submitted by the project proponent. The same are verified during the site visit.

The corrections made in section G.1 of the rephrased PDD are correct and acceptable.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
5	NIR	Provide adequate evidence on how/media used to invite comments and the copy of comments from local stakeholder.	7.2

Date: 21/9/2006

- Government of Himachal Pradesh had made it mandatory for all the projects to go for public consultation before start of the project. It should be publicized in national and vernacular dailies and invites objections / comments from the public during a period of 60 days before issuing license. Based on the feedback the Government of Himachal Pradesh will decide whether the project to be sanctioned or withheld.
- Dept. of Non-conventional Energy Sources, Govt. of Himachal Pradesh has notified about 5 MW Upper Awa project in newspaper vide No: MPP-F(2)-49/2004(NES) dated 7th February 2005 on 28th February 2005 and welcomed objections and representations with respect to the project within a period of 60 days.
- No negative comments are received from any of the stakeholders.
- Copy of the same is furnished separately.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The copy of notification **No: MPP-F(2)-49/2004(NES)** published on 28th Feb. 2005 is obtained; verified and it is acceptable. It will be helpful if project proponent provide a clearly legible copy of notification.

A copy of letter from local gram-panchayat dated 18th April 2005 is also submitted by the project proponent.

Date: 11/11/2006

The legible copy of the notification is now furnished.

Date: 12/11/2006 [Vikrant Badve] [Comment from Local Assessor]

OK, Accepted

[Acceptance and close out] OK, Sanjeev Kumar (12/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
6	CAR	The summary of the stakeholder comments is not clear in PDD. Local stakeholders' comments and involvement should be included under this section.	7.4

Date: 21/9/2006

- Section G.1 of the PDD is revised by including Identification of stakeholders, Stakeholders involvements, Stakeholders comments etc. The project activity has not received any negative comments.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given by the project proponent is sufficient and accepted.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
7	CAR	Explain whether any negative comments are received for the project activity.	7.5

Date: 21/9/2006

- No negative comments are received on the project activity.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given by the project proponent is acceptable.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
8	CAR	Few substantive corrections are required in the PDD which are, <ul style="list-style-type: none"> Formula provided under section E.1.2.4 step 1 is not clear. It is not clear that the electricity generation considered in formula is net generation or gross generation. 	8.1.2

Date: 21/9/2006

- The PDD is revised to provide the formula under section E.1.2.4
- The electricity considered for the formula is net electricity exported to the grid.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The correction made in the formula under section E.1.2.4 is acceptable.

The formula in section E.1.2.4 is using EG_y as Net electricity generated; please clarify why net electricity generated is considered instead of net electricity exported to the grid.

Date: 11/11/2006

Section E.1.2.4 of PDD is now corrected and the EG_y is now mentioned as Electricity exported by the project activity to the grid (GWh).

Date: 12/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The correction made in formula given in section E.1.2.4 of PDD version 2 is accepted.

[Acceptance and close out] OK, Sanjeev Kumar (12/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
9	NIR	Explain why there is difference between Energy generated and Energy exported as per A.4 in PDD.	8.2.1

Date: 21/9/2006

- Section A.4 is revised and the descriptive part is included under Section A.4.2, Type and categories and technology of the small scale project activity.
- The difference between energy generated and energy exported is on account of auxiliary consumption.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The information given regarding Energy Production under heading technical details of the project activity is not clear. The Gross Energy production is 26.28 GWh, Auxiliary consumption is 5.07 GWh then how energy exported to the grid is 24.18 GWh? Please clarify.

Date: 11/11/2006

Technical details of the project activity under section A.4.2 of the PDD are now corrected and the auxiliary consumption is mentioned as 2.10 GWh which is 8% of the Gross Energy production.

Date: 12/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The correction made is accepted. Can you provide any reference for Auxiliary consumption of 8%? Generally in case of power plants it was taken as 10% of power generated. Please Clarify

Date: 17/11/2006

Though the annual generation is estimated at 26.28 million units, the power exported to the grid from the project activity is 24.18 million units. The difference is due to auxiliary consumptions and associated losses. While arriving at the net energy generation provisions has been made for auxiliary consumptions (In-house consumptions) @ 1%, transmission losses @ 2 % and system outages @ 5 %. This estimation is made as per the technical consultants appraisal made by NHP Consultants Pvt. Ltd., Shimla.

Auxiliary consumption is one of the parameters that will be monitored by the project proponent and subject to annual verification.

Date: 20/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given by the project proponent is sufficient and accepted.

[Acceptance and close out] OK, Sanjeev Kumar (20/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
10	NIR	Explain the training requirement regarding operation and maintenance of the project activity and the method to conduct the same in the PDD.	8.2.4

Date: 21/9/2006

- Training on the operation of Electro-mechanical equipment is provided by machinery supplier. The machinery supplier will train the operating personnel of the project after the installation of electro-mechanical equipment. For this a clause (1.17 of Part – D in Section VI) is included in the Limited International Bidding (LIB) for Supply, Erection, Testing and Commissioning of Electro-Mechanical Equipment for the project initiated by the project proponent. Also necessary clause will be incorporated while executing the supply agreement with the equipment manufacturer.
- Copy of the same is furnished separately.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given by project proponent is sufficient and acceptable. The copy of LIB is submitted by the project proponent.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
11	CAR	Documentary evidence for the project starting date is required to submit.	8.3.1

Date: 21/09/2006

- The construction activity is started at the site from 15th January 2006. In this connection the agreement executed with civil contractor (M/s MCS Construction Private Limited, Hyderabad) on 15th December 2005 is furnished as evidence with respect to start date of the project activity.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The copy of agreement signed with M/s MCS Construction Private Limited, Hyderabad is submitted by the project proponent. The same is verified and accepted. The starting date of the project activity is considered as 15th January 2006.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
12	CAR	Provide the version of methodology AMS I-D used for the project activity.	9.2

Date: 11/05/2007

- The methodology used for the project activity is A.M.S. I.D. Version 10 dated 23rd December 2006.

Date: 12/05/2007 [Vikrant Badve] [Comment from Local Assessor]

The correction made in rephrased PDD version 4 is acceptable.

[Acceptance and close out] OK, Sanjeev Kumar (12/05/2007)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
13	CAR	Provide spreadsheets used for calculation of emission factor and emission reductions due to project activity during entire project activity.	9.6

Date: 21/9/2006

- The spreadsheet used for the calculation of emission factor and emission reduction is furnished separately.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The spreadsheet showing the calculation of emission factor and emission reduction is not provided.

Date: 11/11/2006

The MS - Excel spreadsheet showing the calculation of Emission Factor and Emission Reduction has been send to the DOE by mail.

Date : 12/11/2006 [Vikrant Badve] [Comment from local Assessor]

OK, accepted.

Please clarify how project proponent has arrived 60% as PLF value? Even if reference provided by you is considered then also PLF for 3 to 6 MW capacity plant is not more than 40%.

The assumptions should be justified with proper evidence.

Date: 17/11/2006

An analysis of power generation from small hydro projects in operation in the state of Himachal Pradesh based on the data provided by HPSEB (www.hpseb.com) have indicated an average

PLF of around 35 %. Further power generation from a similar size project (5 MW Dehar SHP in Himachal Pradesh) indicated a PLF of about 58.79% in a full year of operation i.e 2005-06. This project activity is also operated by the same project proponent. Considering these parameters, the project proponent has adopted 60% PLF for the project activity.

Date :20/11/2006 [Vikrant Badve] [Comment from local Assessor]
Project proponent has submitted an excel spreadsheet giving the details of the kWh generated and PLF for all the small hydro plants in Himachal Pradesh with 3 of the plants operated by him at present; the average PLF of the 3 plants has been taken as a reference for the PLF for this plant.

[Acceptance and close out] OK, Sanjeev Kumar (20/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
14	CAR	The investment barrier mentioned in the PDD is not clear. Provide IRR calculation sheet for the project activity. Explain how the other barriers mentioned in the PDD are contributing to additionality.	9.9

Date: 21/9/2006

- The investment barrier in the PDD explains factors that could prevent investment in the project activity. The difficulties are with respect to lack of approach road to the project site, lack of any approach to the forebay or weir site unless the project proponent constructs a rope way and still they are required to take the support of mules for transportation of civil materials. What the project proponent intended to explain is that these barriers prevent investment in the project activity in the normal circumstances.
- Since barrier analysis is relied by the project proponent for demonstration of additionality IRR analysis is not explained. However IRR analysis worked out for the project activity is separately furnished for verification.
- Section B.3 is revised in the PDD to indicate how the barriers are preventing the investment in the project activity with out CDM.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given on the comment raised is sufficient and acceptable. Also correction made regarding contribution of various barriers mentioned in section B.3 of the revised PDD version 02 towards making project additional is acceptable. The references provided under section B.3 are cross-checked and found satisfactory.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
15	CAR	Project boundary mentioned in PDD is not clear.	9.11

Date: 21/09/2006

- Section B.4 of PDD is modified with respect to project boundary.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The modification done in section B.4 of PDD version 2 is acceptable.

[Acceptance and close out] OK, Sanjeev Kumar (07/11/2006)

Date: 7th September 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
16	NIR	Explain how electricity exported to grid is monitored at plant site. There is no provision for check meters.	9.13

Date: 21/09/2006

- A separate monitoring plan is attached to the PDD as Annex-5 which covers all the issues raised above.

Date: 07/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation provided in Annex 5 of rephrased PDD is sufficient. It will be helpful if you mention the location of meter used for power measurement.

Date: 12/11/2006

Annex-5 of the PDD is now modified to include the locations of the meters. Power generation, power export to the grid will be recorded at the plant from the two meters i.e main meter, check meter installed inside the powerhouse of the plant.

Date: 12/11/2006 [Vikrant Badve] [Comment from Local Assessor]

OK, accepted.

[Acceptance and close out] OK, Sanjeev Kumar (12/11/2006)

Date: 12th November 2006

Raised by: Sanjeev Kumar

No.	Type	Issue	Ref
17	CAR	The project proponent mentioned in the PDD that the project is not eligible for carrying out EIA, the claim was cross checked from MoEF web-site http://envfor.nic.in/legis/eia/so1533.pdf and found that the project activity category i.e. 1(c) River valley projects was listed in schedule which mentions project activities that requires EIA clarification. Please clarify.	12.8

Date: 17/11/2006

The capacity of the project is 5 MW which doesn't attract the section 1(c) of S.O.1533, which is only for projects from < 50 MW to ≥ 25 MW and for the projects ≥ 50 MW. Also the project has already obtained 'Consent for Establishment' from Himachal Pradesh State Environment Protection & Pollution Control Board (EPPCB) which is furnished already.

Date: 20/11/2006 [Vikrant Badve] [Comment from Local Assessor]

The explanation given by the project proponent is sufficient and accepted.

[Acceptance and close out] OK, Sanjeev Kumar (20/11/2006)

Annex 4: Statement of Competence of Validation Team

Statement of Competence

Name: Sanjeev Kumar

SGS Affiliate: SGS India Pvt. Ltd.

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☒
- Assessor ☐
- /Trainee Lead Assessor ☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☒
2. Energy Distribution ☒
3. Energy Demand ☒
4. Manufacturing ☒
5. Chemical Industry ☐
6. Construction ☐
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid,oil and gas) ☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride ☐
12. Solvent Use ☐
13. Waste Handling and Disposal ☐
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by Siddharth Yadav Date: 16th May 2007

Statement of Competence

Name: Vikrant Badve

SGS Affiliate: SGS India Pvt. Ltd.

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☐
- Assessor ☐
- / Trainee Lead Assessor

Scopes of Expertise

- | | |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input checked="" type="checkbox"/> |
| 2. Energy Distribution | <input checked="" type="checkbox"/> |
| 3. Energy Demand | <input checked="" type="checkbox"/> |
| 4. Manufacturing | <input checked="" type="checkbox"/> |
| 5. Chemical Industry | <input type="checkbox"/> |
| 6. Construction | <input checked="" type="checkbox"/> |
| 7. Transport | <input type="checkbox"/> |
| 8. Mining/Mineral Production | <input type="checkbox"/> |
| 9. Metal Production | <input type="checkbox"/> |
| 10. Fugitive Emissions from Fuels (solid,oil and gas) | <input type="checkbox"/> |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/> |
| 12. Solvent Use | <input type="checkbox"/> |
| 13. Waste Handling and Disposal | <input type="checkbox"/> |
| 14. Afforestation and Reforestation | <input type="checkbox"/> |
| 15. Agriculture | <input type="checkbox"/> |

Approved Member of Staff by Marco van der Linden

Date: 29-12-06

Statement of Competence

Name:Shivananda Shetty

SGS Affiliate:India

Status

- Product Co-ordinator ☒
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☐

Validation

Verification

- Local Assessor ☐
- Lead Assessor ☒
- Assessor ☒
- / Trainee Lead Assessor

Scopes of Expertise

- | | |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input checked="" type="checkbox"/> |
| 2. Energy Distribution | <input checked="" type="checkbox"/> |
| 3. Energy Demand | <input checked="" type="checkbox"/> |
| 4. Manufacturing | <input checked="" type="checkbox"/> |
| 5. Chemical Industry | <input checked="" type="checkbox"/> |
| 6. Construction | <input type="checkbox"/> |
| 7. Transport | <input checked="" type="checkbox"/> |
| 8. Mining/Mineral Production | <input type="checkbox"/> |
| 9. Metal Production | <input type="checkbox"/> |
| 10. Fugitive Emissions from Fuels (solid,oil and gas) | <input type="checkbox"/> |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input checked="" type="checkbox"/> |
| 12. Solvent Use | <input type="checkbox"/> |
| 13. Waste Handling and Disposal | <input type="checkbox"/> |
| 14. Afforestation and Reforestation | <input type="checkbox"/> |
| 15. Agriculture | <input type="checkbox"/> |

Approved Member of Staff by Gareth Phillips Date: 28/03/2005