VALIDATION REPORT

KKK Hydro Power Limited

Baragran Hydro Electric Project, 3.0 MW (being expanded to 4.9 MW)

SGS Climate Change Programme
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Baragran Hydro Electric Project, 3.0 MW (being expanded to 4.9 MW)	SGS Climate Change Programme
Revision number	Client:
3	KKK Hydro Power Limited

Summary

SGS India Pvt. Ltd., an affiliate of SGS United Kingdom Ltd. has made a validation of the CDM project activity "Baragran Hydro Electric Project, 3.0 MW (being expanded to 4.9 MW)" by KKK Hydro Power Limited, 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 scope of validation is the independent and objective review of the project design document, baseline study and monitoring plan and other relevant documents 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 validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications plan and/or corrective actions may provide input for improvement of the project design document (PDD).

The overall validation process, from Contract Review to Validation Report & Opinion, was conducted using internal procedures (UK.PP.12 issue 3 dated 19/01/2007).

The first output of the validation process is a list of Corrective Actions Requests and New Information Requests (CAR and NIR), presented in Annex 2 of this document. 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**
Work carried out by			
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Technical review			
Ms. – Irma Lubrecht			☒ No distribution without permission from the Client or responsible organisational unit
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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reductions
CO_2	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environment Impact Assessment
GHG	Green House Gas(es)
HPSEB	Himachal Pradesh State Electricity Board
I	Interview
IPCC	Intergovernmental Panel on Climate Change
IREDA	Indian Renewable Energy Development Agency Limited
ISHC	International Stakeholder Consultation
kWh	Kilo watt hour
MNES	Ministry of Non Conventional Energy Sources
MoEF	Ministry of Environment and Forest, Govt. of India
MoV	Means of Verification
MP	Monitoring Plan
MWh	Mega watt hour
MT	Metric Tonne
NIR	New Information Request
PDD	Project Design Document
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention for Climate Change

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1. Introduction

1.1 Objective

KKK Hydro Power Limited has commissioned SGS to perform the validation of the project: "Baragran Hydro Electric Project, 3.0 MW (being expanded to 4.9 MW)" by 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 objective of the project activity is to harness renewable energy in the form of hydro potential for supplying power to the state grid. The project activity involves setting up of total 4.9 MW (3 MW + 1.9 MW) run-of-the-river small hydro power project to export clean power to Himachal Pradesh State Electricity Board (HPSEB) grid, part of Northern Regional grid of India.

Baseline Scenario:

Under the baseline scenario, the project activity thus displaces equivalent amount of electricity from northern regional grid system which is predominantly generated from thermal (fossil fuel based) power plants.

With Project Scenario:

The project activity uses hydro energy for generation of power, which in turn contributes to conservation of fossil fuel, a non-renewable natural resource and also reduces GHG emissions.

Leakage:

As per the methodology AMS-I.D version 11, EB 31; the energy generating equipment(s) is not transferred from another activity, thus no leakage has to be considered.

Environmental & Social Impacts:
According to local assessor, there is no negative environmental and social impact expected due to the project activity.

1.4 The names and roles of the validation team members

Name	***Affiliate***	***Role***
Pankaj Mohan	SGS India	Team Leader / Lead Assessor
Ajoy Gupta	SGS India	Local Assessor
Irma Lubrecht	SGS Netherlands	Technical reviewer

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***
The various requirements are linked to checklist questions the project should meet.	*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 (**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.*

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;

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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.

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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. A Letter of Approval was missing so CAR 01 was raised. The project proponent provided the letter dated 3rd April 2007; issued by the Indian DNA (F.No. 4/23/2006-CCC) which was verified from the original copy. The original is scanned and attached herewith. Hence CAR 01 was closed out.

No Annex I Party has been identified in the PDD and the same also has been verified by cross checking the project investment details and loan sanction letters from IREDA therefore no further Letter of Approval was available. 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 will need to be submitted.

3.2 Baseline selection and additionality

The baseline selected by the project proponent was the most likely baseline scenario. Now, the project has applied baseline as mentioned in the small scale methodology AMS-I.D version 11, EB 31; as per the CDM project activities.

The project proponent has considered the carbon intensive fossil fuel based thermal power generation scenario of the northern regional grid of India as the most likely baseline scenario for the project activity.

The additionality issues of the project activity was not clear, the additionality issues in PDD version 01 have not been addressed the basis of investment barrier towards the project activity and the issue of barrier due to prevailing practice was not well documented with reference to the proper statistical justification thus CAR 11 was raised.

As a reply to the CAR 11, project proponent has explained that additionality of the project was assessed using the barrier associated to the project capital investment due to risk due to low return on investment as the sole source of project revenue is the revenue through power selling to the state grid system and in accordance to the power purchase agreement signed with Himachal Pradesh State Electricity Board the power tariff for the net power evacuation has been fixed at the rate of only INR 2.5 per unit for 30 years and the rate will not be changed in any circumstances.

Project proponent has explained all the project investment related issues and submitted copies all the supporting documentation related to project capital investment and Power Purchase Agreement (PPA) signed with Himachal Pradesh State Electricity Board. The project capital cost involvement has been verified with reference to the loan assistance letter from Indian Renewable Energy Development Agency Ltd. dated 20th December 2000 for 3 MW component, term loan sanction letter from Canara Bank dated 21st December 2004 and the letter from Indian Renewable Energy Development Agency Ltd. dated 18th July 2006 towards loan assistance for the upcoming 1.9 MW component of the project activity, which were found transparent. The terms and conditions for power evacuation to the State Grid system has been verified with the relevant section (Article 6, pp 15) of PPA signed with Himachal Pradesh State Electricity Board and found satisfactory.

To establish the project investment risk due to low return on investment, the project proponent has provided the detail Internal Rate of Return (IRR) calculation along with Chartered Accountant certificate dated 2nd July 2007, showing project IRR without considering CDM benefit is 12.19% and project IRR

considering CDM benefit is 16.11% of total 4.9 MW (current 3 MW and future 1.9 MW) with all relevant reference and explanation towards the benchmark value of 16% on project investment. The issue of low return on project investment with reference to the 16 % benchmark value has been judged through the project IRR calculation sheet and the corresponding expected project revenue calculation during the project period has been verified with reference to the Chartered Accountant certificate as the Chartered Accountants are the statutory auditing and certifying authority as per the India Company Act 1956. (The Chartered Accountants are governed by ICAI, Institute of Chartered Accountants of India, a statutory body established under Chartered Accountants Act 1949.), thus their certification has been taken into consideration while checking transparency of the project IRR values. The project IRR values with and without CDM benefit has been included in the final version (version 4) of the PDD and the benchmark return of 16 % on investment for the project activity for Indian power projects has been cross checked with reference to the Articles/19/ "Energywatch India's Power Sector: On the way of Reforms" and "Stanford-CMU Indian Power Sector Reform Studies by Dr. Rahul Tongia, Carnegie Mellon University, February 4, 2003" as provided by the project proponent. The fact benchmark return of 16 % on investment for the project activity as all the power projects in India are considered viable only if the guaranteed returns of minimum 16% on the capital are ensured, is clearly indicated in the above mentioned articles, which was found satisfactory and thus accepted.

As the supporting towards the barrier due to prevailing practice, project proponent has provided the detailed explanation with the help of references from Ministry of Power, Govt. of India, Central Electricity Authority and Ministry of New & Renewable Energy, Government of India to establish that the development of private sector small hydro power project is not a common scenario in northern region of India and as well as in Himachal Pradesh. All the references from Ministry of Power, Government of India, Central Electricity Authority and Ministry of New & Renewable Energy, Government of India has been cross checked and found justified. The Copies of all relevant documentary evidences such as Central Electricity Authority, Annual Report 2005-06 – Chapter 5 Ministry of New & Renewable Energy Sources, Annual Report 2005-2006, Chapter 9 and datasheet from Ministry of Power have been obtained from the project proponent as the supporting documents.

The resolution/3/ taken by the management board of the company dated 15th July 2000 for initial 3 MW project capacity, 23rd April 2004 for upcoming 1.9 MW capacity addition and 18th August 2004 for total possible expanded capacity of 4.9 MW (3 MW + 1.9 MW) were also provided for the project activity and that reflects, the project proponent has taken the resolution to consider CDM modalities for overcoming the associated barriers during project inception phase. This was also cross verified by interviewing the Director on the Board of the company, Company Secretary for KKK Hydro Power Ltd. and Plant manager of the industry.

As in absence of the project activity, the most plausible baseline for project activity has been considered as the equal amount of power generation through northern regional grid connected thermal power generation facilities, the carbon intensity of the northern regional grid has been cross checked with reference to the emission factor (Combined Margin – calculated according to the guidelines of ACM0002) value from CO_2 Baseline Database version 2.0 provided by Central Electricity Authority, Ministry of Power, Government of India; which is 0.80 tCO_2 per MWh generation. Thus, With reference to the carbon intensity of the northern regional grid it is quite justified that, in absence of the project activity due to the investment barrier due to high project investment and risk associated with low return on investment, the generation of total 4.9 MW power through large thermal power generation facilities connected to the northern regional grid at the baseline would have led to higher GHG emissions, which is in line with the Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

Based on the findings above, it was concluded that the project activity was not a likely baseline scenario and hence additional to any that would occur in absence of project activity. All further relevant

justification has been incorporated in the final project design document (version 04) which were found justified. Thus CAR 11 was closed out.

3.3 Application of Baseline methodology and calculation of emission factors

The proposed CDM project activity is the power generation using hydro power and uses baseline methodology as described under AMS-I.D version 11, EB 31 as per small scale CDM project activities.

The detailed calculation worksheet for grid emission factor was not available for cross checking the calculation for grid emission factor and the traceability of data used during the calculation, thus a NIR 09 was raised asking for a full reference. In response to the NIR 09, the project developer explained the value used for the OM, BM and Combined Margin for grid emission factor has been sourced from the national standard value of northern regional grid as provided by Central Electricity Authority, Ministry of Power, Government of India and provided the full reference of the Baseline Carbon Dioxide Emission Database Version 2.0 and the same has been incorporated in the revised version 4 of the PDD. The project proponent has also provided the emission reduction calculation excel sheets to verify all data and basis of the baseline emissions reduction calculation. The reference and source of the grid emission factor value applied for the emission reductions and the energy generation figures of 3 MW, 1.9 MW and total 4.9 MW as provided under section A.4.3 of the version 02 of the PDD were not clear and satisfactory, along with those some inconsistency were found in the emission reduction calculation spreadsheet. Thus further clarification was asked from the project proponent regarding the same, as the response project proponent has provided the revised emission reduction calculation worksheet including all the relevant references towards applied grid emission factor and energy generation figures with reference to the Detailed Project report and the inconsistency in calculation were also rectified and same has been incorporated in version 4 of the PDD. All the calculation has been checked by the local assessor and found that the baseline emission factors are calculated in accordance with the methodology and the Operating Margin Grid emission factor 0.80 tCO_2 per MWh which has been determined Ex-ante and is fixed for the entire crediting period. Hence, NIR 09 was closed out.

The consideration of leakage calculation for the project activity, as mentioned in the version 01 of the PDD was verified with reference to the contract agreement signed between project proponent and equipment supplier and found satisfactory to accept that the project activity does not involve any transfer of equipment from another activity, along with that the issue of the project activity is not a debundled component of a larger project activity and neither is a project activity registered nor there is an application to register another small scale CDM project activity from the same project participant in same project category, registered within the previous 2 years and whose project boundary is within 1 km of project boundary of the proposed small scale activity has been verified with reference to the CDM project list provided by UNEP Risø Centre CDM Pipeline overview list dated 31-May-07[1] and the ground reality has been also crosschecked by the local assessor during site visit. The copy of the contract agreement with equipment supplier has been obtained. The fact regarding the leakage calculation has been found in line with the methodology AMS-I.D version 11, EB 31.

3.4 Application of Monitoring methodology and Monitoring Plan

The present CDM project activity uses monitoring methodology as described in AMS-I.D version 11, EB 31 as per small scale CDM project activities.

CAR 13 was raised as the monitoring plan mentioned in the PDD version 01, was not clear on the significance of data variable “Energy Imported”, energy meter type, metering location and calibration procedure, QA/QC procedures undertaken and operational and management structure that the project

[1] http://cdmpipeline.org/publications/CDMpipeline.xls

proponent will implement in order to monitor emission reductions and clear indication regarding the roles and responsibilities for data collection and archiving.

The project proponent in their response explained the data variable “Energy Imported” as a significant one as the project activity is importing a small amount of electricity from the state electricity grid during the lean period or during the inconsistency in power generation for meeting up the auxiliary power requirement for the power generating equipments and that is important in calculation of net electricity exported to the grid system by the project activity, which ultimately depends for calculation of emission reduction by the project activity. The parameters needed to calculate ‘net energy exported’ are ‘energy imported’ and ‘energy exported’ to the grid, the electricity imported parameter is subtracted from gross electricity exported parameter to calculate net electricity exported or supplied to the grid system and which are reflected in Power invoices for net electricity export to State grid system and joint meter reading reports. The energy import from the grid is being metered at the interconnection point and adjusted against the Net Saleable Energy in corresponding month’s bill, which was found in line with the terms and condition mentioned in the Power Purchase Agreement signed between project proponent and Himachal Pradesh State Electricity Board. The project proponent has provided the copies of energy bills and joint meter reading reports as the supporting to the monitoring procedure of net electricity exported and electricity imported, the copies of energy bills and joint meter reading reports for last six months and the power purchase agreement signed with Himachal Pradesh State Electricity Board has been obtained and verified to be acceptable.

The project proponent has provided the detail technical specifications of the check and main energy meters being used for monitoring net electricity exported and electricity imported from the state grid system, which are installed at the nearest grid substation and were cross-checked physically by the validator during site visit. The calibration certificates of the main and check meter were also submitted by the project proponent. The copies of energy meter calibration certificates (Meter #1: serial no. 05390244, date of calibration: 16th Oct, 2006; Meter#2: serial no. 05390242, date of calibration: 16th Oct, 2006; calibration done by Power Grid Corporation of India Ltd., A Govt. of India Enterprise, Regional Test Laboratory, Northern Region – II, Jalandhar) have been obtained and verified to be satisfactory.

The project proponent has made all necessary corrections required and all the necessary parameters have been included in the monitoring plan given in the rephrased PDD version 4. All the further incorporation has been checked in final (version 4) of the PDD, which were found justified and that was accepted hence CAR 13 was closed out.

NIR 07 was raised as there was no indication regarding any initial training provided to the project personnel, towards effective operation of the project activity. In response to NIR 07, the project proponent has provided documentary evidence towards the initial training to the technical staff of the project activity provided by the equipment supplier for effective operation of the project activity. The copy of the document (letter from equipment supplier – Boving Fouress Limited, dated 15th October, 2004) was procured from the project proponent and verified. Thus NIR 07 was closed out.

3.5 Project design

The rephrased Project Design Document (PDD) version 04 dated 28-July-07 was designed as per version 4 of guidelines laid for preparing PDD of small scale CDM project activity hence the format of the present PDD was checked against it.

CAR 05 was raised due to some substantive issues in the web-hosted version of the PDD, as Section A.1 of the PDD, current version number of the document and the date when the document was completed has not been described, under sub-section A.4. technical description of the project activity has not been described, the version of the methodology used in the sub-section B.1. and D.1. of the

PDD has not been provided and description under section E.1.2 in the PDD is absent. In response to the CAR 05 project proponent has rectified all the substantive issues in the revised version of the PDD, all the incorporation in the final (version 04) of the PDD which was found satisfactory, thus CAR 05 was closed out.

There was no clear indication of the assurance that the project technology will not be substituted by other or more efficient technologies, within the project crediting period. To get the clarification regarding the same a NIR 06 was raised. In response to the NIR 06, project proponent provided a self explanatory letter towards the implemented technology by the project activity will not be changed or replaced by any improved technology during the crediting period of the project activity. This is accepted as assurance from PP and Hence, NIR 06 was closed out.

The exact starting date of the project activity was not clear in the version 01 of the PDD, thus, a CAR 08 was raised, in response to the CAR 08, the proponent explained that the project start date for the 3 MW component was 5th August, 2004 and the same had been configured in accordance with the date of the commercial operation date of the project activity, as confirmed by the letter no. HPSEB/PHE/BARAGRAN/04-3522-26, dated 23rd August 2004 from Himachal Pradesh State Electricity Board. The copy of the letter from Himachal Pradesh State Electricity Board regarding commercial operation date of the project activity has been obtained and verified with the original copy. The exact project start date has been incorporated in the revised version of the PDD. The 1.9 MW component among the total 4.9 MW installed capacity of the project activity is a future project and yet to be installed, the start date of the 1.9 MW component has been configured as 20th June 2006 in accordance with the date on which it has received Techno-Economic clearance from Himachal Pradesh State Electricity Board. It was expected by the project proponent that the 1.9 MW component will be commercially operational sometime in the month of July, 2007 or later, so the exact start date of the commercial operation of the 1.9 MW component of the project activity should be cross checked during the verification stage. Hence, CAR 08 was closed out.

To get more transparent idea about the description of the project boundary as given in the web-hosted version of the PDD, a NIR 12 was raised. In response to that, the project proponent provided a copy of the general layout diagram of the project activity and same has been included in the final PDD version 4, the extent and component of the project boundary was verified during site visit by the local assessor and the description of the project boundary found satisfactory, hence NIR 12 was closed out.

3.6 Environmental Impacts

NIR 10 was raised as there was no clarification regarding the requirement of EIA study, under the Host Country legislative requirement has been provided with the web hosted version of the PDD and the relevance regarding the term “Environmental Statement” mentioned in the section F of the PDD version 1, was not clear as periodic Environmental Statement in applicable cases is a legal compulsion under Environmental Protection and Pollution Prevention legislative requirement in India.

In response to the NIR 10, the project proponent has provided the detailed reference of the Schedule I, entry number 2 of The EIA Notification No. S.O.60 (E), dated 27/01/1994 and the amendments made there under, according to which the present project activity does not have any compulsion to carry out any EIA study, and the project proponent also declared the unintended occurrence of term “Environmental Statement” in the Section F of the web-hosted version of the PDD due to typographical error. The fact has been verified and a copy of the applicable Host Country legislation has been obtained from the project proponent, the required rectifications have been made in the final version (version 4) of the PDD, which was found satisfactory. Hence, NIR 10 was closed out.

3.7 Local stakeholder comments

The local stakeholder consultation process mentioned in the PDD version 01 does not provided any

clear impression about the media used to invite local stake holder comments, the detail modalities and procedure of LSC meeting and the summary of comments received by stakeholder consultation process. Thus, NIR 02 to NIR 04 was raised to get clarification regarding the same.

The local stakeholders consulted for the project activity are the designated representatives of the local community, Himachal Pradesh State Pollution Control Board, Himachal Pradesh State Electricity Board, Department of Forests, Government of Himachal Pradesh equipment suppliers etc. The local stakeholder consultation meeting was organised on 5th November 2006, at 11:00 am, the venue was Hilltone Resorts in tehsil Manali, District Kullu of State Himachal Pradesh, India. In response to the NIR 02, the project proponent has provided the public notice published on 28th October 2006, a week before the LSC meeting in the local news paper in vernacular language of the local community. The paper cutting of the public notice has been procured from the project proponent and verified, which was found satisfactory, hence NIR 02 was closed out.

The project proponent has provided the detailed minutes along with the copies of complete attendance list and the general comments received during the local stakeholder consultation meeting in response to the NIR 03 and NIR 04. The project proponent also provided the copies of Clearances from Himachal Pradesh State Pollution Control Board, Power Purchase agreement with Himachal Pradesh State Electricity Board, NOC from local village community of village Baragran and Hallan, Clearance and NOC from Department of Forest, Govt. of Himachal Pradesh, Approval from Public Works Department, Govt. of Himachal Pradesh for pipeline, NOC from Town and Country Planning Department, Govt. of Himachal Pradesh, NOC from I & PH Department, Govt. of Himachal Pradesh, to establish the transparency in local stakeholder process, the copy of the documents has been obtained and were duly verified with the original copies and found satisfactory towards the transparency of Local Stakeholder Consultation process, thus NIR 03 and 04 was closed out.

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 UNFCCC CDM website through SGS Climate Change webpage http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=193 and were open for comments from 9th January 2007 to 9th February 2007. 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 comments.

4.3 Explanation of how comments have been taken into account

No comment received.

5. Validation opinion

SGS has performed a validation of the project: “Baragran Hydro Electric Project, 3.0 MW (being

expanded to 4.9 MW)", by KKK Hydro Power Limited. 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.

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 utilizing the renewable hydropower for generation of electricity, 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 investment barrier and other associated barriers with prevailing practice demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. The initial 3 MW component of the project activity is already implemented and the latter 1.9 MW component is underway and hence the project activity is likely to 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.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

6. List of persons interviewed

Date	***Name***	***Position***	***Short description of subject discussed***
12-02-2007	Mr. L.D. Bhatia	Plant Manager	Project proponents view on CDM project activity, baseline and data monitoring for project activity, technical description of the project activity, monitoring plan and reporting procedure.
12-02-2007	Mr. O.P. Sharma	Mech. Engineer	Project instrumentation and monitoring equipment details.
12-02-2007	Mr. Kuldeep Vats	Sr. Accounts Officer	Project financial information such as, project funding, debt-equity ratio, project cost sheet etc.
12-02-2007	Mr. Naresh Negi	Fitter	Project instrumentation and general awareness of the project activity.
12-02-2007	Mr. Naresh Thakur	Local resident	Awareness towards the project activity and type and extent of socio- economic and environmental well being by the project activity.
12-02-2007	Mr. Vivek Kumar	Local resident	Awareness towards the project activity and type and extent of socio- economic and environmental well being by the project activity.

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/ PDD version 1 (web hosted)

/2/ PDD version 2 dated 14.06.07

/3/ PDD version 3 dated 29.06.07

/4/ PDD version 4 dated 24.09.07 (Current)

/5/ Letter of Approval from Indian DNA dated 3rd April 2007

/6/ Modalities of communication

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):

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/1/ PPA between Himachal State Electricity Board and KKK Hydro Power Ltd. for power evacuation to the state grid system.

/2/ Project IRR calculation sheet with Chartered Accountant certificate

/3/ Board meeting minute documents regarding CDM consideration dated 15th July 2000, 23rd April 2004 and 18th August 2004

/4/ Loan sanction from IREDA for 3 MW component

/5/ Loan sanction letter from Canara Bank

/6/ Communication from IREDA regarding loan assistance for 1.9 MW component

/7/ Public notice in the local newspaper for LSC meeting dated 28th October 2006.

/8/ Local Stakeholder Consultation meeting minutes dated 5th November 2006.

/9/ Documentary evidence towards initial training from equipment supplier.

/10/ NOC from Himachal Pradesh State Pollution Control Board.

/11/ NOC from local village community.

/12/ Approval from Public Works Department, Govt. of Himachal Pradesh.

/13/ NOC from Town and Country Planning Department, Govt. of Himachal Pradesh.

/14/ NOC from I & PH Department, Govt. of Himachal Pradesh

/15/ Power invoices for net electricity export to State grid system and joint meter reading reports.

/16/ Calibration certificates of energy meter.

/17/ Proof of project start date (letter of commercial operation start date for 3 MW from Himachal Pradesh State Electricity Board dated 23rd August 2004 & Techno-Economic Clearance for 1.9 MW from Himachal Pradesh State Electricity Board dated 20th June 2006)

/18/ Undertaking document for non-replacement of he implemented technology during the entire span of crediting period.

/19/ Benchmark return on investment for the project activity –

Article 1 - Energywatch India's Power Sector: On the way of Reforms
(Available at: http://www.energywatch.org.in/india_powersector.htm)
Article 2 - Stanford-CMU Indian Power Sector Reform Studies by Dr. Rahul Tongia (Carnegie Mellon University; Email: tongia@andrew.cmu.edu.), February 4, 2003
(Available at: http://iis-db.stanford.edu/evnts/1565/India.pdf)

/20/ AMS-I.D version 11, EB 31

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Annex 1

Local assessment checklist

TABLE 12 ADDITIONAL INFORMATION TO BE VERIFIED BY LOCAL ASSESSORS / SITE VISIT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Whether CDM modalities has been considered during the planning stage of the 3 MW project.	PDD	DR/I	Project proponent submitted the MOM of board resolution which were also verified by seeing the original copy and also interviewing the Plant Manager.	Y	Y
2. Whether the project activity has the positive contribution towards direct and indirect socio-economic and environmental well being.	PDD	I	During site visit, the interview of the employees and local stakeholders has reavealed that the project activity has generated direct or indirect employement opportunity for the local community and down stream bussiness opportunities for the local businessmen and the project activity does no have any negetive impact towards the surrounding environment.	Y	Y
3. Whether the project activity is implementing state-of-the art technology and the project design engineering reflects current good practices.	PDD	DR	A copy of detailed offer made by the equipment supplier is obtained and verified with the original copy.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
4. The regulatory approval (consent to establish and operate the project) from the State Pollution Control Board is required to verify that local/legal requirements have been met.	PDD	DR	The copy of consent to operate letter for 3 MW component from State Pollution Control Board has been obtained and checked with original consent. It was found to be satisfying. As the 1.9 MW component of the project activity is a future project, the consent to operate for the same has to be checked during verification process.	Y	Y
5. Power Purchase Agreement to be checked for the terms and issues associated to the power evacuation to the State Grid system.	PDD	DR	The Power Purchase Agreement (PPA) is available only for 3 MW component of the project activity, which was signed between the project proponent and HPSEB on 30.3.2000. As the 1.9 MW component of the project activity is a future project, the PPA for the same has to be checked during verification process.	Y	Y
6. The status and the issues associated with the activity towards capacity addition of another 1.9 MW turbine generator.	PDD	DR	The required regulatory clearances from the concerned authority such as, technoeconomic clearances from MNES, clearances from Public Works Department, NOC from neighbourhood villagers, essentiality certificate from DC and Letter from I & PH department, Government of Himachal Pradesh has been procured. As the 1.9 MW component of the project activity is a future project, the Forest Clearances for the same has to be checked during verification process.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7. Whether the project activity has utilised any ODA.	PDD	DR	All the project investment details such as loan sanction letters from financial Instituitions have been obtained from the project proponent and it is clear that there are no such involvement of ODA in the project investment.	Y	Y
8. The possibility of anykind of project emission to be checked.	PDD	I	As the project is a run-off-the-river small hydro power generation project and through checking and interviewing the respective project personnel, it has been found that the project activity does not involve combustion of any fossil fuel at any stage, thus nullifying the requirement of any project emission calculation.	Y	Y
9. Whether Stakeholder consultation meeting was designed in proper way to create awareness about the project activity and the comments received to be checked.	PDD	DR/I	Public notice published in the local news paper for declaration and invitation to the LSC meeting has been validated and Letter of No Objection and appreciation provided by the local village community towards NOC on project activity have been obtained to verify the transparency in the local stakeholder consultation process.	Y	Y
10. It is required to be checked whether the project technology used is likely to be substituted by other or more efficient technologies within the project period.	PDD	DR	Project proponent submitted an undertaking that the project activity will not be substituted by other or more efficient technologies within the entire project crediting period.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
11. It is required to be checked that the Small scale project activity is not a debundled component of a larger project.	PDD	I	It has been checked during site visit, that the project activity is not a debundled component of a larger project.	Y	Y
12. Whether the project activity involves any transfer of equipment(s) from another activity.	PDD	DR	None of the equipment of the project activity has been transferred from any other activity, a copy of the letter from equipment supplier has been obtained and verified with the original copy.	Y	Y
13. The designed electricity generaion figures to be cross checked.	PDD	DR	During review of Detailed Project Reports, it was found that the net electricity available from 3 MW would be 19.26 MU instead of 18.90 MU and for 1.9 MW the net electricity available would be 7.83 MU instead of 8.07 MU.	Y	Y
14. The exact start date of the ptroject activity to be validated.	PDD	DR	According to the HPSEB letter HPSEB/PHE/BARAGRAN/ 04-3522-26, the comercial operation start date for 3 MW power generation is 5th August, 2004. As the 1.9 MW component of the project activity is a future project, the commercial production date for the same has to be checked during verification process.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
15. The significance of the electricity being imported from the grid system, to be validated.	PDD	DR	The electricity being imported from the grid is mainly during lean period due to non availability of required flow rate of river water, the electricity imported is of very small quantity which is reflected in the monthly power invoice and the emission reduction for the project activity is being claimed for the net electricity exported (electricity exported to the grid minus electricity imported from state grid) to the state grid.	Y	Y
16. Roles and responsibility for monitiring plan to be discussed and validated.	PDD	DR	The roles and responsibility in accordance with the monitoring plan is incorporated in the revised version of the PDD.	Y	Y
17. Electricity meter and metering location to be checked.	PDD	DR/I	The electricity export being recorded through the panel meter installed at the power house and in addition to that there are two set of electricity meters (1X Main + 1X Check) are installed at the nearest substation of Himachal Pradesh State Electricity Board and all the meters are electronic trivector; 3 phase 4 wire and class 0.2 S type. The reading recorded at the HPSEB substation is the electricity exported data which are reflected in monthly power invoice and the monthly power invoice net electricity export data will be considered during actual emission reducton calculation during the project monitoring period.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
18. The issue of calibration of electricity meters and the laboratory responsible for calibration of the same to be validated.	PDD	DR/I	The electricity meters are being tested and calibrated on half yearly basis through the third party - Power Grid Corporation Ltd. (A Govt. of India Enterprise), Regional Test laboratory, Northern Region – II, Jalandhar, Punjab, India. The latest Calibration Certificate dated 16-10-2006 is procured during site visit and found satisfactory.	Y	Y
19. Operational risk towards the project activity has to be checked with reference to the onsite scenario.	PDD	I	As the project activity is located in the hilly terrain of Himachal Pradesh, there are significant difficulties regarding transportation of construction material and equipments, developing infrastructure (such as access road, pen stock etc.), construction and maintenance of transmission line for power evacuation.	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)

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	The project is unilateral and no annex I participant has been identified.	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 towards Sustainable Development issues. Letter of approval from Host Country (India) Designated National Authority (DNA) to be submitted by the project proponent.	CAR 01	Y
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/ UNFCCC Web-site	DR/ UNFCCC Web-site	Project is unilateral and India has ratified the protocol on 26th August 2002 and is allowed to participate. The web link is 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/I	The purpose of the project activity is to generate electricity by using the renewable hydraulic resources to meet the ever-increasing demand for energy in the Northern region. The development of the project activity would reduce the Green House Gas (GHG) emissions produced by the Northern Regional Grid generation mix, which is mainly dominated by fossil fuel based power plants.	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/ UNFCCC Web -site	Yes, the project is listed on UNFCCC website from 9th January 2007 to 9th February 2007. The project was also listed on SGS climate change website from 9th January 2007 to 9th February 2007. http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=193 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 used the current template version 03 of Small Scale PDD as applicable and followed the guidelines, except pending closure of some CARs/ NIRs.	Pending closure of CARs/ NIRs	Y
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.	Pending Site Visit	Y
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	Y
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 a small scale CDM project activity which comes under category AMS. I. D. and hence table 9 is applicable.	Y	Y

REQUIREMENT	Ref	MoV	Comment	Draft finding	Final Concl
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 current version of PDD used by project proponent present all the information, except pending closure of some CARs/ NIRs.	Pending closure of CARs/ NIRs	Y
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 that can be validated in an objective manner. Parameters, default values used for calculations and sources of specific information provided in the PDD need to be checked. All the pending CAR/NIR need to be closed.	Site visit All pending CAR/NIR need to be closed.	Y

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 SAKEHOLDERS (Ref PDD Section G)

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.1 Have relevant stakeholders been consulted?	PDD	DR	The local stakeholders been consulted, mentioned in the PDD is satisfying.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.2 Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	There is insufficient information about the media used to invite local stakeholder consultation meeting. Public Notice and Invitation Letter towards Local Stakeholder Consultation Meeting is to be provided by the Project Proponent.	NIR 02	Y
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 local stakeholders as a significant requirement for CDM project activity. MoM of the LSC meeting is to be provided by the Project Proponent.	NIR 03	Y
7.4 Is a summary of the stakeholder comments received provided?	PDD	DR	Summary of Stakeholder comments not clear in the PDD.	NIR 04	Y
7.5 Has due account been taken of any stakeholder comments received?	PDD	DR	No adverse comment identified in the PDD. Same has to be cross checked during site visit.	Pending Site visit	Y

TABLE 8 OTHER REQUIREMENTS

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.1 Project Design Document					

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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	There are no such issue has been observed.	Y	Y
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	• In Section A.1 of the PDD, current version number of the document and the date when the document was completed has not been described. • In Section A of the PDD, sub-section A.4. "technical description of the project activity" has not been described. • The version of the methodology used in the sub-section B.1. and D.1. of the PDD has not been provided. • Proper description under section E.1.2 in the PDD is absent.	CAR 05	Y
8.2 Technology to be Employed					
8.2.1 Does the project design engineering reflect current good practices?	PDD	DR	The project documentation reflects current good practice for project design engineering for clean renewable energy generation. The same need to be checked during site visit.	Pending site visit	Y
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	The project uses the technology that would result in cleaner performance. The same need to be checked during site visit and obtain the copy of the same.	Pending Site visit	Y

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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	The technology implemented by the project activity is quite updated and established one and as this kind of small hydro power plant normally sustain for a life span of more than or equal to 30 years. There is no clear indication of the assurance that the project technology will not be substituted by other or more efficient technologies, within the project crediting period. Supporting document for the technology will not be changed/ replaced during the project period needs to be submitted by the project proponent.	NIR 06	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	No such information has been provided in the PDD.	NIR 07	Y
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 is defined in the PDD as January 2004, which is not clearly satisfying the issue of exact start date for the project activity. Documentary evidence for the same is required during site visit. The expected operational lifetime for the project activity was mentioned as 35 years in the current version of the PDD, which is quite realistic for the small hydro power projects.	CAR 08	Y
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	Renewable crediting period has been selected for the project activity and initially a crediting period of seven years has been claimed.	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.3.3 Does the project's operational lifetime exceed the crediting period.	PDD	DR	The project's operational life time is expected to be 35 years which exceeds the crediting period of 7 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 activity is 3 MW run-off-the-river small hydro power plant and it qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 as the installed capacity of the power plant is less than 15 MW, the limit set for the small scale projects.	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, the project activity falls under Type I.D. Grid Connected Renewable Electricity Generation.	Y	Y
9.3 The small scale project activity is not a debundled component of a larger project activity?	PDD	DR	The proposed Small Scale CDM 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	The CDM - SSC - PDD (version 2) template is followed.	Pending closure of CARs/ NIRs	Y
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	The project activity is using AMS-I.D version 11, EB 31	Y	Y

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
9.6 Are the emission reductions determined in accordance with the methodology described?	PDD	DR	The PDD does not contain the emission reduction calculation worksheet. Provide calculation spreadsheet for Baseline Emission Factor (OM, BM) and Emission Reduction. (excel sheet).	NIR 09	Y
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	According to the Host Country legislation no EIA study is required for the proposed project activity. Provide significance of the EIA statement provided in the Section F. of PDD.	NIR 10	Y

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
9.9 The project results in emission reductions that are additional in accordance with the following requirements: • (Para 26) The project is additional if emissions are reduced below those in the absence of the project. • (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 • (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	PDD	DR	The PDD has addressed the Additionality issues through National and/or Sectoral Policies and Circumstances and through Barrier Analysis. But the Additionality of the project activity is not clear- • The Investment Barrier analysis is not clear, please provide more clarity on the same. • Provide logical evidence how the renewable electricity generation through hydro power and export to the regional grid it is not a prevailing practice.	CAR 11	Y
9.10 Leakage is calculated according to the provisions of the SSC methodologies in Appendix B.	PDD	DR	The PDD is claiming as per paragraph 8 of Type I.D. of appendix B of Simplified Modalities and Procedures for Small-scale CDM Project Activities no leakage calculation is required since the project activity is renewable energy technology without transfer of equipment from another activity. This issue to be checked during site visit.	Pending Site visit	Y
9.11 The project boundary shall be constructed in accordance with the requirements of the SSC meths in Appendix B.	PDD	DR	Project boundary is not clear and need to cross checked with the power plant diagram during site visit.	NIR 12	Y

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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	The Monitoring plan is consistent with the requirements of the SSC methodology in Appendix B.	Y	Y
9.13 The monitoring plan shall present good monitoring practice appropriate to the circumstances of the project activity.	PDD	DR	• Monitoring plan does not have any clear clue about the data variable 'Energy Imported' and its significance. • Monitoring plan is also not clear about the exact metering type (specification) and metering location. • QA/QC approach not clear. • There are insufficient information regarding the operational and management structure that the project operator will implement in order to monitor emission reductions and no clear indication regarding the responsibilities for and institutional arrangements for data collection and archiving.	CAR 13	Y
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 not a bundled project activity.	Y	Y

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Annex 3

Overview of Findings

Findings from validation of "Baragran hydro electric project, 3.0 mw (being expanded to 4.9 mw)"

[CDM.Val0890]

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

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: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
1	CAR	Provide Host Country Approval from Indian DNA.	1.2
Date: [25-04-2007] [Response from project developer] The Host Country Approval to "Baragran hydro Electric Project, (3.0 MW Being Expanded to 4.9 MW)" of M/s KKK Hydro Power Limited, at village Baragran, Tehsil – Manali, District – Kullu, Himachal Pradesh has been received from the Ministry of Environment & Forests, Government of India dated 3rd April 2007, Ministry's letter F.No. 4/23/2006–CCC.			
Date: [05-05-2007] [Ajoy Gupta] [Comment Local Assessor] The LOA from Indian DNA has been submitted by the project proponent; the copy of the same has been obtained and verified. Thus CAR 01 could be closed out.			
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, CAR 01 closed.			

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
2	NIR	Please provide the media used to invite stakeholder comments.	7.2

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Date: [25-04-2007] [Response from project developer] Public Notice was advertised on 28th October 2006 in local newspaper 'Divya Himachal' in local language. The Local Stakeholders meeting was held on 5th November 2006, at 11:00 am, the venue was Hilltone Resorts in tehsil Manali, District Kullu of State Himachal Pradesh, India. A copy of the public notice was handed over to the DOE.
Date: [05-05-2007] [Ajoy Gupta] [Comment Local assessor] The copy of the public notice published in the local newspaper has been obtained and found satisfactory; hence NIR 02 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 02 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
3	NIR	MoM of the meeting with Local stakeholder consultation is to be provided by the Project Proponent.	7.3
Date: [25-04-2007] [Response from project developer] The public consultation meeting was conducted on 5th November 2006, at 11:00 am; the venue was Hilltone Resorts in tehsil Manali, District Kullu of State Himachal Pradesh, India. The copy of Minutes of Meeting is handed over to the DOE.			
Date: [05-05-2007] [Ajoy Gupta] [Comment Local Assessor] The minutes of the local stakeholder consultation meeting held on 5th November, 2006 along with the detail attendance sheet to the meeting has been obtained from the project proponent, which verified and found to be satisfactory. Thus, NIR 03 can be closed out.			
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 03 closed.			

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
4	NIR	Provide the summary of comments received during stakeholder consultation meeting.	7.4
Date: [25-04-2007] [Response from project developer] In the stakeholder meeting, the local people were informed about the Project activity, its expansion and the Clean Development Mechanism. They were also informed about the benefits, which they would have from the project activity. Local people had some queries regarding the pipeline & the maintenance of the plantation. The Project Manager said that the pipeline would be painted green or will be cemented. Project Manager further added that for the maintenance of plantation, a person has been appointed to look after them. NOTE: No negative comments were received from the local stakeholder during Local Stakeholder Consultation Meeting			
Date: [05-05-2007] [Ajoy Gupta] The project proponent has provided the minutes of the local stakeholder consultation meeting held on 5th November, 2007 containing summary of the general comments received from the local			

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village communities, which had been addressed properly by the project proponent. The copy of minutes of the LSC meeting has been obtained and verified and also the facts have been crosschecked through interviewing local stakeholders. The entire LSC process carried out by the project proponent was found satisfactory and no negative comments have been observed. Thus, NIR 04 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 04 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
5	CAR	• Provide current version number of the PDD and the date when the PDD was completed under Section A.1 of the PDD. • Provide technical description of the project activity. • Provide version of the methodology used in the sub-section B.1. and D.1. of the PDD. • Provide clear description for sections E.1.1 & E.1.2 in the PDD.	8.1.2

Date: [25-04-2007] [Response from project developer]

1) The current version of the PDD is Version 02. The PDD was completed on 26th April 2007

2) This is a run-of –the-river development scheme of small hydro power projects in which the hydro power plant uses water limited to the rated capacity of the plant, from the natural flow of the river without storage.
The water shall be diverted at an elevation of 1730.50 M through a trench weir and the silt will be eliminated at a desilting unit after which it will be conveyed through partially an open channel and partially through cut and cover up to fore bay which has a temporary storage of 3 minutes. From here the water shall be conveyed under pressure through penstock, which will run the turbine, which is housed, in the powerhouse. The water later on will be released into the river through tailrace channel.
"The technology used for the generation of the power in the Baragran Hydro-Power Project is using Horizontal Francis Turbine (1500 KW) 2 Nos. these turbines have been selected based on the available head at site and are ideally suited for such project".
In the view of better efficiency of the Francis turbine at higher load conditions as compared to Pelton turbine and discharge availability, Francis turbine has been selected.
The Baragran HEP has the potential of producing 4.9 MW power against gross head of 170 m and discharge of 2.7-m3/sec approx. At present Baragran HEP has installation of two 1.5 MW Horizontal Francis turbines and an additional 1.9 MW is to be installed based upon the optimised plant capacity of 4.9 Mw derived from the power potential studies.

3) The version of the methodology is Version 10, dated 23rd December 2006.

4) GHG emission by sources has been given net effect. While calculating Carbon Emission Reduction (CER), net saleable energy has been considered. For E.1.2 formula is not required 'net saleable energy' has been calculated.

Date: [05-05-2007] [Ajoy Gupta]

All the inconsistency in information and data gaps has been addressed and those are incorporated in the version 02 of the PDD, which were found satisfactory. Thus CAR 05 can be

closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, CAR 05 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
6	NIR	Please provide supporting document for the technology will not be changed during the project period.	8.2.3
Date: [25-04-2007] [Response from project developer] There is no need to change the technology used in the Baragran Hydro Electric Project. & this has been declared by the project proponent. A letter of declaration has been given to the DOE.			
Date: [05-05-2007] [Ajoy Gupta] The project proponent has provided a self-undertaking regarding the implemented technology by the project activity will not be replaced an updated technology during the entire project crediting period. Hence, the NIR 06 can be closed out.			
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 06 closed.			

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
7	NIR	Provide the information regarding the extensive initial training and maintenance efforts in order to work as presumed during the project period.	8.2.4
Date: [25-04-2007] [Response from project developer] The initial training was done for a period of 1 month by the equipment suppliers to our technical staff i.e., Junior Engineer, Electrician, Turbine operator etc, at the project site. The certificates for the initial training have been received.			
Date: [05-05-2007] [Ajoy Gupta] The copy of the initial training certificate pertained to the technical staff for functional operation of the project activity has been obtained and verified. This was accepted and hence NIR 07 can be closed out.			
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 07 closed.			

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
8	CAR	Provide the evidence for the starting date of project activity.	8.3.1
Date: [25-04-2007] [Response from project developer] The starting date of the 3 MW component of the project activity is considered as 5th August 2004 through the letter of Himachal Pradesh State Electricity Board (HPSEB), Himachal Pradesh India, letter no. HPSEB/PHE/BARAGRAN/04-3522-26 dated 23rd August 2004. In the letter it has been clearly mentioned that one unit of 1.5 MW of the Baragran Hydro Electric Project may be treated			

as commercially operative with effect of 5th August 2004 the date of its successful passing of commissioning tests. A copy of the letter from the Himachal Pradesh State Electricity Board, Himachal Pradesh, India is handed over to the DOE. The starting date of the 3 MW component of the project activity is considered as 20th June 2006 as the date of Techno-Economic Clearance received from Himachal Pradesh State Electricity Board (ref. HPSEB/CE(P)/CC-Baragran/2006-947-56 dated 20/06/06). The same has been submitted to DOE.
Date: [05-05-2007] [Ajoy Gupta] The copy of the letter from Himachal Pradesh State Electricity board regarding commercial operation start date of the 3 MW component of the project activity has been obtained and verified. The project start date for 3 MW components out of total 4.9 MW installed capacity of the project activity is clear now and that has been accepted. The 1.9 MW component among the total 4.9 MW installed capacity of the project activity is a future project and yet to be installed, the start date of the 1.9 MW component has been checked with reference to the Techno-Economic clearance from Himachal Pradesh State Electricity Board. This was found satisfactory and thus CAR 08 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, CAR 08 closed

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
9	CAR	Provide calculation spreadsheet for grid emission factor (OM, BM) calculation. Provide yearly emission reductions calculation spreadsheet for baseline and project emissions reduction.	9.6

Date: [25-04-2007] [Response from project developer] The calculation spreadsheets for the grid emission factor has been prepared Yearly emission reduction calculation sheet has been prepared. The central Electricity Authority with the Ministry of Power of Government of India has calculated the Operating margin, Build Margin & the Combined Margin for the all the grid. **The electricity system in India** is divided into five regional grids viz. **Northern, Eastern, Western, Southern and North-Eastern. Himachal Pradesh is part of the Northern Grid**, which further consists of Delhi, Punjab, Haryana, Rajasthan, Uttar Pradesh, Chandigarh, Jammu & Kashmir and Uttaranchal. **Therefore, the data of Northern grid has been taken.**
Date: [05-05-2007] [Ajoy Gupta] • The reference and source of the grid emission factor value applied for the emission reductions is not clear and satisfactory, project proponent should provide proper reference and traceable source of the grid emission reduction value and should incorporate the same in the revised version of the PDD. • The reference regarding energy generation figures of 3 MW, 1.9 MW and total 4.9 MW as provided under section A.4.3 of the version 02 of the PDD is not clear, proper justified reference regarding the same to be provided by the project proponent.

- The emission reduction calculation spreadsheet provided by the project proponent, contains data gap and inconsistency, resulting towards faulty emission reduction values. The project proponent should rectify the calculation and all the inconsistency in the ER calculation worksheet and the PDD should be revised accordingly.

Date: [29.06.2007][Response from project developer]

- The traceable reference of the grid emission factor values as provided by CEA CO_2 Baseline Database, Version 2.0 has been incorporated in the revised PDD.
- The expected energy generation figures of 3 MW, 1.9 MW and total 4.9 MW has been taken from Detailed Project Reports for the project activity, the reference has been included in section A.4.3 of revised PDD and the DPRs have been submitted to DOE.
- The corrected calculation worksheet with all traceable references has been provided to the DOE and all the relevant corrections have been made to the revised PDD.

Date: [09.07.2007] [Ajoy Gupta]

All the calculations and default values used during calculations has been cross checked as provided under revised emission reduction calculation worksheet, which were found justified and all the relevant incorporation in version 3 of the PDD has been verified and found satisfactory. Thus, CAR 9 can be closed out.

Date: 16-07-2007 [Pankaj Mohan]
[Acceptance and close out] OK, CAR 09 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
10	NIR	If according to the Host Country legislation no EIA study is required for the proposed project activity, provide significance of the EIA statement provided in the section F. of PDD.	9.8

Date: [25-04-2007] [Response from project developer]

Since the project capacity is 4.9 MW, therefore according to the Ministry of Environment & Forest, Govt. of India, the project doesn't require EIA study vide Notification No. S.O.60 (E), dated 27/01/1994.
The Ministry of Environment & Forests is the nodal agency in the administrative structure of the Government of India for the planning, promotion, co-ordination and overseeing the implementation of environmental and forestry programmes. The Ministry is also the Nodal agency in the country for the United Nations Environment Programme (UNEP). The one of principal activities undertaken by Ministry of Environment & Forests prevention & control of pollution and protection of environment. The main tools utilized for this include environment impact assessment among all sectors.

The Notification No. S.O.60 (E), dated 27/01/1994 is primary notification regulating the EIA studies and approvals. Various amendments have been carried out in this notification from time to time. Hydel Power is covered under Entry No. 2 of Schedule 1 of the said notification. Point No. 3(b) of the same notification reads as under, "Nothing contained in this Notification shall apply to (b) item falling under entry no.1, 2,3,4,5,7,9,10,13,14,16,17,19,21,25,27 of Schedule-I if the investment is less than INR100 crores for new projects and less than INR 50 crores for expansion / modernization projects."

The Baragran is micro hydel power project requiring investment of much less than the threshold

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limit of INR 100 Crores. Hence no EIA study was required for the project. **The copies of the notification are given to the DOE.** EIA statement mentioned in Project Design Document in section is typographical error.
Date: [05-05-2007] [Ajoy Gupta] The project proponent has provided detailed reference of the relevant host country regulation, under which the current project activity does not need to carry out any EIA study, the copy of the relevant clauses and schedules has been obtained and verified. The project proponent also rectified the typographical error mentioned as 'environmental statement' in the revised version of the PDD. This was accepted, thus NIR 10 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 10 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
11	CAR	Additionality issue of the project activity is not clear • The Investment Barrier analysis is not clear; please provide more clarity on the same. • Provide justified evidence how the renewable electricity generation through hydropower and export to the regional grid it is not a prevailing practice.	9.9

Date: [25-04-2007] [Response from project developer]

- Investment barrier analysis for the project activity can be represented as below -
  a. High capital cost involvement – The high initial cost related financial risk impacts significantly towards this kind of small scale hydro power plants, which are subject to face larger hydrological and technological risk. The project calls for an investment of INR 254.7 million (INR 140.10 million for 3.0MW + INR 114.6 Million for 1.9 MW), which is high in comparison with the costs required for conventional power projects. Though the operating cost for small hydropower projects is low, but to minimise the risk related to the project investment to the extent of the above mentioned magnitude is intricate, due to the obvious uncertainty due to low plant load factor, irregular monsoons, uncertainty of the weather along with risks associated with hydropower projects.

     The 3 MW project was commissioned with a debt-equity ratio of 77:23, with the term loan of INR 1237.50 lakhs and INR 150.0 Lakhs from IREDA & Canara Bank respectively and with equity investment of INR 412.50 Lakhs by the promoters/associate concerns. Against the term loans taken from the financial institutions KKK Hydro Power Limited is liable to pay interest on the principal amount of loan at the rate of 13.75% p.a. exclusive of Interest Tax to IREDA and 13.25% p.a. to Canara Bank. Total cost of the project (3 MW) as on 31.03.06 has been increased to INR 1870.05 Lakhs. The cost of 1.9 MW project is INR 1146 Lakhs. The term loan request applied to IREDA for a loan of INR 802 Lakhs, as 70% of the targeted project cost i.e. INR 1146 Lakhs for our 1.9 MW up gradation project.

  b. Risk associated with low return on investment – As the main revenue source for the project activity has been envisaged mainly through the sale of power to the State Grid, but the risk related to the payment option towards power tariff according to the Power Purchase Agreement signed between the project proponent and Himachal Pradesh State

Electricity Board (Article 6 Sale & Purchase of The Energy), paragraph 6.2 (Tariff for Net Saleable Energy), it was clear that the State Electricity Board shall pay KKKHPL for the net saleable energy delivered at the interconnection point at a rate of INR 2.50 per kilowatt-hour only and the rate is firm and fixed for 30 years and shall not be changed due to any reason.

The Internal Rate of Return (IRR) analysis has been prepared to ascertain the return on project investment have been derived as under:

IRR (Without CDM Benefit) -

For Existing 3.0 MW Project	For Expanded 1.9 MW Project	For the total 4.9 MW
12.18%	12.22%	12.19%

IRR (With CDM Benefit) –

For Existing 3.0 MW Project	For Expanded 1.9 MW Project	For the total 4.9 MW
16.56%	15.33%	16.11%

Depending on the benchmark return of 16 % on investment for the project activity as all the power projects in India are considered viable only if the guaranteed returns of minimum 16% on the capital are ensured, the IRR value with CDM revenue shows its necessity of the same for this project activity.

Because of non escalation clause of power tariff in Power Purchase Agreement for a period of 30 years and envisaging operational risk (cost overruns) of the project activity due to its high terrain location financial closure was achieved with great difficulty.

The financial analysis of the project indicates the Internal Rate of Return is 12.19%, which is by, low every standard (considering emissions reductions the inflation rate of 6% in case of India). The CDM revenue will assist the project activity to reach up the required benchmark value and will help to establish the viability of the project activity.

- The large and medium scale power projects hugely dominate the Indian power sector and the same is true for the Northern Grid. The private investors, due to apparent advantages of assured return on investment, economies of scale and easy availability of finances are attracted towards the large and medium fossil fuel based projects and hence hydropower is hugely ignored. The trend is evident from a host of planned projects that comprises mostly large-scale fossil fuel based power generation projects.
  As per table 1 shown on Page No. 2 of chapter 1 (Background and Objective) of CO2 Baseline database for the Indian Power Sector User Guide Version 1.1 December, 2006 of Central Electricity Authority, Ministry of Power, Govt. of India, the contribution of coal and gas based power generation is more than 67% in the grid.
  In accordance with Ministry of Power, Government of India ; India has the total power generation installed capacity of 1,32,110.21 MW including only 26.2% hydro and renewable 5.9 %, which establish the current scenario of power generation mix in India. According to Central Electricity Authority, Ministry of Power, Government of India, as on 31.03.2006, the hydro-electric schemes in operation account for only 19.08% and those under execution are 5.61% of the total potential. Thus, the bulk of the potential (75.32%) remains yet to be developed. According to the Ministry of New & Renewable Energy, Government of India, (tabulated as follows) out of total 525.72 MW installed capacity of SHP in Northern region

Himachal Pradesh has only 22% of total project installed and 6.8% of total projects under implementation.

Small Hydro Power Project	Identified Capacity	Projects Installed (as on 31.12.05)	Projects under implementation (as on 31.12.05)
Himachal Pradesh	1624.78 MW	119.08 MW	52.50 MW
Northern Region (Total)	4699.916 MW	525.72 MW	112.77 MW
India (Total)	10106.02 MW	1747.98 MW	585.13 MW

According to the Ministry of New & Renewable Energy, Government of India so far, private sector SHP projects with an aggregate capacity of about only 400 MW have been set up mainly in Andhra Pradesh, Karnataka, Himachal Pradesh, Punjab, Uttaranchal and Maharashtra state of India out of total estimated potential of 15,000 MW for the country. Through the existing public sector facts and figures it can be established that the private sector small hydro power project development is not the prevailing practice in state of Himachal Pradesh.

Hence, the proposed project is additional and not the same as the baseline scenario and would not have occurred with out considering CDM revenue. CDM revenues are expected to facilitate the project activity to overcome the project barrier as envisaged and leverage the project economics in case of any unforeseen outages, which resulted due to the above uncertainties.

Date: [05-05-2007] [Ajoy Gupta]

- Please provide loan sanction letter from Canara Bank as mentioned and IRR calculation worksheet for establishment of the Investment Barrier.
- The issue of barrier due to prevailing practice has been cross checked with reference to the data provided by Ministry of Power, Government of India, Central Electricity Authority and Ministry of New & Renewable Energy, Government of India and found justified towards the fact that the private sector small hydro power plant projects does not come under the prevailing practice at northern region and Himachal Pradesh. The Copies of all relevant documentary evidences have obtained from the project proponent.

Date: [29.06.2007][Response from project developer]

The term loan sanction letter from Canara Bank and detail project IRR calculation sheet along with Chartered Accountant certificate has been provided the DOE.

Date: [09.07.2007] [Ajoy Gupta]

The barrier regarding project investments has been verified with reference to the project investments and project revenue from power sale to the State Electricity Board. The copies of the loan sanction letter from IREDA for 3 MW, financial assistance letter from IREDA for 1.9 MW expansion dated 18.07.2006 and loan sanction letter from Canara Bank dated 2nd December 2004 have been obtained from the project proponent and verified with the original copy. All the documentary evidences towards loan procured from financial institutions have been found transparent.
The power tariff and the issue of non escalation of the same have been verified with reference to the relevant section of the Power Purchase Agreement signed with Himachal Pradesh State

Electricity Board and found satisfactory. The detail project IRR calculation sheet has obtained from the project proponent. The project IRR calculation sheet and the corresponding expected project revenue calculation during the project period has been verified with reference to the Chartered Accountant certificate which was found transparent. All further detail explanation towards the barrier analysis for the project activity with all justified references has been incorporated in the version 3 of the PDD, which were found satisfactory. Thus CAR 11 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, CAR 11 closed.

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
12	NIR	Provide power plant diagram for justification of the project boundary described in the PDD.	9.11
Date: [25-04-2007] [Response from project developer] The power plant diagram has been provided to the DOE.			
Date: [05-05-2007] [Ajoy Gupta] A copy of the general plant layout has been provided by the project proponent, which provided the clear idea about the various components of the project activity and the project boundary, the same has been incorporated in the version 02 of the PDD. This was accepted, hence, NIR 12 can be closed out.			
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, NIR 12 closed.			

Date: 8th February 2007 Raised by: Pankaj Mohan

No.	Type	Issue	Ref
13	CAR	• Provide the significance of the data variable 'Energy Imported'. • Provide details about the exact metering type (specification) and location. • Provide clear approach towards QA/QC. • Provide clarification regarding the operational and management structure (with help of schematic representation) that the project operator will implement in order to monitor emission reductions and clear indication regarding the responsibilities for and institutional arrangements for data collection and archiving.	9.13
Date: [25-04-2007] [Response from project developer] The energy imported here means the energy consumed in kWh; the energy consumed will be calculated & recorded monthly. The data shall be archived on paper will be kept 2 years after the end of the crediting period. The monitoring will be done at interconnection point. The technical details of main and check meter installed at interconnection point are : Nomenclature : Electronic Trivector Energy Meter (Digital Display), Bidirectional Model No. /Type No. : AC – 3 Phase 4 Wire / Type – ER 300 P Trade Mark or Make : M/s L & T Limited, Mysore			

Serial No. : 05390244
Voltage Ratio : 33KV/110V
Current Ratio : 75/1A

The main and check meter installed at the Interconnection point have one year validity. The main and check meters are installed at the interconnection point in presence of both the parties namely, KKKHPL & HPSEB. These meters are calibrated at the National Accreditation Board for Testing & Calibration Laboratories (NABL) accredited laboratory e.g. RTL Jalandhar. The check meter would be calibrated or replaced with spare tested calibrated meter, as may be necessary. The main meter would be immediately calibrated or replaced with spare tested calibrated meter, as may be necessary where after billing as well as emission reduction calculation would be as per main meter.

The following table shows the QC/QA

Data	Uncertainty level of data (High/Medium/Low)	Are QA/QC procedures planned for these data?	Other explanation why QA/QC procedures are or are not being planned.
D.3.(a)1	Low	Yes	Main and Check meters with one-year validity of M/s L & T Make, Model No./Type No. AC – 3 Phase 4 Wire / Type – ER 300 P
D.3.(a)2	Low	Yes	Sealed meter installed. Monitored by Government regulatory authority
D.3.(a)3	Low	Yes	Difference of (D.3. (a)1) and (D.3. (a)2). Therefore No QC/QA is required.

The project proponent has appointed a full time project in-charge to manage the overall project activities after commissioning. The project in charge will be stationed at the project site and will be responsible for monitoring the generation of electricity and maintaining statutory minimum discharge between the diversion weir and tailrace of the stream. The plant manager would be a qualified diploma/degree engineer who would be responsible in the absence of the plant in-/charge. The junior engineers would also be diploma/degree holders and would be responsible for the monitoring. The Junior Engineers also work as the shift in-charge. The Junior engineers report to Plant Manager & plant manager report to plant in-charge.]

Date: [05-05-2007] [Ajoy Gupta]

- The clarification towards the variable “Energy Imported” is not clear; the project proponent should provide proper explanation.
- The project proponent has provided the proper and justified clarification regarding the energy meter type and metering location, the roles and responsibility of project monitoring team and QA/QC approach towards the monitoring plan and all the necessary points have been incorporated in the version 02 of the PDD. This was accepted.

Date: [28.06.2007] [Response from project developer]

The project site is located in Kullu district of Himachal Pradesh and mainly dependent on snow melt water, according to the Power Purchase Agreement signed with Himachal Pradesh State Article 6; Sale and purchase of the energy; pp 15, during such periods as may occur from time to time, as the project activity is partially or totally unable to operate, the project activity may draw energy required for start up and maintenance of the project from the grid system, which shall be

metered at the interconnection point and adjusted against the Net Saleable Energy in corresponding month's bill.
Date: [29.06.07] [Ajoy Gupta] The explanation regarding the parameter "Energy Imported" has been cross checked with reference to the Power Purchase Agreement signed with Himachal Pradesh State Electricity Board and monthly power invoice and found satisfactory. All the relevant documentary evidences have been procured from the project proponent for any further reference. Thus, CAR 13 can be closed out.
Date: 16-07-2007 [Pankaj Mohan] [Acceptance and close out] OK, CAR 13 closed.

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Annex 4

Statement of Competence of Validation Team

Statement of Competence

Name:Pankaj Mohan 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 Marco van der Linden Date: 03-04-07

Statement of Competence

Name:Ajoy Gupta 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) ☐
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 ☐
12. Consumption of Halocarbons and Sulphur Hexafluoride
13. Solvent Use ☐
14. Waste Handling and Disposal ☐
15. Afforestation and Reforestation ☐
16. Agriculture ☐

Approved Member of Staff by Siddharth Yadav Date: 11/07/2007

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Statement of Competence

Name:Irma Lubrecht SGS Affiliate:Netherlands

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	☐
12. Consumption of Halocarbons and Sulphur Hexafluoride	
13. Solvent Use	☐
14. Waste Handling and Disposal	☒
15. Afforestation and Reforestation	☒
16. Agriculture	☐

Approved Member of Staff by Marc van der Linden Date: 16-03-2007

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