VALIDATION REPORT
RANA SUGARS LIMITED

VALIDATION OF THE GRID CONNECTED BAGASSE BASED CO-GENERATION

REPORT NO. BVQI/INDIA/14.49

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BUREAU VERITAS QUALITY INTERNATIONAL

VALIDATION REPORT

Date of first issue: 17/12/2005	Project No.: 14.49
Approved by: Ashok Mammen	Organisational unit: BVQI Holdings
Client: RANA SUGARS LIMITED, Amritsar	Client ref.: Mr. Rana Inder Pratap Singh

Summary:

Bureau Veritas Quality International (BVQI) has made a validation of the bagasse based cogeneration power project of M/s. Rana Sugars Limited (hereafter called “the project”) located at Village Buttar Seviyan, Tehsil Baba Bakala District Amritsar in Punjab on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

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

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

Report No.: BVQI/INDIA/14.49	Subject Group: GHG/CDM
Report title: Validation Report RANA SUGARS LIMITED Validation of the Grid Connected Bagasse Based Co-Generation	
Work carried out by: KH SHARMA BG BHAT	
Work verified by: Ashok Mammen	

Indexing terms

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VALIDATION REPORT

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Abbreviations change / add to the list as necessary

BMS	BVQI Management System
BVQI	Bureau Veritas Quality International
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CH_4	Methane
CL	Clarification Request
CO_2	Carbon Dioxide
CPP	Captive Power Plant
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardization
KPTCL	Karnataka Power Transmission Corporation Limited
MoV	Means of Verification
MP	Monitoring Plan
NGO	Non Government Organisation
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
RSL	Rana Sugars Limited
IREDA	Indian Renewable Energy Development Agency
PSEB	Punjab State Electricity Board
PPCB	Punjab Pollution Control Board
PEDA	Punjab Energy Development Agency
IRR	Internal Rate of Return
CERC	Central Electricity Regulation Commission

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1 INTRODUCTION

Rana Sugars Limited (hereafter called “the client”) has commissioned Bureau Veritas Quality International (BVQI) to validate its Grid Connected Bagasse Based Cogeneration (hereafter called “the project”) at village Buttar Seviyan, Tehsil Baba Bakala of District Amritsar, Punjab India.

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

1.1 Objective

The validation serves as project design verification and is a requirement of all Client projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project’s compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. BVQI has, based on the recommendations in the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004), employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

1.3 GHG Project Description

Rana Sugars Limited (RSL) is located at Village Buttar Seviyan, Tehsil Baba Bakala District Amritsar. The company is Joint Venture of Punjab Agro Industrial Corporation

Limited. The Factory started its crushing operation in December 1993. Initially, the licensed crushing capacity of the plant was 2500 Tonnes/day. Subsequently, RSL was granted permission for expansion of plant from 2500 TCD to 5000 TCD.

RSL has set-up a Demonstration Co-generation Project (project activity) to produce extra power from the Bagasse (bye-product) and export it to Punjab State Electricity Board (PSEB), Grid Station, Sathiala. The Co-generation Plant has a 55 Ton Boiler at 65 kg/cm2 pressure and 12 MW extraction cum condensing type turbine. The project activity generates electricity and sells it to the PSEB through Power Purchase Agreement (PPA) contract.

The purpose of the project activity is to utilize surplus bagasse available in the region for effective generation of electricity for supply to northern grid to meet the ever-increasing demand for energy in the state. The project activity would reduce the Green House Gas (GHG) emissions produced by the northern region grid generation mix, which is mainly dominated by fossil fuel based power plants.

1.4 Validation team

The validation team consists of the following personnel:

Mr. KH Sharma	BVQI India	Team Leader, GHG Validator
Mr. BG Bhat	BVQI India	GHG Validator
Dr. Ashok Mammen	BVQI India	Internal reviewer

2 METHODOLOGY

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

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual (IETA/PCF, v. 3.3, 2004). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

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

The completed validation protocol is enclosed in Appendix A to this report.

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

Validation Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

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

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by Rana Sugars Limited and additional background documents related to the project design and baseline, i.e. Indian Law, Guidelines for Completing the Project Design Document (CDM-PDD), the Proposed New Methodology: Baseline (CDM-NMB) and the Proposed New Methodology: Monitoring (CDM-NMM) , Approved methodology Appendix B of Simplified Modalities and Procedures for Small Scale CDM project activities and "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories", Version 08: dated 3 March 2006. , Kyoto Protocol , Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

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

To address corrective action and clarification requests raised by BVQI, Rana Sugars Limited revised the PDD and resubmitted it on April 2006. The PDD was revised again subsequent to the request for review from UNFCCC to version 5 dated 24.06.2006 for correcting the typing mistake on page 30 step 10.

The validation findings presented in this report relate to the project as described in the PDD version 5 June 2006.

2.2 Follow-up Interviews

On 16/11/2005 and 17/11/2005 BVQI performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Rana Sugars Limited were interviewed (see References). The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Rana Sugars Limited, Amritsar	➢ Project activity details ➢ Site visit to Project site and on-site interviews with operation and maintenance personnel ➢ Project boundary details and evidences ➢ Base line emissions ➢ Additionality evidences ➢ Project monitoring records maintenance and retrieval ➢ Evidence of project activity period, equipments details etc. ➢ Calculations
LOCAL Stakeholder	➢ Awareness of project activity and repercussions ➢ Confirmation about invitation and discussions with project proponents ➢ Benefits / effects from project activity ➢ Response of project proponents for issues requiring corrective actions
CONSULTANT	➢ PDD documentation conformance ➢ Reference of data used in PDD ➢ Mode of communication between Project management and consultant ➢ Responsibilities of Consultant for CDM

2.3 Resolution of Clarification and Corrective Action Requests

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

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

3 VALIDATION FINDINGS

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

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where BVQI had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented

in the Validation Protocol in Appendix A. The validation of the Project resulted in three Corrective Action Requests and eight Clarification Requests. Delay in resolving the two clarification requests were converted to corrective action requests. Later these two CARs were closed after verifying the required information.

3) The conclusions for validation subject are presented.

3.1 Project Design

The power plant has boiler sized to produce a maximum of 55 TPH of steam and 12 MW steam turbine, which is an extraction cum condensing type machine. The steam conditions at the boiler heat outlet are at a pressure of 65 ata. and at a temperature of 480 ^{0}C. All the necessary auxiliary facilities for the power plant have been provided for the power plant. The plant and equipment facilities have been designed to comply with the applicable stipulations / guidelines of statutory authorities such as State Pollution Control Board etc. Power is generated at 11 kV at the plant and is evacuated to grid at 66 kV through a 140% capacity transformer.

There is no transfer of technology to the host country since the technology is available in India and the equipments have been evaluated to be supplied from Indian manufacturers.

In the absence of the project activity, electricity generated by the power plant of this would have been generated using a fossil fuel in a captive power plant or would have been procured from the grid that is dominated by fossil fuel based thermal power plants. Alternatively, the power would have been produced in other power plants using bagasse from Rana Sugars Limited. In such case, Rana Sugars Limited would produce steam-using coal or fossil fuel received in equivalent heat amount of bagasse supplied. Any of these options would have resulted in higher GHG emissions than those emitted in the project activity.

BVQI recognises that grid connected bagasse based project cogeneration Project of Rana Sugars Limited, Amritsar is helping India fulfill its goals of promoting sustainable development. Specifically, the project is in line with host-country specific CDM requirements because it contributes to sustainable development is as per interim approval guidelines of Government of India for CDM. These guidelines include social, economic, environmental and technological well-being as indicators for sustainable development.
RSL management believes that the project activity has beneficial effect on agriculture, rural industries and employment in the region and has the potential to shape the economic, environmental and social life of the people in the region, specially unemployed educated/uneducated youth with meagre resources. Different sustainable development indicators are described as follows:

Social well-being

- Since, the project is in a rural area, it has lead to overall development of the region.
- Since, the bagasse during the off season is procured from other sources, employment opportunities are being generated for uneducated people having meager resources like bullock cart only, to collect the material and supply the same.
- Preference was given to employment of local people during construction and operation at project site thereby creating opportunities in the area for skilled and unskilled labour. This was confirmed during interviews held by BVQI validation team during site visit.

Economical well-being:

- The project activity has helped to create business opportunity for local stakeholders such as suppliers, manufacturers, contractors *etc*.
- Project activity has helped to reduce the demand-supply gap in the power deficit northern region grid.
- Project activity has helped to reduce transmission losses due to generation of decentralised power close to load points. This has resulted in availability of quality power to nearby villages and industrial units.

Environmental well being

- Since, the project activity uses only Bagasse (carbon neutral fuel) for electricity generation it would eliminate an equivalent carbon dioxide which would have been otherwise generated to produce electricity.
- This electricity generation from the project activity would substitute the power generation by thermal power plants, which supply electricity to the northern region grid. It would contribute towards the reduction in (demand) use of finite natural resource like coal, natural gas etc. minimizing depletion or else increasing availability to other important processes.

Technological well-being

- The technology selected for the power plant is a modern and energy efficient one using a steam turbo generator with matching boiler capable of firing multiple fuels.
- Project activity serves a small demonstrative project for clean renewable energy generation in the state as it is amongst the first sugar mills to set up a cogeneration plant supplying power to grid in the state.

In view of the above arguments, RSL considers that the project activity contributes to the sustainable development.

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Certified Emissions Reductions (CERs) under the CDM, based on an analysis, presented by

the PDD, of investment, technological and other barriers, and prevailing practice.

The project design is sound and the geographical (Rana Sugars Limited, Village Buttar, Tehsil Baba Bakala, District Amritsar) and temporal (25 years) boundaries of the project are clearly defined.

3.2 Baseline

The Rana Sugars Limited Project uses the approved baseline methodology Appendix B of Simplified Modalities and Procedures for Small Scale CDM project activities and "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories", Version 08: dated 3 March 2006
The alternatives considered for determination of the baseline scenario in the context of the project activity include type as appropriate

The baseline options considered do not include those options that:

- Do not comply with legal and regulatory requirements; or
- Depend on key resources such as fuels, materials, or technology that are not available at the project site.

The possible alternative baseline scenarios are the following:

(a) Proposed project activity without CDM;
(b) Apply and avail CDM benefits to ensure that GHG emissions are reduced

The most economically attractive alternative among the alternatives mentioned above, has been selected as the baseline scenario, since such alternative is not expected to face any prohibitive barriers that could have prevented it from being taken up as the project activity. The barriers as evaluated by validation team are as below:

Prevailing Practice Barriers
The prevailing and the common trend in the Indian power sector have been investments in the fossil fuel based power plants. This is mainly due to assured return on investments, economies of scale and easy availability of finances and can be considered to be prevailing practice.
In spite of the announcements of new policies by the Government for enhancement of contribution in renewable energy and for encouraging conducive environment of investment of private investors the current situation for Punjab state indicates that power generation from renewable sources accounts for about 3.0% only.
This clearly indicates that practice of generating power from the biomass has not penetrated in the region.
RSL as project proponent has taken a lead in this region to fight out this prevailing practice barriers e.g. in the area of maintenance, boiler firing, trained manpower etc.

It was evident that RSL decided to go ahead with the implementation of the project activity taking CDM funding into consideration.

Institutional barriers:
RSL is selling power to PSEB through a 20 year Power Purchase Agreement (PPA) contract signed on 4th May 2005. PSEB as per the data available till 2001-02, PSEB has been incurring heavy commercial losses (Commercial loss (with subsidy) for PSEB (off-taker) in the year 2000-01 was INR 1476.65 billion[*]) since last one decade and there could be cash in flow problems for the project.
RSL signed a PPA with PSEB considering that CDM funding would help to partly offset the anticipated losses.
One of the major financial burdens the RSL has to bear is in the form of TG set charges (also referred as parallel operating charges in PDD), which amounts to approximately INR 1.36 Lac (approximately $ 3022). No provision for this is indicated in PPA and this is evidence of institutional barrier indicating inconsistency.
Delay in signing of PPA, risks involved in PPA compliance e.g. freezing of tariff for fifth onwards up to remaining period of 15 years, and revision of tariff to lower rates were other examples evident during site visit interactions indicating the existence of institutional barriers.

Other Barriers
Expected policy effects:
The New Electricity Act-2003 announced by Government consolidates laws relating to electricity generation, transmission, distribution and trading. This act requires that bulk purchase of power by SEB's be routed through tendering process with selection of power supplier offering lowest rate on competitive basis. Since the Act supports the power generation with lower tariffs, the power generated by the cheaper fuels like coal and lignite may get accepted. Northern region electricity generation data indicates that approximately 30% of power plants based on the coal and lignite these may adversely affect the feasibility of the non-emissive biomass based power project activity.

Increased Fuel Prices
The prices of Bagasse in the region have gone up considerably as the demand started growing. This is rightly evaluated to be a barrier and is a global phenomenon. Since the fuel price is critical to the power cost and it is affecting the economy of the project activity. It is a barrier for RSL in the current situation.
RSL has signed the PPA, which indicates"PSEB shall continue to purchase electricity at a price of Rs.3.01 per Unit (base year 2000-2001) with 5% annual escalation up to 2004-05. There after no escalation will be allowed during the pendency of the agreement." This indicates that the project proponents shall have to bear the effect of increase in fuel prices on its own and the CDM funds may partly reduce the losses.

[*] http://powermin.nic.in/indian_electricity_scenario/pdf/NR0105.pdf

3.3 Monitoring Plan

The Project uses the approved consolidated monitoring methodology "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, Version 08: dated 3 March 2006 for grid connected bagasse based cogeneration project, and PDD version 04 dated 10/04/2006).

The adopted monitoring methodology has been chosen based on the following reasons that are pre-requisites:

- The project activity comprises of renewable energy generation units.
- The renewable biomass used in the project supplies electricity to and/or displaces electricity distribution system that is or would have been supplied by at least one fossil fuel.
- The project activity includes biomass combined heat and power (co-generation) systems that supply electricity to and/or displaces electricity from a grid.
- The all the boilers combined have energy output less than 45MW (Thermal).
- Project activity consists of metering the electricity generated by the renewable technology.

3.4 Calculation of GHG Emissions

As per Appendix B of the simplified modalities and procedures for small-scale CDM project activities, "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories" version 8, 3 March, 2006 , the baseline emission sources considered are fossil fuel fired power plants connected to the relevant electricity system (grid).The relevant grid considered for the calculation of baseline emissions is the Northern Region grid. The reason for such exclusion of the latter grids is as per decided operational national network by the relevant national authority.

As required under "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, Version 08: dated 3 March 2006", the baseline emissions are calculated as per combined margin approach, both in terms of relevant grid definitions and the emission factors. The operating margin in the baseline emissions is calculated as per point 9 described in 1-D of Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories. For calculating the operating margin, data vintage of 3-year average (based on the most recent publicly available statistics available at the time of PDD submission) has been used. The build margin calculations have been completed with most recent information available on plants already built at the time of PDD submission. The combined margin calculation is based on straight average of operating and build margin. The detailed algorithms are described later under sections B.5 of the PDD.

As described in , the project emissions (CO_2) result due to combustion of biomass bagasse that is considered Carbon neutral fuel and hence not accounted. With reference to "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, Version 08: dated 3 March 2006" the project does not lead to any leakage.

3.5 Sustainable Development Impacts

No significant environmental impacts have been identified from the project activity. The other normal (negative/ positive) environmental impacts assessed due to the activity are summarized below:

This electricity generation from the project activity substitutes the power generation by thermal power plants, which supply electricity to the northern region grid.

This CDM initiative would contribute towards:

- The reduction in (demand) use of finite natural resource like coal, natural gas etc.
- Minimizing depletion or else increasing availability of these finite natural resources to other important processes.

In view of above positive impacts and contribution towards the country's goal of sustainable development and improvement in quality of life of local population, the development and implementation of systems for grid connected bagasse based cogeneration project were recommended by the Rana Sugars Limited, Amritsar management. The clearance of this CDM initiative by Rana Sugars Limited, Amritsar would facilitate the process of sustainable energy production.

3.6 Comments by Local Stakeholders

Local stakeholder consultation meeting to discuss stakeholder concerns on the proposed Clean Development Mechanism (CDM) project – grid connected bagasse based cogeneration project at Rana Sugars Limited, Amritsar grid-connected power plant in Punjab state of India, was held at time on 11/09/2001 at the premises of Rana Sugars Limited, Amritsar in the Punjab state, India.

The list of participants, notice inviting participation to interested stakeholders, the project participants maintain documented record of the stakeholder meeting proceedings.

The stakeholders viewed the company name project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development. The local stakeholders interviewed during the site visit of the validation activity endorsed these views.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

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

No Comments were received from Parties, stakeholders, or non-governmental organisations during the commenting period.

5 VALIDATION OPINION

BVQI has performed a validation of the Rana Sugars Limited Project in India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan (September 2005); ii) follow-up interviews with project stakeholders (December 2005); iii) the resolution of outstanding issues and the issuance of the final validation report and opinion (April 2006) which was revised again for incorporating the correction for request for review received from UNFCCC correction page 30 Step 10. The revised report is Version 2 date June 2006.

By generating electricity from Bagasse at the manufacturing facilities, the project is likely to result in reductions of GHG emissions partially displacing electricity that would have otherwise been purchased from the grid. An analysis of the investment and technological barriers in section 3.2 demonstrates that the project activity is not a likely baseline scenario.

These are also detailed in the revised PDD version 05 dated 24.06.2006 submitted as one of the documents in support of the validation of this CDM project.

Validation team is of the opinion that the above mentioned barriers are strong enough to affect the decision of project implementation and in case if due to any of the above reason project implementation cancels, the proposed grid to which the project will feed power will alternatively get the power from the project alternatives as discussed above. Since, these alternatives are more GHG emissive, project option only can reduce the GHG emissions. Although there is a good potential for Indian Power Producer's to implement such power projects in India very few have adopted for the similar project activity due to above strong barriers. Therefore, the proposed renewable energy project is an additional activity as it over comes the above barriers by taking up additional risk of implementation.

In absence of the project proponent's initiative to implement the project, the state/regional grid mix dominated by fossil fuel based power plants would have generated the equivalent electricity through more GHG intensive processes.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (24 June 2006 Version 05) and the subsequent follow-up interviews have provided BVQI with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Following additional information observed during validation process is furnished as below:

1- Rana Sugars Limited, the project proponents were given financial assistance through USAID partnering with Industrial Development Bank of India (IDBI). Implementation of an advanced cogeneration project is indicated to be January 2001. Reference is taken from a journal published by Cane Cogen India, A quarterly Newsletter of the GEP Project (ABC component), India. ISSN 0972-0855 VOL XV, June 2003. Justification of the organisation is that since US has not ratified Kyoto Protocol, it is not Annex-1 country.

2- Rana Sugars Limited the project proponents were disbursed loan in the year. This is indicated in the Petition No. 11 of 2003, Date of Order: 21.06.2004 heard by Punjab State Electricity Regulatory Commission, Chandigarh, Punjab, India. The details are available at Internet with reference of IREDA and 99. In the sited petition RSL prayed that Cogeneration plant in addition to 4 MW to be considered as extension of old Plant set up before year 2000 to avail of earlier and higher rates of Tariff.

Under the scheme, the petitioner was sanctioned equity of Rs.255 lacs from the State Government based on Rs.25 lacs per MW of surplus power with reference to anticipation of 10.2 MW surplus power. Under the scheme, the petitioner also obtained

sanction of loan of Rs.1660 lacs from IREDA in ADB line of credit and also obtained first disbursement of Rs.200 lacs in May 1999. The sanction of loan by IREDA was based on a Letter of Intent issued by the PSEB offering to purchase electricity at the rate of Rs.2.25 per unit with no restriction of time or quantum of electricity supplied for sale.

The validation is based on the information made available to us and the engagement conditions detailed in this report. BVQI cannot be held liable by any party for decisions made or not made based on the validation opinion.

6 REFERENCES

Category 1 Documents:
Documents provided by Rana Sugars Limited that relate directly to the GHG components of the project.

/1/ Initial PDD document

/2/ Revised PDD document version 05 dated 24 June 2006

/3/ Calculations justifying the installed Boiler capacity to be less than 45 MW (Thermal).

/4/ Power Purchase Agreement with Punjab State Electricity Board dated 4th May 2005 and the details therein indicating the fixed tariff for fifth year onwards.

/5/ Proof of commissioning of Co-generation plant.

/6/ MOEF approval dated 26.12.2005

/7/ Request for Host Country Approval for CDM project of small-scale bagasse based power project.

/8/ Logbooks of Co-generation plant.

/9/ Communication about consent with Punjab Pollution Control Board (PPCB) dated 10.12.05

/10/ Punjab Pollution Control consent for Air, Water and hazardous waste (Provided on 06/03/2006)

/11/ Minutes of meeting with Local Stake holders held on November10 2001 in Gurumukhi language (Translation in English duly certified by responsible person project proponents provided on 06/03/2006)

/12/ Organisation structure for management at Rana Sugars Limited, Amritsar (uncontrolled)

/13/ Technical specification of Boiler 50TPH (maximum) installed at Rana Sugars Limited.

/14/ Technical specification of Power Generating Station installed at Rana Sugars Limited.

/15/ Letter intimating to Punjab State Electricity Board regarding starting of new 12MW Turbo Generator set.

/16/ Letter from Director, PSEB Patiala for Release of payment for March & April, 2002

/17/ Clearance certificate for commissioning of new boiler 50TPH for 10.2 MW bagasse based co-generation project number 27609 dated 13.11.02

/18/ Contract agreement between Rana Sugars Limited and Siemens Limited

/19/ Boiler Inspection Certificate

/20/ Registered Letter dated 05/09/2005 for subject dated Proceedings of the personal hearing given u/s 21 of the Air (Prevention & Control of Pollution) Act, 1981 to M/s. Rana Sugars Limited. Village Buttar Seviyan. PO Sathiala, Tehsil Baba Bakala, Dist. Amritsar by the Chairman of the Board at Chandigarh on 30/08/2005

/21/ PSEB monthly bill dated 02/06/2006 indicating the energy charges and TG set charges for the month of May 2006

/22/ Bills for the year 2002 & 2006 for fuel indicating the increase in fuel prices

/23/ Order of Central Electricity Commission indicating decision to charge Parallel Operation Charges per KVA of installed capacity

/24/ Internal Rate of Return for RSL

Category 2 Documents:

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

1 Appendix B of the simplified modalities and procedures for small scale CDM project activities.

2 Northern Region Grid data used for calculation of build margin and emission factor.

3 Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories, Version 08: dated 3 March 2006.

4 Guidelines for completing CDM-SSC-PDD and F-CDM-SSC-Subm, Version 01

5 Kyoto Protocol to the United Nations Framework Convention on Climate Change, United Nations, Dec 1997.

6 Baseline for Rana Sugars Limited.

Persons interviewed:

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

1	Mr. Rana Inder Pratap Singh	Director
2	Mr. Santokh Singh	Chief Engineer & In charge Co-generation Power Project
3	Mr. G.S. Khehra	Dy.Chief Engineer
4	Mr. Narendra Pratap Singh	Instrumentation Engineer
5	Mr. Navin Mathur	Manager-Bunge India Limited, Consultant for Rana Sugars Ltd.
6	Mr.Hardev Singh	Boiler Foreman
7	Mr. Shames-u-haq	Co-gen Turbine foremen
8	Mr. R.P.Singh	Electrical Foreman
9	Mr. Ajeet Singh	Sarpanch- Village Buttar Seviyan
10	Mr.Channan Singh	Ex-sarpanch - Village Buttar Seviyan
11	Mr. Gurmej Singh	Ex-sarpanch - Village Buttar Seviyan
12	Mr.Gurdit Singh	Ex-sarpanch - Village Buttar Seviyan
13	Mr.Nirmal Singh	Lambardar- Village Buttar Seviyan

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ANNEX A

COMPANY CDM PROJECT VALIDATION PROTOCOL

SMALL-SCALE CDM VALIDATION PROTOCOL

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	See Table 2, Section A.3.3	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	Project proponent has obtained the host country approval from Ministry of Environment & Forest (DNA, India) on 26th December 2005 vide letter no. F.No.4/22/2005-CCC	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	See Table 2, Section A.3.3	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small	Project proponent has obtained the host country approval from Ministry of Environment & Forest (DNA	Written approval of voluntary participation from the DNA dated 26.12.2005 is

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
	Scale CDM Project Activities §23a	Environment & Forest (DNA, India) on 26th December 2005 vide letter no. F.No.4/22/2005-CCC	received & attached.
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	See Table 2, Section E.4.1	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	Yes See Table 2, Section B.2.1	Table 2, Section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	The project will not receive any public funding from Parties included in Annex 1.	Declaration by the company at Annex 2 of the PDD.
2. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	Ministry of Environment & Forest is the Host Party's (India) Designated National Authority for CDM	Government of India has designated the National Clean Development Mechanism (CDM) Authority under Ministry of Environment & Forest to act as DNA. Source http://cdm.unfccc.int/DNA

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
8. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	Yes	Date of accession – 26/08/2002 Source http://unfccc.int/parties_and_observers/parties/items/2109.php
3. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	Yes See Table 2, Section A.1.1, A.1.2, Table 2, CAR-1	Table 2, Section A.1
9. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	Yes. The project design document does conform with the Small Scale CDM Project Design Document format (version 02, 8 July, 2005) is currently valid	Gaps were identified during documentation review and the requirements of PDD with the small-scale CDM projects were conformed.
4. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	Yes Type 1, Category 1. D.	Table 2, Section A.1.3 and B.1
10. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	Yes See table 2, Section G.1.1	Table 2, Section G
11. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project	Not required by the host country	Table 2, Section F

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
	Activities §22c	See table 2, Section F.1.1	
12. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	PDD was made publicly available for 30 days from 08/11/2005 to 07/12/2005 on the UNFCCC website and public comments were invited.	Source http://cdm.unfccc.int/Projects/Validation

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. **Small scale project activity** It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	1	DR	As per 17/CP.7, the justification for the project qualifying to be small scale is not adequately documented in PDD. Requirements of Appendix B of Modalities and Procedures for small-scale CDM project activities have been verified during site visit followed by technical qualifications of Boiler Capacity to be less than 45 MW (thermal).	CAR-1	OK
A.1.2. The small-scale project activity is not a debundled component of a larger project activity?	1	DR I	During site visit interactions indicate that RSL has not registered or applied for registration of any other project in similar category and whose project boundary is within 1 km of project boundary of the small-scale project activity. Refer A.4.5 of PDD.	OK	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small-scale CDM project activities?	2	DR	Yes, Project Type I – Renewable energy project Category ID: Renewable electricity generation for a grid.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. **Project Design** Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	1	DR I	The project site location is indicated in PDD. This is Bagasse based cogeneration power project of Rana Sugars Limited, in Amritsar District in state of Punjab. Project boundary has been defined in the PDD and the same is indicated to be Khasra numbers 104/9/21, 10/2, 86/3/2, 86/4/3, 42/24/1.	OK	OK
A.2.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1	DR	Refer A.2. and B.4. of PDD PDD details the components and facilities such as 55TPH boiler and 12MW steam turbine.	OK	OK
A.2.3. Will the project result in technology transfer to the host country?	-	DR	No, as indicated in PDD – Refer A.4.2. There is no transfer of technology to the host country.	OK	OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	-	DR I	The details of training requirements whether initial or continuous are not indicated in PDD. The equipment manufacturer such as BHEL provides One month training. Siemens for switch yard (transformer and synchronising equipments, walchandnagar industries ltd. For Boilers. Boiler attendances are First Class Boiler attendant. The employees are also found attending trainings on regular basis.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3. **Contribution to Sustainable Development** The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1	DR I	Yes. The A.2. Project activity's contribution details economical and technological well-being in addition to Social and environmental well being indicators.	OK	OK
A.3.2. Is the project in line with sustainable development policies of the host country?	1	DR	Yes Refer A.2. of PDD	OK	OK
A.3.3. Is the project in line with relevant legislation and plans in the host country?	-	DR I	MOEF approval is to be received. The GOI policy for CDM projects is in line. Application to Punjab Pollution Control has been made for consent but the same is awaited. There is specific policy in Punjab state New and Renewable Source of Energy, which is considered.	CAR-2	OK
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. **Baseline Methodology** It is assessed whether the project applies an appropriate baseline methodology.			It is assessed that project applies an appropriate baseline methodology.	OK	OK
B.1.1. Is the selected baseline methodology in line with the baseline methodologies	1,2	DR	The approved methodology For Type I Cat. D has been considered in accordance with simplified	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
provided for the relevant project category?			baseline and monitoring methodologies for selected CDM projects- Appendix B.		
B.1.2. Is the baseline methodology applicable to the project being considered?	1,2	DR	The methodology indicated is applicable to use of Biomass, a renewable energy source. Refer B.1.1. and B.2. of PDD	OK	OK
B.2. **Baseline Determination** It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	1	DR	Refer B.3 of PDD. The explanation demonstrates the existence of prevailing practice barrier, institutional barrier, changes in policy risks and increased fuel prices risks and other barriers adequately.	OK	OK
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1	DR I	Refer B .5 of PDD. Average OM and Average BM has been calculated. The determination of the chosen baseline is transparent and conservative. Refer. E.3.6	OK	OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	-	DR	Yes as given A.2. and B.3.	OK	OK
B.2.4. Is the baseline selection compatible with the available data?	1	DR	Yes. Details are provided in PDD and justification provided for base line selection.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1,2	DR	Yes Refer B.5 of PDD	OK	OK
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	1	DR	Starting date not as per format i.e. in DD/MM/YYYY Starting Date is indicated in PDD as August 2001.	CAR-3	OK
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	1	DR	Yes. Renewable 7 years 0 months	OK	OK
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. **Monitoring Methodology** It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	1,2	DR	The monitoring methodology is as per methodology "Metering the electricity generated" as indicated in Appendix B of simplified modalities and procedures	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			for small-scale CDM projects.		
D.1.2. Is the monitoring methodology applicable to the project being considered?	1,2	DR	The reasons for choosing this monitoring methodology are appropriately justified in the item D.2 of the PDD	OK	OK
D.1.3. Is the application of the monitoring methodology transparent?	1,2	DR	Punjab Electricity Board and the project participant are monitoring the data together. The electricity is metered at the grid inter-connection point against which the payment is to made on monthly basis on the basis of joint meter reading carried out by RSL and PSEB representative. Both parties jointly sign meter readings.	OK	OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1	DR	This methodology is reliable as long the energy meter provided by the state electricity utility is in un-interrupted operation. The monitoring includes three-step metering and has appropriate back-up provision.	OK	OK
D.2. **Monitoring of Project Emissions** It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	1	DR	Yes the project emission is indicated in PDD. The quantity of Carbon di-oxide emissions during the combustion of Bagasse is mentioned to be absorbed by the Sugar Cane (during growing) is not justified. Being a carbon neutral fuel it is assumed that there will be net zero GHG emission The Carbon di-oxide emissions currently are not	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			monitored and measured.		
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1	DR	Refer D.2.1.	OK	OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR	Refer D.2.1.	OK	OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1	DR	Yes, Paper records are maintained for 2 years more than crediting period. Records are being maintained by Accounts Department.	OK	OK
D.3. **Monitoring of Leakage** It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	1	DR	The leakage discussed in PDD for transportation of Rice husk has been considered negligible.	OK	OK
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1	DR	Refer D.3.1.	OK	OK
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1	DR	Refer D.3.1.	OK	OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1	DR	Refer D.3.1.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.4. **Monitoring of Baseline Emissions** It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1	DR	Reasonable and as per approved monitoring plan in Appendix B.	OK	OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1	DR	Yes. Specified base line emission indicators are based on Northern Region grid and CEA data have been used to determine the base line and the same can be measured on the basis of annual performance report of the plants.	OK	OK
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR I	Refer D. 1.4 Measuring is by Energy meters at the generation and distribution point. The provision of stand-bye measuring instrument and the transparency support good manufacturing practices. Details to be verified during site visit. Refer D.5.9.	OK	OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1	DR	Yes Data is being collected in paper. Archiving provision is put in place and the data will be preserved for period of minimum two years beyond end of crediting period. Provision of archiving base line emission data sufficient to enable later verification.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5. **Project Management Planning** It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	1	DR	The management structure has been included in the PDD. Refer D.5 of PDD	OK	OK
D.5.2. Is the authority and responsibility for monitoring measurement and reporting clearly described?	1	DR I	The authority and responsibility for monitoring measurement and reporting is defined in the PDD. Refer D.5. of PDD.	OK	OK
D.5.3. Are procedures identified for training of monitoring personnel?	1	DR I	Procedure for identifying training of monitoring personnel has been identified. Records and personal interaction at site visit indicated conduct of required trainings.	OK	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1	DR I	The procedures for emergency preparedness for cases have been identified in the PDD.	OK	OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	1	DR I	State Electricity Utility is doing the calibration of monitoring equipment. Calibration records verified during site visit for ensuring continuous implementation.	OK	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1	DR I	Procedures for maintenance of monitoring equipment and installations have been now identified in PDD and the actual implementation is observed.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1	DR I	Procedure for monitoring, measurements and reporting is indicated in PDD.	OK	OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1	DR I	Procedures are identified as per methodology. Director has assumed responsibility for the CDM/GHG project activity related records.	OK	OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1	DR I	The payment of electricity is made against the electricity meter at Grid Interconnection point. PSEB makes payment against meter reading main meters. There is a check meter at sub-station reading of which is compared. There are no cases for possible monitoring data adjustments and uncertainties. Refer D.4.	OK	OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1	DR I	Procedures for internal audit for GHG project compliance with operational requirements are part of the internal audit system. Compliance is evident.	OK	OK
D.5.11. Are procedures identified for project performance reviews?	1	DR I	Monthly performance reporting to PSEB is in place.	OK	OK
D.5.12. Are procedures identified for corrective actions?	1	DR I	Procedures for corrective actions are identified.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. **Project GHG Emissions** The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1	DR	Yes. Refer E1.1.	OK	OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Yes. Refer E1.1.	OK	OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1	DR	Yes. Refer E1.1.	OK	OK
E.1.4. Are the calculations documented in a complete and transparent manner?	1	DR	Yes. Refer E1.1.	OK	OK
E.1.5. Have conservative assumptions been used?	1	DR	Yes. Refer E1.1.	OK	OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	1	DR	Yes. Refer E1.1.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2. **Leakage** It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1	DR	Refer details indicated in E.1.2.2. These have been assessed and described.	OK	OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	1	DR	Refer details indicated in E.1.2.2.	OK	OK
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1	DR	Not applicable	OK	OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1	DR	Not applicable	OK	OK
E.2.5. Have conservative assumptions been used (if applicable)?	1	DR	Not applicable	OK	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1	DR	Not applicable	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3. **Baseline GHG Emissions** The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1	DR	Yes refer B.4 of PDD	OK	OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1	DR	Yes	OK	OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Yes.	OK	OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1	DR	Yes. BE_y (tCO_2/yr) = EG_y **X** Efy. BE_y (tCO_2/yr) = Baseline emissions in year y EG_y **X** Efy. = Electricity Generated by project in Year Y X Emission factor for year Y.	OK	OK
E.3.5. Are the calculations documented in a complete and transparent manner?	1	DR	Yes. The PDD has used base line emission factors for the year 2001 when the project was commissioned.	OK	OK
E.3.6. Have conservative assumptions been used?	1	DR	At all places the conservative and transparency is evident.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.4. **Emission Reductions** Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	1	DR	Yes .	OK	OK
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1	DR I	Not required. Refer F.1.	OK	OK
F.1.2. Does the project comply with environmental legislation in the host country?	1	DR I	Application is awaiting approval or consent from Punjab Pollution Control Board.	CL-7 to CAR-4	OK
F.1.3. Will the project create any adverse environmental effects?	1	DR	No.	OK	OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1	DR	Not required. Environmental impacts have been described in PDD.	OK	OK
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	1	DR I	The villagers in the near vicinity were contacted before the implementation of the proposed project activity and were apprised about the execution of	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			activity and were apprised about the execution of wind farm project. The local stakeholders raised no issues, thus no action were required. Minutes of meeting of the meeting conducted with Stakeholders indicated appreciation by the nearby villagers of the various environmentally safe steps taken by organisation.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1	DR	Refer G.1.1	-	-
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1	DR	Not required.	OK	OK
G.1.4. Is a summary of the comments received provided?	1	DR	No. Refer G.1.1.	-	-
G.1.5. Has due account been taken of any comments received?	1	DR	Not applicable. Refer G.1.1..	-	-

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR-1 As per 17/CP.7, the justification for the project qualifying to be small scale is not adequately documented in PDD.	A.1.1.	Section A 4.2 state that as the installed capacity of the project is 12 MW, which is less than 15 MW, it qualifies as a Type-I Renewable energy projects in Category-D. Also, the project qualifies for small-scale project, as the total rating of the boilers is less than 45 $MW_{thermal.}$ The same has been included in the revised PDD.	The information provided is considered sufficient. The corrective action request is closed. Calculations were also checked and the conclusion indicates meeting the requirements of small-scale CDM projects.
CL-1 Project boundary is not specifically defined in PDD. Information on Latitude, Longitude and the revenue land information (Khasra no.) is not furnished in PDD.	A.2.1	The project activity is located in the Khasra Nos. 104/9/2/1, 10/2, 86/3/2, 86/4/3, 42/24/1 in Village Buttar Seviyan, Tehsil Baba Bakala District Amritsar, Punjab. The same has been included in the revised PDD.	The information provided is considered sufficient. The clarification request is closed.
CAR-2 MOEF approval is to be received.	A.3.3	MOEF approval dated 26.12.2005 is received and submitted as evidence.	MOEF approval dated 26.12.2005 is received. The information provided is considered sufficient. The clarification request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR-3 Starting date not as per format i.e. in DD/MM/YYYY Starting Date is indicated in PDD as August 2001.	C.1.1	01/03/2002. The same has been included in the revised PDD.	The information provided is considered sufficient. The clarification request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CL-2 The management structure is not defined in the PDD. Refer D.5 of PDD	D.5.1.	The information has been included in the PDD in the section D.5 and the revised PDD is submitted for review.	The information provided is considered sufficient. The clarification request is closed.
CL-3 Procedure for identifying training of monitoring personnel is not identified.	D.5.3.	The information has been included in the PDD in the section D.5 and the revised PDD is submitted for review.	The information provided is considered sufficient. The clarification request is closed.
CL-4 The procedures for emergency preparedness for cases have not been identified.	D.5.4.	The information has been included in the PDD in the section D.5 and the revised PDD is submitted for review.	The information provided is considered sufficient. The clarification request is closed.
CL-5 Procedures for maintenance of monitoring equipment and installations are not identified but the actual implementation is observed.	D.5.6.	The information has been included in the PDD and the revised PDD is submitted for review.	The information provided is considered sufficient. The clarification request is closed.
CL-6 Procedure for monitoring, measurements and reporting not indicated in PDD.	D.5.7.	The information has been included in the PDD in the monitoring and verification section and the revised PDD is submitted for review.	The information provided is considered sufficient. The clarification request is closed.
CL-7 to CAR-4 Application is awaiting approval or consent from Punjab Pollution Control Board.	F.1.2.	The application submitted to Punjab Pollution Control Board is enclosed and are awaiting the consent. Consent approval up to 2007 is received and the same is sent to validators on 06/03/06.	The clarification requestCL-7 was converted to CAR-4. Valid consent has since been received duly endorsed by the client. The clarification request is closed.
CL-8 to CAR-5	G.1.1.	Documentary evidence of the meeting	The clarification request CL-8 was

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
The villagers in the near vicinity were contacted before the implementation of the proposed project activity and were apprised about the execution of wind farm project. The local stakeholders raised no issues, thus no action were required. There is no documentary evidence for the stakeholders meeting conducted.		conducted is enclosed for review. English translation of Minutes of meeting with stakeholders has been sent on 06/03/06.	converted to CAR-5. Valid consent has since been received duly endorsed by the client. The information provided is considered sufficient. The clarification request is closed.

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