

Verification and Certification Report

Sixth periodic verification

Report for:

Kotla Hydro Power Private Limited

Verification of CDM project for
Babanpur, Killa and Sahoke Mini Hydroelectric
Projects
UNFCCC Ref No. 0329

Monitoring Period:
01/08/2011 to 31/10/2012 (Inclusive of both the
days)

LRQA Reference : CDM-MUM-0061940, Version 03
Date : 17/04/2013
Work carried out by : Sanjay Kumar Agarwalla
Syju Alias

Work verified by : Imran Ustad
Javier Vallejo Drehs



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1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by Kotla Hydro Power Private Limited (KHPPL), representing the project participants (PP), to undertake the sixth periodic verification of the registered project activity, "Babanpur, Killa and Sahoke Mini Hydroelectric Projects" project reference number 0329 covering the sixth monitoring period from 01/08/2011 to 31/10/2012. The verification has been performed by document review based on the Monitoring Report Version 01 dated 15/11/2012, on-site assessment and interviews with the stakeholders, resolution of outstanding issues and issuance of the verification report.

The project intends to reduce greenhouse gas (GHG) emissions by installation of grid connected low head canal drop mini hydro power projects on the Kotla Branch Canal, in the state of Punjab in India aggregating to a total installed capacity of 3.75 MW. The electricity generated by the project activity is supplied to Punjab State Electricity Board (PSEB). The project consists of three (3) sites, namely Babanpur, Killa and Sahoke with installed capacities of 1.0 MW (2 x 500 kW), 1.75 MW (2 x 875 kW) and 1.0 MW (1 x 1000 kW), respectively. The electricity generated by the project activity is supplied to the Integrated Northern, Eastern, Western, and North-Eastern regional grids (NEWNE) grid which is predominantly fossil fuel based, thereby reducing GHG emissions.

The fulfilment of the requirements as set forth in the Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the modalities and procedures for a CDM and relevant decisions of the Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol (COP/MOP) and the Executive Board of the CDM (CDM-EB) has been evaluated and the conformance to the verification requirements were confirmed based on the given information. A risk based approach was taken to conduct the verification, and corrective action requests (CARs) and clarifications (CLs) were issued for relevant actions by the PP.

The verification team identified, through the verification process, 3 CARs. The PP has taken actions and submitted to LRQA the revised monitoring report and supporting evidence. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period are correctly calculated in the monitoring report Version 03 dated 16/04/2013 based on the approved monitoring methodology and the monitoring plan of the registered PDD. Therefore LRQA certifies the emission reductions amounting to 26,966 tCO₂e and requests the CDM-EB to issue the CERs.

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Abbreviations

AE	Applicant Entity
BE	Baseline emissions
CAR	Corrective action request
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DOE	Designated Operational Entity
ERs	Emission reductions
FAR	Forward action request
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
IS	Indian Standard
JMR	Joint Meter Reading
KHPPL	Kotla Hydro Power Private Limited
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
kW	Kilo Watt
kWh	Kilo Watt hour
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
MMTS	Meter Mobile Testing Squad
MP	Monitoring period
MR	Monitoring Report
MW	Mega Watt
MWh	Mega Watt hour
NA	Not applicable
NABL	National Accreditation Board for Testing and Calibration Laboratories
NEWNE	Integrated Northern, Eastern, Western, and North-Eastern regional grids
ODA	Official Development Assistance
PDD	Project design document
PLF	Plant Load Factor
PP	Project participant
PPA	Power Purchase Agreement
PSEB	Punjab State Electricity Board
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
tCO ₂ e	Tonne of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard



2 Introduction

The project participant (PP) represented by Kotla Hydro Power Private Limited has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake the sixth periodic verification of the proposed project activity "Babanpur, Killa and Sahoke Mini Hydroelectric Projects" covering the monitoring period from 01/08/2011 to 31/10/2012. This report summarises the findings through the verification process that has been conducted on the verification requirements of the CDM.

The verification has been undertaken by the team formed of the qualified personnel of LRQA as follows:

Sanjay Kumar Agarwalla	LRQA India	Team Leader, CDM Lead Verifier and Sector Expert
Syju Alias	LRQA India	Team Member, CDM Verifier and Sector Expert
Imran Ustad	LRQA India	Technical Reviewer and Sector Expert
Javier Vallejo Drehs	LRQA Ltd	Decision Maker

Personnel being engaged in CDM project verification are qualified based on the established procedures of LRQA to assure the resource requirements that satisfy all the requirements of competence criteria of the CDM accreditation standard for operational entities. LRQA is designated as an operational entity and holds the full responsibility on decision-making regarding the verification in accordance with the accreditation requirements of the CDM-EB. The certificate of appointment of the team personnel is attached to this report.

2.1 Objective

Through the verification activities, the verification team was to confirm that:

- 1) the project activity has been implemented and operated as described in the validated and registered PDD and that all physical features of the project activity are in place
- 2) the monitoring report (MR) and other supporting documents provided are complete and verifiable, and in accordance with applicable CDM requirements
- 3) actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP) and the approved methodology; and
- 4) the data is recorded and stored as per the monitoring methodology.

The verification followed the requirements of the current version of the CDM Validation and Verification Standard (CDM VVS) to ensure the quality and consistency of the verification work and the report.

2.2 Scope

The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the CDM M&P. LRQA followed a risk-based approach in the verification, focusing on the identification of significant risks for implementation of the registered monitoring plan and the resultant emission reductions. The verification statement shall become final after final review by the decision maker of LRQA Ltd.



2.3 GHG Project Description

Project title	Babanpur, Killa and Sahoke Mini Hydroelectric Projects																										
CDM reference	0329																										
Date of registration	30/04/2006																										
Applied methodology	AMS I.D, Version 07																										
Crediting period	01/07/2004 to 30/06/2014 (fixed)																										
Project location	<p>The project consists of three sites whose locations are as follows:</p> <table><tr><th></th><th>Babanpur</th><th>Killa</th><th>Sahoke</th></tr><tr><td>Town</td><td>Malerkotla</td><td>Malerkotla</td><td>Malerkotla</td></tr><tr><td>District</td><td>Sangrur</td><td>Sangrur</td><td>Sangrur</td></tr><tr><td>State</td><td>Punjab</td><td>Punjab</td><td>Punjab</td></tr><tr><td>Latitude (decimals)</td><td>30.4142 North</td><td>30.3269 North</td><td>30.1878 North</td></tr><tr><td>Longitude (decimals)</td><td>75.8781 East</td><td>75.7250 East</td><td>75.5775 East</td></tr></table>				Babanpur	Killa	Sahoke	Town	Malerkotla	Malerkotla	Malerkotla	District	Sangrur	Sangrur	Sangrur	State	Punjab	Punjab	Punjab	Latitude (decimals)	30.4142 North	30.3269 North	30.1878 North	Longitude (decimals)	75.8781 East	75.7250 East	75.5775 East
	Babanpur	Killa	Sahoke																								
Town	Malerkotla	Malerkotla	Malerkotla																								
District	Sangrur	Sangrur	Sangrur																								
State	Punjab	Punjab	Punjab																								
Latitude (decimals)	30.4142 North	30.3269 North	30.1878 North																								
Longitude (decimals)	75.8781 East	75.7250 East	75.5775 East																								
Project participants	Kotla Hydro Power Private Limited (KHPPL)																										
Monitoring period	01/08/2011 to 31/10/2012																										

3 Methodology

3.1 Verification approach

LRQA's verification of the project documentation provided by the project participant was based on both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to LRQA. Qualitative information is made up of the information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emission reports, and review and internal audit of calculations.

As well as the monitoring documentation provided by the project participants, LRQA also reviewed:

- a) the registered PDD and the monitoring plan and the corresponding validation report
- b) the applied monitoring methodology
- c) relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board
- d) any other information and references relevant to the project's resulting emissions reductions.

LRQA also confirmed that the Monitoring Report is as per the standardised format.



LRQA also confirmed that this is sixth periodic verification and also there was no FAR raised during the validation which needs to be addressed during this verification.

3.2 Desk review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- 1) a review of data and information presented to verify their completeness
- 2) a review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- 3) an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report Version 01 dated 15/11/2012 was initially reviewed and LRQA requested the PP to present the supporting information and documents and such additional information and documents were also reviewed by LRQA. The documents reviewed by LRQA are listed in Appendix A.

Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs issued by LRQA. The documents reviewed by LRQA are listed in Appendix A. LRQA reviewed the final version of the monitoring report Version 03 dated 16/04/2013 to confirm that all changes agreed had been incorporated.

3.3 On-site assessment

An on-site assessment was conducted as a part of verification activity and involved:

- 1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD
- 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters
- 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP
- 4) a cross-check between information provided in the MR and data from other sources
- 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology
- 6) A review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

The detail of the on-site assessment is as follows:



Date	Location	Team Members on site	Subjects covered	Persons interviewed
14/01/2013	PP office, Delhi	Sanjay Kumar Agarwalla, Syju Alias	Project implementation, Data Management and reporting, Legal approvals for the project	Sachin Pahuja, Manager, Polyplex group
16/01/2013	Project sites: Babanpur, Killa and Sahoke on the Kotla Branch canal, Maler kotla, Singrur district of Punjab state	Syju Alias	<ol style="list-style-type: none"> 1. Status of project implementation 2. Confirmation of technical specifications of project equipment 3. Monitoring systems and calibration Electricity Monitoring and measuring systems 4. Monitoring and reporting procedures 5. Emergency procedures –Change / failure in meters / equipment 6. Emission reductions data 7. QA/QC procedures 8. Training activities for staffs 9. Record keeping – daily production report, breakdown / maintenance log 10. Project Boundary confirmation 11. Confirmation of project GPS coordinates 12. Compliance to regulatory 	<ol style="list-style-type: none"> 1. Girish Chand, Polyplex group 2. Surinder Singh, Section Head, KHPPL 3. Anuj Sharma, Executive HRM, KHPPL 4. Kanwerpreet Singh, Accountant, KHPPL 5. Amritpal Singh, Store, IT & Maintenance, KHPPL 6. Gurinder Singh, Technical Assistant, KHPPL 7. Amendeep Sekhon, Mech Engineer, PHPPL 8. Daljit Singh, Fitter, KHPPL 9. Salguru, Plant shift supervisor, KHPPL 10. Amandeep Singh, Plant shift supervisor, KHPPL 11. Devinder Singh, Plant shift supervisor, KHPPL 12. Satpal Singh, Plant Shift Supervisor, KHPPL



			requirements	13. Butta Singh, Technical Assistant, KHPPL
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For details of all the findings of the desk review and site visit, please refer to the Verification Protocol and Findings in Appendix C.

3.4 Quality of evidence

When verifying the reported emission reduction, LRQA ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown in Appendix A.

When assessing the audit trails, LRQA also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. the source and nature of the evidence
3. if comparable information was available from sources other than that used in the monitoring report, LRQA cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix A.

LRQA also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

3.5 Resolution of clarification and corrective action requests

LRQA, during this verification, identified issues related to the monitoring, implementation or operation of the proposed CDM project activity that could impair the capacity of the proposed CDM project to achieve emission reductions or influence the reporting of emission reductions. LRQA has identified, discussed and concluded these issues within the Verification Protocol and Findings – Appendix C.

LRQA has raised a Corrective Action Request (CAR) if one of the following occurred:

1. A non-compliance with the monitoring plan or methodology is found in the monitoring and reporting that has not been sufficiently documented by the project participants, or the evidence provided to prove conformity is insufficient
2. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants
3. Mistakes have been made in applying assumptions, data or calculations in relation to emission reductions that will impact upon the quantity of emission reductions
4. Issues identified in a FAR during validation or previous verification(s) to be verified during verification have not been resolved by the project participants.

LRQA has raised a Clarification Request (CL) if information was insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs raised by LRQA during this verification have been resolved. If this was not completed, the ERs cannot be certified and recommended for issuance to the CDM Executive Board.



3.6 Internal quality control

The technical review by a qualified person independent from the verification team, and a review by an authorised decision maker are conducted before the submission of the verification report to the PP and before requesting the issuance of the verified ERs.

4 Verification protocol and conclusions

LRQA has undertaken this verification in accordance with the verification protocol (which is based on the Clean Development Mechanism Validation and Verification Standard Version 03.0). This section provides an overview of the verification activities and general conclusions. Further details in relation to each element of the protocol and to each finding are shown in Verification Protocol and Findings – Appendix C.

The protocol is structured based on the main verification requirements as follows:

- compliance of the project implementation with the registered project design document
- compliance of the monitoring plan with the monitoring methodology, including applicable tool(s)
- compliance of monitoring activities with the registered monitoring plan
- compliance with the calibration frequency requirements for measuring instruments
- assessment of data and calculation of emission reductions.

4.1 Compliance of the project implementation with the registered project design document

LRQA has determined during the verification process that:

- the implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PDD

LRQA has, by means of a desk review and an on-site visit, assessed that:

- all physical features of the proposed CDM project activity proposed in the registered PDD are in place
- the project participants have operated the proposed CDM project activity as per the registered PDD

For details of the implementation status of the project, the actual operation of the proposed CDM project activity, any information provided in the monitoring report that is different from that stated in the registered PDD¹, and any approvals of the necessary request of notification or request for approval of changes, please refer to the Verification Protocol in Appendix C.

4.2 Compliance of the monitoring plan with the monitoring methodology, including applicable tool(s)

LRQA has determined that the project implementation is in accordance with the provisions of the registered PDD and has also verified that the validated monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

¹ And has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in future monitoring periods



For details relating to this section, please refer to the Verification Protocol in Appendix C.

LRQA confirms that the monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

4.3 Compliance of monitoring activities with the registered monitoring plan

LRQA has confirmed that:

1. the monitoring plan and the applied methodology have been properly implemented and followed by the project participants
2. all parameters stated in the monitoring plan, the applied methodology and relevant CDM Executive Board decisions, have been sufficiently monitored and updated as applicable, including:
 - a. project emission parameters
 - b. baseline emission parameters
 - c. leakage parameters
 - d. management and operational system
3. the accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan
4. monitoring results are consistently recorded as per approved frequency
5. quality assurance and quality control procedures have been applied in accordance with the monitoring plan.

For details relating to this section, please refer to the Verification Protocol in Appendix C.

LRQA confirms that monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

The list in the Verification Protocol – Appendix C shows each parameter required by the monitoring plan, and clearly states how LRQA has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters, including the values in the monitoring report.

4.4 Compliance with the calibration frequency requirements for measuring instruments

LRQA has determined that the calibration of measuring equipment has been conducted at the frequency specified in the applied monitoring methodology and in the registered monitoring plan.

For details relating to the frequency of calibration and any cases identified of delayed calibration, please refer to the Verification Protocol in Appendix C.

4.5 Assessment of data and calculation of emission reductions

LRQA has determined whether:

1. a complete set of data for the specified monitoring period is available



2. information provided in the monitoring report has been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis
3. calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document
4. any assumptions used in emission calculations have been justified
5. appropriate emission factors, IPCC default values and other reference values have been correctly applied.

For details of whether data was not available because activity levels or non-activity parameters were not monitored in accordance with the registered monitoring plan, a description of LRQA cross-checked reported data, please refer to the Verification Protocol in Appendix C.

LRQA confirms that appropriate methods and formulae for calculating baseline emissions, projects emissions and leakage have been followed.

LRQA is of the opinion that all assumptions, emissions factors and default values that were applied in calculations have been justified.

5 Making the monitoring report publicly available

In accordance with the "Procedures for making the monitoring report available to the public in accordance with paragraph 62 of the modalities and procedures for the CDM", the monitoring report Version 01 dated 15/11/2012 was made publicly available on the CDM website on 23/11/2012 at <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1142616865.86/view>



6 Certification report

LRQA has undertaken the sixth periodic verification of the proposed project activity “Babanpur, Killa and Sahoke Mini Hydroelectric Projects” covering the monitoring period from 01/08/2011 to 31/10/2012 based on the requirements of CDM as set out in Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country’s legislation and its specific requirements for sustainable development.

Through the verification process, the verification team identified 3 CARs. The PP has taken actions to address the CARs and submitted to LRQA the revised monitoring report Version 03 dated 16/04/2013 and any other supporting evidence. All CARs have been appropriately closed before the issuance of the verification report.

The verification team is of the opinion that the proposed project activity has been implemented in accordance with the registered PDD, the MP complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct. Therefore LRQA hereby certifies, and requests the issuance of, the reported ERs of “Babanpur, Killa and Sahoke Mini Hydroelectric Projects” during the monitoring period of 01/08/2011 to 31/10/2012 amounting to 26,966 tCO₂e to the CDM Executive Board.

Decision Maker

Javier Vallejo Drehs
CDM Quality Manager
18/04/2013



7 Appendices

7.1 Appendix A: List of documents reviewed

Category A documents (documents from the PP)

1.	Monitoring Report Version 01, dated 15/11/2012, Version 02 dated 22/01/2013 and Version 03 dated 16/04/2013
2.	Emission reduction calculation spread sheet Version 01, dated 15/11/2012
3.	Copies of monthly Joint Meter Reading (JMR) reports covering the period 01/08/2011 to 31/10/2012
4.	Copies of monthly energy sales bills / invoices covering the monitoring period raised by PP
5.	Calibration certificates for the electricity generation meters, auxiliary meters and main and check meters covering the period 01/08/2011 to 31/10/2012
6.	Records of the gross electricity generation, auxiliary consumption at the three sites of the project activity (Daily plant log books and hourly generation logs)
7.	Technical specifications of the hydro turbines and generators (provided by the manufacturer) of rated capacities of Babanpur 1.0 MW (500 kW x 2), Killa 1.75 MW (875 kW x 2) and Sahoke 1.0 MW (1000kW x 1).
8.	Data capturing and QA/QC procedures, roles and responsibilities of the company personnel for the project activity.
9.	Proof of statutory clearances for the project activity.
10.	Proof of training and competency of the project operators
11.	Extract of Power Purchase Agreement for the project activity
12.	Single line diagram showing the electricity generation, transmission, evacuation and metering system.
13.	Declaration by PP confirming no diversion of Official Development Assistance (ODA) funds for the project activity was involved
14.	Proof of training and competency of the project operators
15.	Extract of Power Purchase Agreement for the project activity

Category B documents (other documents referenced)

1	Registered PDD available on the project page of UNFCCC project reference number 0329
2	Validation Report, Version 02, dated 16/03/2006 for the project activity available on the project page of UNFCCC project reference number 0329
3	Monitoring methodology AMS I.D, Version 07
4	Validation and Verification Standard, Version 03.0



7.2 Appendix B: Certificate of Appointment

Verification of “Babanpur, Killa and Sahoke Mini Hydroelectric Projects”

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the CDM project activity.

Name of Person

Sanjay Kumar Agarwalla
Syju Alias
Imran Ustad
Javier Vallejo Drehs

Assigned Roles

Team Leader, Sector Expert
Team Member, Sector Expert
Technical Reviewer, Sector Expert
Decision Maker

Signed by

Decision Maker

Javier Vallejo Drehs
CDM Quality Manager
18/04/2013



7.3 Appendix C: Verification Protocol and Findings

Project: Babanpur, Killa and Sahoke Mini Hydroelectric Projects UNFCCC reference number: 0329

This document has been produced by the LRQA Verification Team after the desk review and the site visit have been completed. It outlines the verified situation in relation to a number of criteria, including those defined in the Validation and Verification Standard (VVS) and the Project Standard (PS) produced by the CDM Executive Board.

Where LRQA has identified issues requiring corrective action or clarification, a reference is made in the 'Conclusion' column, and details are stated in the section marked 'Findings'.

Verified situation		Conclusion
SECTION 1. Project implementation in accordance with the registered PDD		
General description of the project		
1.1. Does the MR provide general information of the project and is it as registered by CDM-EB?	<p>Yes.</p> <p>The information provided in the Monitoring Report, Version 03 dated 16/04/2013 is consistent with the registered PDD available in the project page of UNFCCC.</p> <p>The project activity, "Babanpur, Killa and Sahoke Mini Hydroelectric Projects" was registered as a CDM project on 30/04/2006 (UNFCCC Ref No.0329) applying the methodology AMS I.D, Version 07 "Renewable electricity generation for a grid".</p> <p>The registered project comprises 3 mini Hydroelectric projects of total installed capacity 3.75 MW located at Babanpur, Killa and Sahoke on the Kotla branch canal in the state of Punjab in India. The individual capacities of the projects are 1MW (500kW_{X2}) for Babanpur, 1.75MW (875kW_{X2}) for Killa and 1MW (1000kW_{X1}) for Sahoke and the electricity generated is exported to Punjab State Electricity Board (PSEB).</p>	<p>CAR-01</p> <p>CAR-02</p> <p>OK</p>



	Verified situation	Conclusion
	<p>Kotla Hydro Power Private Limited (KHPPL) is the project participant that commissioned the 3 mini hydroelectric projects at Babanpur in July 2004, at Killa in November 2005 and Sahoke in October 2006. All these projects are low head canal drop based mini hydroelectric projects and are operating successfully since commissioning.</p> <p>The details of the project activity such as generator, turbine, transformer and its technical specification, and monitoring arrangement were compared with the project description given in the Monitoring report. Verification team confirms that the name plate details of the equipment and its output capacity were in concurrence with the description provided in the registered PDD.</p> <p>The team reviewed the website of the Nodal Agency for promotion & development of Renewable Energy programs / projects in the state of Punjab, Punjab Energy Development Agency (PEDA)² and confirm that the capacity of the projects and the commissioning dates provided in the MR are appropriate.</p> <p>The project description provided in the MR does not contain the technical details of the equipment and the emission reductions by the project activity. CAR-01 was raised. As per the project page of the project activity on UNFCCC web site, Annex I PP is involved in this project activity. But in section A.3 of the published MR only host PP has been stated. CAR-02 was raised.</p> <p>The CAR-01 and CAR-02 were closed after appropriate revision of the MR. The resolution is detailed in the findings section of the report. The team confirms that with reference to section A.1 of the revised MR, the MR provides general information of the project consistent with the registered PDD.</p>	
1.2. Is the Monitoring report as per the standardised format? (E66 Annex 20)	<p>Yes.</p> <p>The webhosted MR Version 01 dated 15/11/2012 had used the latest version of</p>	OK

² http://peda.gov.in/eng/Small_hydro%20power.html



	Verified situation	Conclusion																												
	MR's template Version 02.0 (EB66, Annex 20)																													
1.3. Is there any open issue in the validation / previous verification including FARs? (CDM VVS para. 213)	No.	OK																												
Implementation status of the project activity																														
1.4. Is the project location indicated as the same as the registered PDD? Confirm geographical coordinates	<p>Yes.</p> <p>As per the registered PDD, the locations for the three installations, Babanpur, Killa and Sahoke are located on the fourth fall (road distance 26,310 metre), combination of fifth and sixth fall (road distance 44,129 metre) and combination of seventh and eighth fall (road distance 65,532 metre) respectively on the Kotla branch canal that off takes from Bharthala head regulator on Patiala feeder-I at Jaura Pul near Malerkota town.</p> <p>The team reviewed the geographical co-ordinates of the project sites in “Google Earth”, a web based software application and confirm that the geographical co-ordinates specified are in agreement with the MR. The details are below.</p> <table><tr><th></th><th>Babanpur</th><th>Killa</th><th>Sahoke</th></tr><tr><td>Latitude</td><td>30° 24'51" N</td><td>30° 19'37" N</td><td>30° 11'16" N</td></tr><tr><td>Longitude</td><td>75° 52'41" E</td><td>75° 43'30" E</td><td>75° 34'39" E</td></tr><tr><td>Town</td><td>Malerkotla</td><td>Malerkotla</td><td>Malerkotla</td></tr><tr><td>District</td><td>Sangrur</td><td>Sangrur</td><td>Sangrur</td></tr><tr><td>State</td><td>Punjab</td><td>Punjab</td><td>Punjab</td></tr><tr><td>Country</td><td>India</td><td>India</td><td>India</td></tr></table> <p>The team also reviewed the location specified in the MR with the MR and VR for the 5th monitoring period (01/04/2010 to 31/07/2011) and confirm that the geographical co-ordinates specified are in agreement.</p>		Babanpur	Killa	Sahoke	Latitude	30° 24'51" N	30° 19'37" N	30° 11'16" N	Longitude	75° 52'41" E	75° 43'30" E	75° 34'39" E	Town	Malerkotla	Malerkotla	Malerkotla	District	Sangrur	Sangrur	Sangrur	State	Punjab	Punjab	Punjab	Country	India	India	India	OK
	Babanpur	Killa	Sahoke																											
Latitude	30° 24'51" N	30° 19'37" N	30° 11'16" N																											
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Town	Malerkotla	Malerkotla	Malerkotla																											
District	Sangrur	Sangrur	Sangrur																											
State	Punjab	Punjab	Punjab																											
Country	India	India	India																											
1.5. Is the project boundary described in the same	The description of the installed technology (ies), technical process and equipment,	CAR1																												



	Verified situation	Conclusion																												
way as the registered PDD? Please confirm each component based on the applied methodology.	<p>including diagrams were not provided into the section B.1 of the webhosted MR Version 01 dated 15/11/2012. It was not in line with the Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20.</p> <p>In the revised MR, Version 02, the PP has revised section A.1 providing the technical details of the project and also the project boundary diagram in line with the registered PDD and the applied methodology in section B.2 of the revised MR. Hence the CAR was closed; the resolution is detailed in the finding section of the report.</p>	OK																												
1.6. Has on-site fossil fuel consumption, if any, been monitored? Is any emission source missed? Check the site lay-out and confirm through site tour.	The turbines run exclusively with hydro energy without any usage of fossil fuel and this was confirmed during the on site visit.	OK																												
1.7. Confirm contractors for equipment and installation works	<p>The details of the hydro turbines used at the three sites were confirmed during the on site visit as below.</p> <table><tr><td>Project name</td><td>Babanpur</td><td>Killa</td><td>Sahoke</td></tr><tr><td>Total Capacity</td><td>1.0 MW</td><td>1.75 MW</td><td>1.0 MW</td></tr><tr><td>No. of units</td><td>2</td><td>2</td><td>1</td></tr><tr><td>Unit Capacity</td><td>500 kW</td><td>875 kW</td><td>1000 kW</td></tr><tr><td>Commissioning date</td><td>July 2004</td><td>November 2005</td><td>October 2006</td></tr><tr><td>Turbine Make</td><td>HPP Energy India Private Limited</td><td>Boving Fouress Limited</td><td>Boving Fouress Limited</td></tr><tr><td>Turbine Type</td><td>Vertical Semi Kaplan</td><td>Vertical Full Kaplan</td><td>Vertical Full Kaplan</td></tr></table>	Project name	Babanpur	Killa	Sahoke	Total Capacity	1.0 MW	1.75 MW	1.0 MW	No. of units	2	2	1	Unit Capacity	500 kW	875 kW	1000 kW	Commissioning date	July 2004	November 2005	October 2006	Turbine Make	HPP Energy India Private Limited	Boving Fouress Limited	Boving Fouress Limited	Turbine Type	Vertical Semi Kaplan	Vertical Full Kaplan	Vertical Full Kaplan	OK
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Turbine Type	Vertical Semi Kaplan	Vertical Full Kaplan	Vertical Full Kaplan																											



	Verified situation				Conclusion									
	Generator Make	Kirloskar Electricals Co. Ltd	Marelli Motori	Marelli Motori										
	Generator Type	Induction (Asynchronous)	Synchronous	Synchronous										
	Generation Voltage	415 V	6.6 kV	6.6 kV										
1.8. Confirm conformance with baseline and monitoring methodology - Applicability conditions. Please refer to the complete description of the applicability conditions and confirm that the project activity meets all the requirements.	The small scale methodology AMS 1.D is applicable for the following technologies/measure. <table><tr><td></td><td>Technology/measure as per the methodology</td><td>Validated situation</td></tr><tr><td>1</td><td><i>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.</i></td><td>The team confirms from the review of documents and by means of a site visit, that the project is a small scale canal drop based hydroelectric project of capacity 3.75 MW</td></tr><tr><td>2</td><td><i>If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.</i></td><td>The team confirms from the review of documents and by means of a site visit that the project has only the renewable energy component and the capacity is only 3.75MW which is less than 15MW.</td></tr></table>					Technology/measure as per the methodology	Validated situation	1	<i>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.</i>	The team confirms from the review of documents and by means of a site visit, that the project is a small scale canal drop based hydroelectric project of capacity 3.75 MW	2	<i>If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.</i>	The team confirms from the review of documents and by means of a site visit that the project has only the renewable energy component and the capacity is only 3.75MW which is less than 15MW.	OK
	Technology/measure as per the methodology	Validated situation												
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2	<i>If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.</i>	The team confirms from the review of documents and by means of a site visit that the project has only the renewable energy component and the capacity is only 3.75MW which is less than 15MW.												



	Verified situation		Conclusion
	3	<p><i>Biomass combined heat and power (co-generation) systems that supply electricity to and/or displace electricity from a grid are included in this category. To qualify under this category, the sum of all forms of energy output shall not exceed 45 MW_{thermal}. E.g., for a biomass based co-generating system the rating for all the boilers combined shall not exceed 45 MW_{thermal}</i></p> <p>The team confirms from the review of documents and by means of a site visit that the project is not a biomass power plant and hence not applicable.</p>	
	The team confirms that the project meets the applicability requirements of the applied small scale methodology AMS 1.D, Version 07.		
1.9. Confirm use or not use of public funding and determine if there is no diversion of ODA to the project activity.	In section A.4.4 of the registered PDD it has been stated that “There is no public funding from Parties included in Annex I to the Convention involved for this project activity”. The same was also validated and confirmed by the validating DOE.		OK
1.10. Check data in the MR and in the PDD. Describe data and variables that are different from that stated in the registered PDD and caused an increase in emission reductions estimations.	<p>The ex-ante fixed grid emission factor of 0.942 kg CO₂/kWh has been used for the baseline emission calculation which is line with the registered PDD.</p> <p>With reference to section E.6 of the webhosted MR Version 1 dated 15/11/2012, it is stated that PP is claiming emission reductions for a period of 15 months (01/08/2011 to 31/10/2012). As per the registered PDD 23,024 tCO₂e are the estimated annual emission reductions. Thus for 15 months, the estimated amount of emission reductions as per the registered PDD would be 28,890 tCO₂.</p> <p>It is evident that the number of achieved CERs (26,966 tCO₂) during the monitoring period is less than the projected CERs (28,890 tCO₂) for the same period. The power generation for this hydro project is dependent on the availability of water in the canal which is beyond the control of the PP. The reason for actual generation during the monitoring period being less by 6.55% from the estimated electricity (projected value at validation stage) is due to lesser availability of water in the canal.</p>		OK
1.11. By means of an on-site visit: Is the general information of the project provided in the Monitoring report and is it as registered by CDM-EB?	The registered PDD specifies that the project comprises 3 mini Hydroelectric projects of total installed capacity 3.75MW at Babanpur, Killa and Sahoke on the Kotla branch canal in the state of Punjab in India. The individual capacities of the projects are 1MW (500kW X 2) for Babanpur, 1.75MW (875kW X 2) for Killa and 1MW (1000kW X 1) for Sahoke.		OK



	Verified situation	Conclusion
<p>List each technical component and equipment and check design parameters and actual status of installation and / or operation.</p> <p>Please check to ensure that all physical features of the proposed CDM project activity in the registered PDD are in place and the PP has operated the proposed CDM project activity as per the registered PDD.</p> <p>It may include but not limited to:</p> <ul style="list-style-type: none"> the actual capacity and output plant load factor type of feedstock operation of other components / units within the project boundary which could affect functioning of the project plant. <p>In cases where there are a large number of components and equipment items and the check of all of them is not an available option, then a random sampling check shall be performed. Justify here the sample chosen and describe the results.³</p>	<p>All the three mini hydroelectric projects are low head canal drop type that consists of a Forebay, mechanical intake gates, trash racks, draft tubes, vertical turbine and a power house with its discharge channel. The turbines installed are vertical Kaplan type with synchronous generators.</p> <p>During the on site visit, verification, by the observation of equipment, interviews with relevant staff and the checking of technical specifications of main components, it was confirmed that the project activity has been implemented as described in the registered PDD.</p> <p>No change from the registered PDD of physical features which may impact the emission reduction of the project activity has been identified. The verification team confirms all the physical features of the CDM project activity in the registered PDD are in place</p>	
<p>1.12. Have responsibilities for monitoring been described and specified?</p>	<p>Yes.</p> <p>The monitoring report and CDM documents clearly describe the responsibilities for monitoring and this was verified by the verification team during site visit through interviews and review of the internal audit records.</p> <p>As described in the monitoring report, the Project owner has made a CDM team and the responsibilities for operational personnel, technical and support team have been well defined. They are assigned the responsibility to measure, record and archive the project activity data.</p>	OK

³ The sampling shall be in line with the "Standard for sampling and surveys for CDM project activities and programme of activities"



	Verified situation	Conclusion
	<p>The Energy exported (kWh) and Energy imported (kWh) is measured and is used to calculate the Net saleable energy. Monthly joint meter readings are taken at interconnection point and certified by representatives of Kotla Hydro Power Private Limited (KHPPL) and Punjab State Electricity Board (PSEB). The joint meter readings are used to raise invoice for sale of net energy to PSEB and is the basis for ER calculation. The energy generation and the auxiliary electricity consumption by the project activity is measured and recorded on hourly basis which are summed into daily readings and monthly readings.</p> <p>Monthly reports stating the energy exported, energy imported, energy generated and auxiliary energy consumption are prepared by the shift-in-charge and verified by the plant managers and are further checked by the finance department.</p>	
1.13. Are the responsibilities and authorities for monitoring and reporting in line with those stated in the registered monitoring plan?	<p>Yes.</p> <p>The responsibilities and authorities for monitoring and reporting are in line with the registered monitoring plan.</p>	OK
<p>1.14. Check QA/QC, management systems. Are procedures described and specified in the MR? Are they consistently applied as described in the MP?</p> <ul style="list-style-type: none"> a. documented instructions, management manual b. documentation c. data archiving d. monitoring report e. cross-checking f. energy balance analysis (as relevant) g. internal audits / verification and management review 	<p>Yes</p> <p>QA/QC procedures include staff training, instrument calibration, cross checking and emergency processing procedures and data/documents archiving. It is consistent with the monitoring plan. The management system of the organisation is certified for ISO 9001:2008 since 05 December 2008. The team confirms that the staff demonstrates sufficient understanding of the processes and procedures for operation and maintenance of the project activity, data documentation and archiving,</p> <p>The Monitoring report describes the monitoring system, monitoring procedures, data collection and reporting, responsibilities of relevant staff/departments, emergency scheme, calibrations that were implemented and QA/QC procedures including data cross checking.</p> <p>During the site the following data capturing, recording and archiving procedures were confirmed. The Hourly data is monitored and recorded in the log books by the Shift Staff comprising of Plant Shift Supervisor and Technical Assistant. The daily data is checked and countersigned by the Assistant Plant Manager. The daily and monthly data is checked and verified by the Plant Manager.</p>	OK



	Verified situation	Conclusion
	<p><u>Gross electricity generation:</u></p> <p>Energy generation by the individual turbines at all the three sites is measured by the respective energy meter on a continuous basis. Hourly readings are noted down by the Plant Shift Supervisor in the daily log sheets. Hourly readings are aggregated to give daily electricity generation.</p> <p><u>Auxiliary electricity consumption:</u></p> <p>Each site has one auxiliary meter which continuously monitors the electricity consumption in the plant by auxiliary components. The auxiliary consumption is recorded hourly by the shift supervisor in the daily log sheets. Hourly readings are aggregated to give daily auxiliary consumption.</p> <p><u>Export / Import electricity:</u></p> <p>Each site has one main meter installed (after step-up transformer) by PSEB to measure export and import of electricity by the plant on continuous basis. Joint Meter Readings (for export and import electricity) are recorded once every month (i.e. previous months opening reading and current month closing reading). The Joint Meters Readings are signed by the Project Proponent, the Executive Engineer (Punjab State Power Corporation Limited) and a representative from Billing Department of PSEB. The difference of export and import of electricity is the net electricity supplied to the grid for the respective month and this is the basis for raising invoice to PSEB by the PP and also for the ER calculations. During the on site visit, it was also noted that the PP maintains the daily readings of the net electricity exported to grid (i.e. export and import electricity readings of the main meter) in line with the registered PDD.</p> <p>During the site visit, through interviews with the relevant staff and the document review, the management system was found to be in place and the implementation of QA/QC procedures could be confirmed.</p>	
1.15. Have the procedures for emergency and abnormal situations been established?	<p>Emergency response plan is in place, abnormal situations of equipment, meters have been captured.</p> <p>An emergency preparedness plan was established and it was reviewed during the</p>	CAR-01 OK



	Verified situation	Conclusion
	<p>site visit by the verification team. However, the plan is not provided in the webhosted MR and CAR-01 was raised. The CAR was closed after subsequent correction in the MR.</p> <p>The verification team find this in order and relevant to the monitoring scenario exist in the project plants. During the monitoring period, no emergency situation in monitoring has occurred</p>	
1.16. Has the system for qualification and training been established as relevant for the monitoring and management activities?	The training and qualification were confirmed through interview of the operational personnel. The team confirms that the staff is competent and demonstrates good understanding of the processes and procedures involved. It is confirmed that they have sufficient knowledge, experience and competency to implement and maintain the plant operation including data monitoring and recording in line with normal industrial norms and CDM requirements.	OK
1.17. Check the environmental report, license, permit and compliance to the local environmental legislation (if relevant).	<p>The verification team has confirmed that the project meets the relevant local environmental legislation. The verification team reviewed the copies of the latest consents to operate dated 13/06/2012, 23/04/2012 and 23/12/2009 for Babanpur, Killa and Sahoke sites respectively issued by Punjab State Pollution Control Board. The team also reviewed the previous consents to operate dated 17/08/2007, 23/12/2009 and 25/07/2008 for Babanpur, Killa and Sahoke respectively and confirm that the project had consents that were valid for all through the current monitoring period.</p> <p>The team further reviewed the website of Punjab Energy Development Agency (PEDA)⁴, the Nodal Agency for promotion & development of Renewable Energy programs / projects in the state of Punjab and confirm that the project has the approval of PEDA.</p>	OK
1.18. Check contribution to sustainable development, comparing those expected in PDD and the actual status.	The project is supplying renewable power to the grid and has resulted in employment to the local people and has contributed to their economic development. The team had cross checked and confirmed the above through interviews during site visit.	OK
1.19. Check issues with local stakeholders, claims, complaints, etc.	No issues with local stakeholders were identified..	OK

⁴ http://peda.gov.in/eng/Smal_hydor%20power.html



		Verified situation	Conclusion	
1.20. If from the above assessment the conclusion is that the implementation or operation of the project activity does not conform with the description contained in the registered PDD and/or corrections have been made to project information or parameters fixed at validation, determine if these changes and/or corrections do not require prior approval by the board: <ul style="list-style-type: none">- Any corrections to project information of a registered CDM project activity that do not affect the design of the project activity do not require prior approval by the Board.- A request for approval is required if any of the three issues below is adversely impacted by the identified changes to the project design.				
1.21. The applicability and application of the applied methodology under which the project activity has been registered: Check if the project boundary has changed and if any of the parameters to assess the applicability conditions have changed.	The project activity still holds the applicability conditions of the applied methodology AMS I.D. Version 07 during the registration. The project boundary and the applicability conditions have not changed.	YES	NO	
		-	No	
1.22. The additionality of the project activity: Check if any of the input parameters to the investment analysis have changed. For barrier analysis, check if any information or data used in the barrier analysis has changed.	There is no change in the project design parameters as the project is implemented as per the registered PDD.	YES	NO	
		-	No	
1.23. The scale of the project activity. Check if the project is still small scale or large scale after the implementation of the changes.	The project activity is 3.75 MW renewable energy generation and supply electricity to grid. Hence the scale of the project activity is still small scale and is not changed	YES	NO	
		-	No	
If the answer to any of the above items is YES, please conduct an assessment of the potential impacts of these changes following the Procedures for Post Registration Changes.				
1.24. If, from the above assessment, the conclusion is that the changes require prior approval by the EB in accordance with the PS, please check any approvals of the necessary request for approval of changes.	Not Applicable			



	Verified Situation	Conclusion
SECTION 2. Compliance of the Monitoring Plan with the Monitoring Methodology including applicable Tool(s)		
2.1. Is the monitoring plan (registered or approved) in accordance with the applied methodology?	Yes. The monitoring plan is in accordance with the approved methodology AMS I D, Version 7.	OK
2.2. If the methodology provides different options (for example, use of default values or on-site measurements), has the Monitoring Report specified which option is used?	Yes The project activity as per the registered PDD has selected the ex-ante option and the emission factor calculation results will be fixed for the first crediting period. The emission factor fixed Ex-ante for the project has the value 0.942 tCO ₂ e/MWh as per the registered PDD. Hence no uncertainty involved with the default values used for this reporting period.	OK
2.3. Is all data collected and archived according to the tables in the applied Monitoring Methodology and is this included in the Monitoring Plan?	Yes As per the registered PDD, the parameters that are required to be monitored are Energy exported, Energy imported, Net saleable energy, Energy generated and the Auxiliary energy consumption. The Energy exported (kWh) and Energy imported (kWh) are measured and are used to calculate the Net saleable energy. Monthly joint meter readings are taken at interconnection point and certified by representatives of Kotla Hydro Power Private Limited (KHPPL) and Punjab State Electricity Board (PSEB). The joint meter readings are used to raise invoice for sale of net energy to PSEB and is the basis for ER calculation. The energy generated and the auxiliary electricity consumption is measured and recorded on hourly basis which are summed into daily readings and monthly readings. The verification team noted that the JMRs for the month of October 2012 for Sahoke site was taken on 31/10/2012 and for the sites Babanpur and Killa were taken on 01/11/2012 morning hours, a time that is beyond the end date of the monitoring period (31/10/2012). The team reviewed the daily export/import electricity data maintained based on the Main meter (used for monthly JMRs) at the plant site and confirm that due to canal shut down, the plant was neither operational nor generating electricity from 18/10/2012 to 05/11/2012. However, the electricity consumption (import) by the plant during 18/10/2012 to 31/11/2012	OK



	Verified Situation	Conclusion																														
	<p>is accounted for in the JMR. Hence the verification team confirms that the PP has not claimed for any export of electricity beyond the end date of monitoring period and they have not missed to account any electricity consumption by the plant.</p> <p>The actual values reported during the monitoring period 01/08/2011 to 31/10/2012 is as follows</p> <table><tr><td></td><td>Babanpur (kWh)</td><td>Killa (kWh)</td><td>Sahoke (kWh)</td><td>Total (kWh)</td></tr><tr><td>Energy Exported</td><td>7,274,970</td><td>13,120,470</td><td>8,265,900</td><td>28,661,340</td></tr><tr><td>Energy Imported</td><td>9,950</td><td>13,150</td><td>11,690</td><td>34,790</td></tr><tr><td>Net saleable energy</td><td>7,265,020</td><td>13,107,320</td><td>8,254,210</td><td>28,626,550</td></tr><tr><td>Energy Generated</td><td>7,550,579</td><td>13,543,873</td><td>8,459,788</td><td>29,554,240</td></tr><tr><td>Auxiliary energy consumption</td><td>94,181</td><td>116,067</td><td>96,685</td><td>306,933</td></tr></table> <p>Monthly reports stating the energy exported, energy imported, energy generated and auxiliary energy consumption are prepared by the shift-in-charge and verified by the plant managers and are further checked by the finance department.</p> <p>The diagram in section C of the monitoring report shows the locations of the meters used for the monitoring of electricity supplied to the grid.</p>		Babanpur (kWh)	Killa (kWh)	Sahoke (kWh)	Total (kWh)	Energy Exported	7,274,970	13,120,470	8,265,900	28,661,340	Energy Imported	9,950	13,150	11,690	34,790	Net saleable energy	7,265,020	13,107,320	8,254,210	28,626,550	Energy Generated	7,550,579	13,543,873	8,459,788	29,554,240	Auxiliary energy consumption	94,181	116,067	96,685	306,933	
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Auxiliary energy consumption	94,181	116,067	96,685	306,933																												
<p>2.4. Check the calculation of emission reductions following the applied methodology:</p> <ul style="list-style-type: none">• baseline emissions• project emissions• leakage• emission reductions of the project.	<p>The team confirms that the calculation of the emission reductions following the applied methodology has been correctly done.</p> <p><u>Base line emissions</u></p> <p>As per the registered PDD and the applied methodology AMS I.D, Version 07, the baseline is the energy supplied by the renewable generating unit (Net saleable energy) multiplied by the emission coefficient (Emission Factor of the grid).</p> <p>Baseline emission = Net saleable energy x Emission factor of the grid</p>	OK																														



	Verified Situation	Conclusion
	<p>Net saleable Energy (kWh) by the project from 01/08/2011 to 31/10/2012 = Energy Exported (kWh) – Energy Imported (kWh) = 28,661,340 - 34,790 = 28,626,550 kWh.</p> <p>Emission factor of the grid (kCO_2/kWh) = $0.942 \text{ kCO}_2/\text{kWh}$, as calculated ex-ante in the registered PDD and will be fixed during the first crediting period).</p> <p>Hence the baseline emission = $(28,626,550 \times 0.942)/1000 = 26,966 \text{ tCO}_2\text{e}$</p> <p><u>Project emissions</u></p> <p>There is no formulae to determine the project emissions specified in the applied small scale methodology AMS I.D, Version 07. The registered PDD states that “There would be no GHG emissions of any kind, due to project activity within the project boundary as it is a canal drop based project producing clean energy without any storage of water. The team confirms during site visit that there is no project emission involved in the project activity.</p> <p><u>Leakage emissions</u></p> <p>As per the paragraph 8 of the applied small scale methodology AMS I.D, Version 07, leakage emissions are to be considered only if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. The MR states that the energy equipment is not transferred from or to any other activity and hence the leakage emissions are not considered.</p> <p>The team confirms through interviews and review of commissioning documents during site visit that the power generating equipment were all newly installed and not transferred from or to any other project activity and hence there is no leakage emission involved in the project activity.</p> <p>Since the project emission and the leakage emissions are nil, the emission reduction by the project activity is the same as the baseline emissions. Hence the emission reductions (tCO_2e) = $26,966 \text{ tCO}_2\text{e}$</p>	



	Verified Situation	Conclusion
<p>2.5. List any monitoring aspect that is not specified in the methodology and check its compliance with the Monitoring Plan, for example:</p> <ul style="list-style-type: none">• additional monitoring parameters• monitoring frequency• calibration frequency.	<p>There are no monitoring aspects in this hydro project that were not considered during the validation. The verification team confirmed that all the monitoring parameters are in agreement with the details specified in the registered PDD and the monitoring report.</p> <p>Monitoring frequency specified in the registered monitoring plan states that the joint meter reading shall be taken monthly and are certified by representatives of both PSEB and KHPPL. The monitoring frequency was confirmed during site visit in agreement with the monitoring plan.</p> <p>Calibration frequency for all the monitoring equipment is maintained as per the registered PDD. This was confirmed by the verification team by the review of calibration schedule and the calibration certificate validity issued by PSEB for the monitoring equipment for this reporting period. The appropriateness of the calibration frequency of measuring equipment was confirmed with reference to the requirements specified by the Central electricity Authority (CEA)⁵, an attached office of the Power Ministry of India.</p> <p>All the energy meters used in the project during the monitoring period has valid calibration.</p>	OK

⁵ Page 12 of http://powermin.nic.in/acts_notification/electricity_act2003/pdf/Metering_Regulations.pdf



	Verified Situation	Conclusion
SECTION 3. Compliance of Monitoring activities with the registered Monitoring Plan		
<p>3-1. Is the Monitored Data included in the Monitoring Report as per the Monitoring Plan or any accepted revised MP?</p> <p>3-2. Has the data been generated at the frequency required by the Monitoring Plan or any accepted revised MP?</p>	<p>The monitoring plan in the registered PDD requires monitoring of the energy exported to the grid, the energy imported from the grid, the net saleable energy, the energy generated and the auxiliary energy consumption during the monitoring period. The values are indicated appropriately in the section D.2 of the Monitoring report against the corresponding parameters as per the registered PDD.</p> <p>The verification team confirms during the site visit that data were generated at the required frequency as per the monitoring plan in the registered PDD and the monitoring is in agreement with that specified in the section C of the MR.</p> <p>However, CAR 03 was raised due to the following discrepancies found in section D.2 of the published MR Version 01:</p> <ul style="list-style-type: none"> i) Mention of incorrect source of data ii) Details of check meters not provided iii) Data archiving procedure not stated <p>The CAR-03 was closed after appropriate revision of the MR; the team confirms that the revised MR has made suitable changes to the section D.2. The resolution is detailed in the findings section of the report.</p>	<p>CAR-03 OK</p>
<p>3-3. Has the monitoring been implemented in accordance with the monitoring plan contained in the registered PDD or any accepted revised MP?</p> <p>Confirm that the monitoring and reporting procedures have been implemented as documented and follow by PPs.</p>	<p>Yes</p> <p>Electrical energy exported and imported by the project activity is measured continuously using bi directional tri-vector energy meters installed. The monthly joint meter readings are taken and signed by the officials of KHPPL and PSEB. These readings form the basis for billing and ER calculations.</p> <p>Electricity generated and auxiliary consumption are monitored continuously and recorded hourly in the log books by the shift in charge for all the three sites. These data are compiled to generate daily and monthly data which is cross</p>	<p>OK</p>



	<p>verified by plant manager.</p> <p>It was confirmed during the site visit from the log sheets that daily and monthly recording of the monitoring parameter as required in the registered monitoring plan is done correctly. It was confirmed that the information of the meters as described in the Monitoring report are as per the monitoring plan. During the on-site verification, QA/QC procedures were identified and confirmed that the monitoring of the project activity has been implemented in accordance with the approved monitoring plan.</p>	
3-4. Have types of measurement instrumentation used been described and specified?	<p>Yes, section C of the webhosted MR Version 01 dated 15/11/2012 has described types of measurement instrumentation used. As per the registered PDD, the accuracy class of the meters used to monitor the energy exported and imported at the interconnection point would be of 0.5.</p> <p>The verification team confirmed through a site visit and the review of evidence that the installation of the measuring devices has been completed and the equipment has been operated and maintained in a normal operating condition. The accuracy class of the main meters and the back up meters used for monitoring the electricity exported and imported was found to be of 0.5.</p> <p>The accuracy class of the main and check meters used for monitoring the electricity generation and the auxiliary consumption was found to be 1.0. The Verification team confirms that the installed meters for measurement and monitoring is in agreement with that are stated in the registered monitoring plan.</p>	OK
3-5. Is the accuracy of equipment used for monitoring sufficient and regularly controlled and calibrated in line with the registered monitoring plan or any accepted revised MP? Check relevance of maintenance and calibration included in the monitoring plan. Check relevance of laboratory analysis if included in the monitoring plan.	<p>With reference to section C of the webhosted MR Version 01 dated 15/11/2012, it is confirmed that the accuracy of equipment used for monitoring sufficient and regularly controlled and calibrated in line with the registered monitoring plan.</p> <p>The main and check meters for all the three sites were calibrated every six months by MMTS (Meter Mobile Testing Squad), a division of PSEB (Punjab State Electricity Board). PSEB is statutory body under the Indian Electricity Act 1948 and owned by the Government of Punjab and hence deemed to be competent.</p>	OK



	<p>The generation meters and auxiliary meters were calibrated every six months by Advance Control System who are accredited and registered by National Accreditation Board for Testing and Calibration Laboratories (NABL), Govt. Of India, to do the calibration of energy meters and hence deemed to be competent.</p> <p>The verification team confirms that there is no relevance of laboratory analysis included in the monitoring plan as per the registered PDD.</p>	
<p>3-6. Check that responsibilities and authorities for monitoring and reporting are in line with the monitoring plan.</p> <p>Are the monitoring results consistently recorded, reviewed and approved as stated in the PDD or any accepted revised MP?</p>	<p>With reference to section C of the webhosted MR Version 01 dated 15/11/2012, it is confirmed that responsibilities and authorities for monitoring and reporting are in line with the monitoring plan and the monitoring results are consistently recorded, reviewed and approved as stated in the PDD.</p>	OK
<p>3-7. Reporting period: Defined?</p> <p>If a monitoring period of a parameter more / less than a year is applied, check if the monitoring is in a complete and consistent manner?</p>	<p>Yes, The monitoring period applied is 01/08/2011 to 31/10/2012 (both days inclusive).</p> <p>The monitoring period is more than a year (15 months) and the verification team by means of review of the emission reduction sheet and monitoring record such as hourly electricity generation log, joint balance statement sheet (Protocol) and sold electricity records confirms that the monitoring is done in a complete and consistent manner.</p> <p>The verification team noted that the JMR for the month of October 2012 for Sahoke site was taken on 31/10/2012 and for the sites Babanpur and Killa were taken on 01/11/2012 in the morning hours, a time that is beyond the end date of the monitoring period (31/10/2012). The team reviewed the daily export/import electricity data maintained based on the Main meter (used for monthly JMRs) at the plant site and confirms that due to canal shut down, the plant was neither operational nor generating electricity from 18/10/2012 to 05/11/2012. However, the electricity consumption (import) by the plant during 18/10/2012 to 31/11/2012 is accounted for in the JMR. Hence the verification team confirms that the PP has not claimed for any export of electricity beyond the end date of monitoring period and they have not missed to account any electricity consumption by the plant.</p>	OK
<p>3-8. If the monitoring plan includes the determination of environmental and / or social indicators, have the</p>	<p>Not Applicable.</p>	OK



sustainable development indicators been monitored in accordance with the registered monitoring plan?		
3-9. Check monitoring of Environmental and Social indicators (if relevant) <ul style="list-style-type: none">• implementation of measures• monitoring equipment• quality assurance procedures• external data.	Not Applicable.	OK



Verified Situation		Conclusion	
SECTION 2 and 3: Post Registration Changes			
3-10. If, from the above assessment in SECTIONS 2 and 3, the conclusion is that there are temporary deviations or permanent changes from the registered Monitoring Plan or Monitoring Methodology, determine if these deviations or changes require prior approval by the EB by answering the questions below. All the answers to the applicable questions below shall be explained and the reasons for each conclusion given in the "Verified situation" column.			
Temporary deviations from the registered monitoring plan or applied methodology: Prior approval by the EB is <u>not</u> required if the answer to the applicable questions below is YES.			
3-11. Have the PPs reported as zero any parameter related to baseline GHG emissions that they have temporarily failed to monitor or for which they are unable to produce evidence related to such monitoring?	Not Applicable.	YES	NO
		-	-
3-12. Have the PPs estimated (assuming that the source of the GHG emissions operated at maximum capacity for the full period of the missing data) any parameter that they have temporarily failed to monitor or for which they are unable to produce evidence related to such monitoring? For project GHG emissions related to the consumption of electricity, the estimate shall include an addition of 10% to account for transmission and distribution losses.	Not Applicable.	YES	NO
		-	-
Permanent changes from the registered monitoring plan or applied methodology			
If the monitoring equipment actually installed has a lower accuracy level than the accuracy stipulated in the applied methodology and/or in the registered monitoring plan, and the monitoring equipment is under the control of the project participants, prior approval by the EB is <u>not</u> required if the answer to the applicable questions below is YES:			
3-13. Have the PPs deducted from the measured value,	Not Applicable.	YES	NO



	Verified Situation	Conclusion	
for any parameter used for calculating baseline GHG emissions, the difference between the accuracy level of the installed monitoring equipment and the accuracy prescribed by the applied methodology and/or the registered monitoring plan?		-	-
3-14. Have the PPs added to the measured value, for any parameter used for calculating project GHG emissions, the difference between the accuracy level of the installed monitoring equipment and the accuracy prescribed by the applied methodology and/or the registered monitoring plan?	Not Applicable.	YES	NO
		-	-
Changes to the monitoring of the registered CDM project activity of a type listed below do not require approval by the EB. Confirm in the conclusion column that the change is of the type in the table below and explain the reasons.			
3-15. Change of calibration frequency or practice for monitoring equipment not within the control of project participants	Not Applicable.	-	
3-16. Change of accuracy / type / model of meter(s) as per a power purchase agreement (PPA)	Not applicable	-	
3-17. Change of location of meter(s) as per a power purchase agreement (PPA)	Not applicable	-	
If the answer to any of the above items has been that approval from the EB is required, please conduct an assessment of the potential impacts of these changes following the Procedures for Post Registration Changes.			
3-18. If, from the above assessment, the conclusion is that the temporary deviations or permanent changes require prior approval by the EB in accordance with the PS, please check any approvals of the necessary request for approval of changes.	Not Applicable	-	



3.19 Monitoring Parameters and Calibration Checklist:

Complete the following table for each parameter:

Data / Parameter (as in the MP)		Energy Exported- The electricity exported by the project activity to the grid in kWh	Energy Imported- The electricity imported by the project activity from the grid in kWh
Value	Ex ante	Not Applicable	Not Applicable
	Ex-post	Total: 28,661,340 kWh Babanpur: 7,274,970 kWh Killa: 13,120,470 kWh and Sahoke: 8,265,900 kWh	Total: 34,790 kWh Babanpur: 9,950 kWh Killa: 13,150 kWh and Sahoke: 11,690 kWh
Measuring frequency		Continuous monitoring	Continuous monitoring
Reporting frequency		Monthly	Monthly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes	Yes
Recording (Manually / electronically / ...)		Manually and Electronically	Manually and Electronically
QA/QC How are values verified? (Cross-checked, double- checked,...)		Meters are calibrated once in 6 months. The data are cross checked with the check meters	Meters are calibrated once in 6 months. The data are cross checked with the check meters.
Type of Monitoring Equipment and Identification number or Reference in the PDD		Bi directional Electronic Tri-vector meter (Energy Meter for export and import) installed at the grid-connected point to measure the amount of electricity supplied to the grid by the Project	Bi directional Electronic Tri-vector meter(Energy Meter for export and import) installed at the grid-connected point to measure the amount of electricity received from the grid by the Project
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Yes. Accuracy of both main meters and backup meters is 0.5. These equipment and systems are calibrated and checked every 6 months.	Yes. Accuracy of both main meters and backup meters is 0.5. These equipment and systems are calibrated and checked every 6 months.
Period of operating time		01/08/2011 to 31/10/2012	01/08/2011 to 31/10/2012
Instrument type		Electronics Bidirectional meter	Electronics Bidirectional meter
Manufacturer, model and serial number		Manufacturer L&T Serial numbers:	
		Project Name	Main meter
		Babanpur	05271088
		Killa	04223074
		Sahoke	04223078
		Check meter	04187458
		Killa	04259757
		Sahoke	04223079



Data / Parameter (as in the MP)		Energy Exported-The electricity exported by the project activity to the grid in kWh	Energy Imported- The electricity imported by the project activity from the grid in kWh
Specific location		Main meters are installed at the respective project sites (after 415 V/6.6 kV/11kV transformer) and the check meters are installed at the respective PSEB sub stations of the projects	Main meters are installed at the respective project sites (after 415 V/ 6.6 kV/11kV transformer) and the check meters are installed at the respective PSEB sub stations of the projects
Calibration dates		26/07/2011 valid till 25/01/2012, 18/01/2012 valid till 17/07/2012 and 29/06/2012 valid till 28/12/2012 for Babanpur, 26/07/2011 valid till 25/01/2012, 18/01/2012 valid till 17/07/2012 and 03/07/2012 valid till 02/01/2013 for Killa. 01/08/2011 valid till 31/01/2012, 28/01/2012 valid till 27/07/2012 and 05/07/2012 valid till 04/01/2013 for Sahoke	26/07/2011 valid till 25/01/2012, 18/01/2012 valid till 17/07/2012 and 29/06/2012 valid till 28/12/2012 for Babanpur, 26/07/2011 valid till 25/01/2012, 18/01/2012 valid till 17/07/2012 and 03/07/2012 valid till 02/01/2013 for Killa. 01/08/2011 valid till 31/01/2012, 28/01/2012 valid till 27/07/2012 and 05/07/2012 valid till 04/01/2013 for Sahoke
Company performing the calibration		Punjab State Electricity Board	Punjab State Electricity Board
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?		Once in 6 months	Once in 6 months
Is calibration valid for the whole reporting period?		Yes	Yes
Maintenance		The meters belong to PSEB. The meters are well running during the monitoring period	The meters belong to PSEB. The meters are well running during the monitoring period
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?		Yes	Yes
Key reporting risks		Low risk. The meters are also the resettlement meter for the grid company and the PP. It was installed, maintained and calibrated according to the relevant industry standard.	Low risk. The meters are also the resettlement meter for the grid company and the PP. It was installed, maintained and calibrated according to the relevant industry standard.

Data / Parameter (as in the MP)		Net Saleable Energy -The net electricity exported by the project activity to the grid in kWh
Value	Ex ante	Not applicable
	Ex-post	Total: 28,626,550 kWh Babanpur: 7,265,020 kWh, Killa: 13,107,320 kWh and Sahoke: 8,254,210 kWh
Measuring frequency		Continuous monitoring
Reporting frequency		Monthly



Data / Parameter (as in the MP)		Net Saleable Energy -The net electricity exported by the project activity to the grid in kWh	
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes	
Recording (Manually / electronically / ...)		Manually and Electronically	
QA/QC How are values verified? (Cross-checked, double-checked,...)		The data is calculated as the difference of Energy exported and Energy imported.	
Type of Monitoring Equipment and Identification number or Reference in the PDD		Not Applicable since the data is calculated.	
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Not applicable	
Period of operating time		01/08/2011 to 31/10/2012	
Instrument type		Not applicable	
Manufacturer, model and serial number		Not applicable	
Specific location		Not applicable	
Calibration dates		Not applicable	
Company performing the calibration		Not applicable	
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?		Not applicable	
Is calibration valid for the whole reporting period?		Not applicable	
Maintenance		Not applicable	
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?		Yes	
Key reporting risks		Low risk. It is based on calculations and transpositions errors are cross checked at each entry.	
Data / Parameter (as in the MP)		Energy generated-The gross electricity generated by the project activity in kWh	Auxiliary Energy Consumption- The electricity used by the project activity for running the plant in kWh
Value	Ex ante	Not applicable	Not Applicable



Data / Parameter (as in the MP)		Energy generated- The gross electricity generated by the project activity in kWh	Auxiliary Energy Consumption- The electricity used by the project activity for running the plant in kWh
	Ex-post	Total: 29,554,240 kWh Babanpur: 7,550,579 kWh Killa: 13,543,873 kWh and Sahoke: 8,459,788 kWh	Total: 306,933 kWh Babanpur: 94,181 kWh Killa: 116,067 kWh and Sahoke: 96,685 kWh
Measuring frequency		Continuous monitoring	Continuous monitoring
Reporting frequency		Hourly	Hourly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes	Yes
Recording (Manually / electronically / ...)		Manually and Electronically	Manually and Electronically
QA/QC How are values verified? (Cross-checked, double- checked,...)		Energy generated at each of the three sites is measured by duly calibrated energy meters at a frequency of 6 months.	Auxiliary energy consumed at each of the three sites is measured by duly calibrated energy meters at a frequency of 6 months.
Type of Monitoring Equipment and Identification number or Reference in the PDD		Energy meters	Energy meters
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Accuracy of the generation meters has not been stated in the PDD. It is +/-1% for all the three sites. Verification team confirms that this represents good monitoring practices. Also, the emission reductions are calculated based on the net electricity exported measured by the common meter located at the interconnection point.	Accuracy of the auxiliary meters has not been stated in the PDD. It is +/-1% for each of the three sites. Verification team confirms that this represents good monitoring practices. Also, the emission reductions are calculated based on the net electricity exported measured by the common meter located at the interconnection point.
Period of operating time		01/08/2011 to 31/10/2012	01/08/2011 to 31/10/2012
Instrument type		Energy meters	Energy meters
Manufacturer, model and serial number		<u>Make and model</u> Rishabh Digital Energy Meter for Babanpur units, Minsun for Killa unit 1 and Selec for Killa unit 2 and Minsun for Sahoke <u>Serial numbers</u> Babanpur-Unit 1: 04/12/2288, Unit 2: 05/09/4126, Killa-Unit 1: 6851019, Unit 2: B:0910, Sahoke: 68B0511,	<u>Make and model</u> Rishabh for Babanpur, Enercon for Killa and Selec for Sahoke <u>Serial numbers</u> Babanpur: 08/06/0915, Killa: 57343/1598-3804, Sahoke: B:911
Specific location		Meters are installed at the Project site	Meters are installed at the Project site
Calibration dates		26/06/2011 to 25/12/2011 24/12/2011 to 23/06/2012 20/06/2012 to 19/12/2012	26/06/2011 to 25/12/2011 24/12/2011 to 23/06/2012 20/06/2012 to 19/12/2012
Company performing the calibration		Advance Control System	Advance Control System
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?		Once in 6 months	Once in 6 months



Data / Parameter (as in the MP)	Energy generated -The gross electricity generated by the project activity in kWh	Auxiliary Energy Consumption - The electricity used by the project activity for running the plant in kWh
Is calibration valid for the whole reporting period?	Yes	Yes
Maintenance	The meters are well running during the monitoring period	The meters are well running during the monitoring period
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	Yes
Key reporting risks	Low risk.	Low risk.



Verified situation	Conclusion
SECTION 4. Compliance with the calibration frequency requirements for measuring instruments	
The “Monitoring Parameters and Calibration Checklist” in section 3 above shall be checked to determine if the calibration frequency specified in the applied monitoring methodology and/or monitoring plan is followed in the monitoring report and in the monitoring activities. Where a failure to comply with the required frequency is detected, or no frequency is mentioned in the monitoring report, please follow the checklist below:	
<p>4-1. If the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (that is, the results of delayed calibration are available), confirm that the following conservative approach has been adopted in the calculation of emission reductions:</p> <ul style="list-style-type: none"> - If the delayed calibration did not show any errors in the measuring equipment, or the error was smaller than the maximum permissible error, have the PPs applied the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration? - If the delayed calibration identified an error greater than the maximum permissible error, have the PPs applied the error identified in the delayed calibration test to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration? <p>Confirm that the error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer emission reductions being claimed;</p>	<p>Not Applicable</p> <p>OK</p>



	Verified situation	Conclusion
<p>4-2. If the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification:</p> <ul style="list-style-type: none"> a. Request the PPs to conduct the required calibration; b. On receipt of the calibration results, determine whether the PPs have calculated the emission reductions conservatively using the approach mentioned in section 4.1 above. 	Not Applicable.	OK
<p>4-3. If it is not possible for the PPs to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of the PPs, check if the PPs have prepared a temporary deviation or a 'Permanent changes from the monitoring plan and/or monitoring methodology application'.</p> <p>Follow the requirements for post registration changes in sections 3.10 to 3.19 above.</p>	Not Applicable.	OK
<p>4-4. If neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipment, determine whether the equipment is calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification. If neither local/national standards nor the manufacturer's specification are available, international standards may be used.</p>	Not Applicable.	OK



	Verified situation	Conclusion
SECTION 5. Assessment of data and calculation of emission reductions		
<p>5-1. Have calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, been carried out in line with the formulae and methods described in the monitoring plan and the applied methodology document?</p> <p>Check consistency in the ERs spreadsheet.</p>	<p>Yes</p> <p>According to the registered PDD and the Monitoring report, the baseline emissions for the project activity for the period 01/08/2011 to 31/10/2012 have been calculated as,</p> <p>Baseline emission = Net saleable energy x Emission factor of the grid</p> <p>Net saleable Energy (kWh) by the project from 01/08/2011 to 31/10/2012 = Energy Exported (kWh) – Energy Imported (kWh) = 28,661,340 - 34,790 = 28,626,550 kWh. The team confirms that the calculation of Net saleable energy for this monitoring period is accurate and conservative.</p> <p>Emission factor of the grid (kCO₂/kWh) = 0.942 kCO₂/kWh, as calculated ex-ante in the registered PDD and will be fixed during the first crediting period and is thus applicable for this monitoring period.</p> <p>Hence the baseline emission=(28,626,550 x 0.942)/1000 = 26,966 tCO₂e.</p> <p><u>Project emissions</u></p> <p>There is no formulae to determine the project emissions specified in the applied small scale methodology AMS I.D, Version 07. The registered PDD states that “There would be no GHG emissions of any kind, due to project activity within the project boundary as it is a canal drop based project producing clean energy without any storage of water.</p> <p><u>Leakage emissions</u></p> <p>As per the paragraph 8 of the applied small scale methodology AMS I.D, Version 07, leakage emissions are to be considered only if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. The MR states that the energy equipment is not transferred from or to any other activity and hence the leakage emissions are not considered.</p>	OK



	Verified situation	Conclusion
	<p>Since the project emissions and the leakage emissions are nil, the emission reduction by the project activity is the same as the baseline emissions.</p> <p>Hence $ER_y = BE_y = 26,966 \text{ tCO}_2\text{e}$</p> <p>In addition, verification team has also verified the application of the calculation model. The methodology used for calculation of ERs was found to be in line with the registered PDD.</p>	
<p>5-2. Has the calculation tool been correctly documented? Check its consistency and formulae.</p> <ul style="list-style-type: none"> • baseline emissions • project emissions • leakage • emission reductions of the project. 	The monitoring report is supported by and Micro Soft excel based spreadsheet for the calculation of emission reductions. The consistency and formula were verified and found to be accurate.	OK
<p>5-3. Is a complete set of data available during the specified monitoring period? If only partial data is available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan proceed as follows:</p> <ol style="list-style-type: none"> Check if sections 3.11 and/or 3.12 above are applicable and raise a CAR for the PPs to comply with these requirements. If sections 3.11 and 3.12 are not applicable or the answer to this question remains NO, a request for deviation is necessary. <p>Conduct an assessment of the potential impacts of these changes in accordance to the procedures for Post Registration Changes.</p>	No partial data is available and a complete set of data is available for this monitoring period.	OK



	Verified situation	Conclusion
5-4. Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis? Please describe how LRQA has cross-checked reported data.	The verification team confirmed the monitored data with the following: 1. Daily plant log Book (Electronic and paper) 2. Hourly generation log 3. Joint meter readings 4. Invoices raised for the sale of electricity All the above documents are referenced in section 7.1 of this report.	OK
5-5. Have any assumptions used in emission calculations been justified?	Not Applicable	OK
5-6. Have appropriate emission factors, IPCC default values, and other reference values been correctly applied?	The emission factor for the electricity supplied to the grid has been determined ex-ante in the registered PDD and will not change during the entire first crediting period Hence no uncertainty involved with the stated figure and the same stands justified	OK



Findings⁶

1. Grade / Ref:	CAR 01	2. Date:	17/01/2013	3. Status:	Closed
4. Requirement		Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20			
5. Nature of the Issue Raised:					
<p>The description of the installed technology (ies), technical process and equipment, including diagrams are not provided in section A.1 of the MR Version 01 dated 15/11/2012 in line with the Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20.</p> <p>Further, the project boundary diagram and the emergency preparedness as per the PDD are not provided in the MR</p>					
6. Nature of responses provided by the project participants:					
<p>The description of the installed technology (ies), technical process and equipment, including diagram has been provided in Section A.1 of the revised MR in line with the Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20.</p> <p>Further, the project boundary diagram and emergency preparedness as per the PDD has been provided in Section C. of the revised MR.</p>					
7. Assessment of such responses:					
<p>The team confirms that after review of the sections A.1 and C of the revised MR, the description of the technology and the project boundary diagram is now included in the MR and hence the finding is closed.</p>					
8. References to resulting changes in the monitoring report or supporting annexes:					
<p>Sections A.1 and C of the monitoring report.</p>					

⁶ Explanation of the Findings Log structure:

1. Grading and Sequential Number of the finding Workbook	2. Date of Original Finding	3. New, Open, Closed	4. Requirement (VVS, PDD-CDM, etc)	5. Reference to
6. Details of PP's response	7. Evaluation from the Verification team	8. List of changes made as a result of the finding		



1. Grade / Ref:	CAR 02	2. Date:	17/01/2013	3. Status:	Closed
4. Requirement		Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20			
5. Nature of the Issue Raised:					
The project participants stated in section A.3 of the monitoring report is not in agreement with those given in the UNFCCC project page.					
6. Nature of responses provided by the project participants:					
The name of Annex I PP has been included in Section A.3 of the revised MR. Now the section A.3 has all the project participants listed in agreement with the UNFCCC project page.					
7. Assessment of such responses:					
The team confirms that in the revised MR, the name of PP from the Annex I country is included and the section A.3 is now in agreement with the UNFCCC project page. Hence the CAR is closed.					
8. References to resulting changes in the monitoring report or supporting annexes:					
Section A.3 of the monitoring report.					

1. Grade / Ref:	CAR 03	2. Date:	17/01/2013	3. Status:	Closed
4. Requirement		Guideline for Completing the Monitoring Report Form (version 02.0) EB66 Annex 20			
5. Nature of the Issue Raised:					
Following discrepancies are found in the section D.2 of the MR:					
<ul style="list-style-type: none"> i) "Source of data" for all the meters for monitoring as stated in the section D.2 of the MR is inappropriate. ii) Details of the check meters used for monitoring export and import of energy have not been provided in the section D.2 of the MR. iii) Data archiving process has not been provided in the section D.2 of the MR. 					
6. Nature of responses provided by the project participants:					
<ul style="list-style-type: none"> i) "Source of data" for all the meters has been corrected in the revised MR; ii) Details of the check meters used for monitoring export and import energy has been provided for in the revised MR; iii) Data archiving has been explained in the revised MR. 					

**7. Assessment of such responses:**

The team confirms that the section D.2 of the MR is revised appropriately to include the sources of data, details of the check meters, and process of data archiving and hence the finding is closed.

8. References to resulting changes in the monitoring report or supporting annexes:

Section D.2 of the Monitoring report