
VERIFICATION AND CERTIFICATION REPORT

**Mwenga Hydro Limited
Mwenga Hydro Power Project
UNFCCC Ref. 9550**

**Monitoring period- 1: 30/01/2013 –
29/01/2014 (first and last days included)**

Date of Issue:		Project Number:	
20/05/2015		CDM.VER1409 MP1	
Project Title:			
Mwenga Hydro Power Project			
Organisation:		Client:	
SGS United Kingdom Limited		Mwenga Hydro Limited	
Publication of Monitoring Report:			
Monitoring Period:		30/01/2013 – 29/01/2014 (Both days included)	
First Monitoring Version and Date:		version 1 dated 17/07/2014 (webhosted)	
Final Monitoring Version and Date:		version 06 dated 15/03/2015	
Summary:			
<p>SGS United Kingdom Ltd has performed the first verification of the CDM project activity entitled “Mwenga Hydro Power Project”, bearing UNFCCC reference number 9550, with registration date of 30/01/2013 and a fixed crediting period from 30/01/2013 to 29/01/2020 (renewable). The verification includes confirming the implementation of the monitoring plan of the revised PDD^{1.1/} and the application of the monitoring methodologies AMS-I.D. version 17^{14/} and AMS-I.F. version 2.0^{15/}. A site visit was conducted to verify the data submitted in the monitoring report. SGS confirms the following has been reviewed:</p> <ul style="list-style-type: none"> (a) The registered PDD^{1/} and the corresponding validation report^{16/} as well as the revised PDD^{1.1/}, including the monitoring plan; (b) Monitoring report^{2/} (c) The applied monitoring methodologies AMS-I.D. version 17^{14/} and AMS-I.F. version 2.0^{15/} (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; (e) All information and references relevant to the project activity resulting in emission reductions. <p>The project activity involves electricity generation from a 3.486 MW run-of-river hydro power plant, installed on the Mwenga river, in the Mufindi district, Iringa region of Tanzania; the supply of the generated electricity to the Mufindi Tea and Coffee Company Ltd (MTC) factory and some of the local communities (AMS-I.F. version 2.0 component); as well as the export of the generated electricity to Tanzania Electric Supply Company Limited (TANESCO) (AMS-I.D. version 17.0 component). The electricity supply to the MTC factory was done by the TANESCO grid in the pre-project scenario and the villages would have also been supplied by the TANESCO grid. The project activity is a renewable energy generation project and replaces the electricity generated otherwise from the fossil fuel dominated TANESCO grid.</p> <p>SGS confirms that the project is implemented in accordance with the revised PDD^{1.1/}. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated, we confirm that the implementation of the project has resulted in 10,209 tCO₂e emission reductions during the current monitoring period of 30/01/2013 – 29/01/2014 (both days included).</p>			
Subject:			
CDM Verification			
Verification Team:			
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Name: Jonathan Hall Date: 15/07/2015			
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1	20/01/2015	55	
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Abbreviations

AMS	Approved Methodology Small-scale
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
CMP	Conference of Parties Serving as Meeting of Parties
CO _{2e}	Carbon Dioxide equivalent
COP/MOP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto protocol
COD	Commencement of Delivery
DNA	Designated National Authority
DOE	Designated Operational Entity
DPR	Detailed Project Report
EB	CDM Executive Board
EDMI	Electronic Design and Manufacturing International
EF	Emission Factor
EPC	Engineering, Procurement and Construction
ER	Emission Reduction(s)
FAR	Forward Action Request
GEF	Grid Emission Factor
GHG	Greenhouse Gas(es)
GPS	Global Positioning System
IEC	International Electrotechnical Commission
ISO	International Standards Organization
JMR	Joint Meter Reading
KWh	Kilowatt hour
LoA	Letter of Approval from Host Party
LV	Low Voltage
MHL	Mwenga Hydro Limited
MP	Monitoring Plan
MR	Monitoring Report
MTC	Mufindi Tea and Coffee Company Limited
MW/MWh	Megawatt/ Megawatt hour
OM	Operating Margin
O&M	Operation and Maintenance
PCP	CDM Project Cycle Procedure
PDD	Project Design Document
PLC	Programmable Logic Controller
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
PRC	Post Registration Changes
PS	CDM Project Standard
QA/QC	Quality Assurance/Quality Control
QMS	Quality Management System
SGS	Société Générale de Surveillance
SPPA	Standardized Power Purchase Agreement
TANESCO	Tanzania Electric Supply Company Limited
tCO _{2e}	Tonnes of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVM	CDM Validation and Verification Manual
VVS	CDM Validation and Verification Standard

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1. Introduction

1.1 Objective

SGS United Kingdom Ltd has been contracted by Mwenga Hydro Limited (the project participant) to perform an independent verification of its CDM project activity entitled "Mwenga Hydro Power Project". CDM projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The monitoring report^{/2/} conforms with the requirements of the monitoring plan in the registered PDD^{/1/} as well as the revised PDD^{/1.1/} and the approved methodologies^{/14/,15/} and
- The data reported are complete and transparent.

1.2 Scope

The scope of the verification is the independent and objective review and ex-post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated and registered PDD^{/1/} as well as the revised PDD^{/1.1/} and the monitoring report^{/2/}. The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

SGS has, based on the recommendations in the Validation and Verification Standard^{/20/}, employed a risk-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Due professional care has been exercised and ethical conduct has been followed by the assessment team during the verification process. The verification report is a fair presentation of the verification activity.

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

1.3 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	Mwenga Hydro Power Project
UNFCCC Registration Number:	9550
Monitoring Period Covered in this Report:	30/01/2013 – 29/01/2014 (Both days included)
Project Participants:	Mwenga Hydro Limited Swedish Energy Agency
Location of the Project Activity:	Mufindi district, Iringa region, Tanzania. For the weir and silt collection- (Latitude 8°37'18.63" South and Longitude 35°41'30.54" East). For the powerhouse: Latitude 8°37'27.07" South and Longitude 35°41'22.82"

The project activity involves electricity generation from a 3.486 MWe run-of-river hydro power plant and supply of the generated electricity to the Mufindi Tea and Coffee Company Ltd (MTC) factory and some of the local communities (AMS-I.F. version 2.0 component) as well as the export of the generated electricity to the TANESCO grid (AMS-I.D. version 17.0 component).

The project activity was set up by Mwenga Hydro Limited.

2. Methodology

2.1 General Approach

SGS performs the verification work using a Periodic Verification Checklist prepared following the CDM VVS. The Periodic Verification Checklist describes the verification approach and the sampling plan.

The checklist gives the assessment team a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Using the Periodic Verification Checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

Only verification activities undertaken after the publication of the monitoring report on the UNFCCC CDM website were used as a basis for SGS to conclude our verification and submit a request for issuance of CERs to the Board.

2.2 Verification Team for this Assessment

The team selected to perform the verification of the project is as follows:

Name	Role
Ravi Kant Soni	Team Leader/Lead Assessor
Nareshkumar Suneja	Technical Area Expert (TA1.2)
Philip Abuor	Local Assessor

2.3 Means of Verification

2.3.1 Review of Documentation

The registered PDD^{1/} as well as the revised PDD^{1.1/}, the monitoring report submitted by the client^{2/} and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 8 of this report.

2.3.2 Site Visits

As part of the verification, the following on-site inspections have been performed by members of the assessment team.

Location: Mwenga Hydro Power Plant site, Mufindi district, Iringa region, Tanzania	
Date: 08-09/10/2014	
Coverage:	Source of Information / Persons Interviewed
<ul style="list-style-type: none"> Project design and implementation Technical equipment and operation The overall monitoring procedure Plant O&M and operational data 	Mr. Michael Gratwicke, Managing Director, MHL Mr. Joel Gomba, Operations Manager, MHL
<ul style="list-style-type: none"> Monitoring report and emission reduction calculations Methods and formulae for calculating baseline emissions, project emissions and leakage 	Mr. Michael Gratwicke, Managing Director, MHL
<ul style="list-style-type: none"> Data uncertainty and residual risks Quality control and quality assurance procedures Monitoring equipment including calibration performance Implementation of procedures for operations and data collection 	Mr. Michael Gratwicke, Managing Director, MHL Mr. Jonathan Kayombo, MHL Mr. Zawadi S. Kiliwa, Plant operator, MHL

2.4 Reporting of Findings

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

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a Clarification Request (CL) specifying what additional information is required.

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

- I. Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- II. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- III. Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- IV. Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The verification process may be halted until this information has been made available to comply with the requirements of the CDM Executive Board. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A clarification request (CL) will be raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

Corrective Action Requests and Clarification Requests are raised in the findings overview document. The Project Developer is given the opportunity to “close” outstanding CARs and respond to CLs.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period, which are for the benefit of future projects and future verification activities. These have no impact upon the completion of the verification activity.

All CARs, CLs and FARs for this verification period are included in this report.

2.5 Internal Quality Control

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

Technical Review Team

Name	Role
Ajoy Gupta	Technical Reviewer
Shivaji Chakraborty	Technical Area Expert (TA1.2)

3. Verification Findings

3.1 Project Implementation

It was confirmed that the project activity has been registered as a CDM project activity, against the approved small scale methodology AMS-I.D. version 17.0^{/14/} and AMS-I.F. version 2.0^{/15/}. The monitoring report^{/2/} for the current (first) monitoring period from 30/01/2013 – 29/01/2014 (both days included), is in compliance with the monitoring plan as outlined in the registered PDD^{/1/} and revised PDD^{/1.1/} being submitted along with this issuance request (as there has been no change to the registered monitoring plan). The data and variables mentioned in the monitoring report^{/2/} are consistent with those stated in the revised PDD. There is a temporary deviation from the methodology AMS-I.F. version 02 related to the monitoring components identified during the current monitoring period as described in section B.2.1 of the final monitoring report. Also the deviation is covered under section 3.2.1 of this report, and relates to the MTC interconnection not yet implemented due to reasons beyond the control of PP).

During the site visit it was verified that the project activity has installed 3.612 MW hydro turbine and an alternator of 5 MVA capacity, reaching a total installed electrical capacity of 3.486 MWe and the same is also found consistent with the project implementation description provided in the revised PDD^{/1.1/} being submitted along with this issuance request. The electricity supply to the MTC was from the TANESCO grid in the pre-project scenario and the villages would have also been supplied by the TANESCO grid. The project activity was set up by Mwenga Hydro Limited. The project location mentioned in the registered PDD^{/1/} as well as the revised PDD^{/1.1/} has been cross checked during the site visit and using the Google Earth application and the same was found to be consistent. The assessment team confirmed that it represents the actual and accurate plant location. Furthermore the actual implementation status is checked by the assessment team as mentioned in the below table and found to be satisfactory, hence accepted.

Sr.No	Milestone	Date	Evidence verified by the assessment team
1	Commissioning of project activity	01/09/2012	Mwenga Hydro Power Plant Interconnection (Commissioning) Certificate ^{/9/}
2	Standardized Power Purchase Agreement signed between MHL and TANESCO	June 2009	The PPA dated June 2009 approved through Ministry of Energy and Minerals, Tanzania on 21/01/2010. This is confirmed through the copy of PPA ^{/11/} .
3	Grant of Final Water Use Permit	29/01/2013	Copy of license issued by Ministry of Water, Tanzania ^{/8.d/}
4	Electricity Generation License	01/03/2013	Copy of license issued by The Energy and Water Utilities Regulatory Authority, Tanzania ^{/8.a/} .
5	Electricity Distribution License	30/04/2013	Copy of license issued by The Energy and Water Utilities Regulatory Authority, Tanzania ^{/8.b/} .

The applicability criteria of the applied methodologies AMS-I.D. version 17.0^{/14/} and AMS-I.F. version 2.0^{/15/} were also checked with regards to the project activity description provided above. The description provided by the PP is found to be in line with the revised PDD^{/1.1/} and there are no material changes observed since the project activity was commissioned, though minor correction in some of the specifications external to the project activity plant with minor/no effect on the project applicability as discussed under section 3.2.1 and

3.2.2 of this report. The project capacity of 3.486 MWe is well below the small scale project activity threshold. Thus, the applicability criteria of the applied methodologies are still met during the current monitoring period.

This is in line with paragraphs 271-273 of VVS version 07.0^{/20/}.

Project Performance during the current monitoring period:

The project activity has already been implemented. It was commissioned on 01/09/2012, as verified from the Commissioning Certificate dated 17/09/2012^{/9/} and is found to be in working condition during the verification site visit. There are no changes in the project design against the registered PDD^{/1/} (though minor correction in some of the specifications external to the project activity plant, refer revised PDD^{/1.1/} and section 3.2.2 of this report). For the AMS-I.D. version 17 component, the electricity generated was sold to TANESCO by MHL in line with the provisions of the PPA^{/11/}, and the project was found to be operating in compliance with the legal requirements set by the local authorities^{/8/}. The project activity was registered with the CDM EB on 30/01/2013^{/4/}.

The PP has used the valid MR template (CDM-MR-FORM version 04.0)^{/23/} for the final MR^{/2/} as per the provision of Transitional measures from version 07.0 to version 09.0 of the PS, VVS and PCP available at https://cdm.unfccc.int/Reference/regulatory_revision_olddocs.html. The start date of this monitoring period is 30/01/2013 which is found to be consistent with the start date of the crediting period as mentioned on the UN project webpage^{/4/}.

The monitoring report^{/2/} has been checked for consistency with the revised PDD^{/1.1/}; it is found to be consistent. The PP has considered the monitoring parameters in the monitoring report as per the monitoring plan as mentioned in the revised PDD^{/1.1/}. The recording frequency and completeness of the data for the monitoring period have been checked and it is found to be in compliance to the monitoring plan as described in the revised PDD^{/1.1/}. Also the location of the energy meters used for measurement of parameters during the current monitoring period is checked during the site visit and found to be in line with the revised PDD^{/1.1/}.

Photographic evidence^{/13/} for the site installations and the meters are also attached in the section 11 of this report. Corresponding to paragraphs 255-256 of VVS version 07.0^{/20/}, the verification team also confirms that the monitoring has been carried out in accordance with the approved methodologies AMS-I.D. version 17.0^{/14/} and AMS-I.F. version 2.0^{/15/}, which were applied to the project activity. The assessment of the project activity with regards to the monitoring parameters as well as the monitoring equipment has been covered in detail under sections 3.4 - 3.6 of this report.

The assessment of the comparison of actual emission reductions as reported in the final Monitoring Report^{/2/} and the Emission Reduction Calculation Spreadsheet^{/3/} with the ones estimated in the revised PDD^{/1.1/} has been covered in details under section 3.7 of this report.

3.2 Post registration changes

The PP has submitted the revised PDD^{/1.1/} covering the corrections in the respective sections of the registered PDD^{/1/} as per the provision of paragraph 1 under Appendix 1 of the CDM Project Standard version 07.0^{/21/}. The assessment team has verified the corrections and found that these corrections are of typographical nature and confirmed that the corrections do not affect the design of the project activity, hence in line with appendix 1 of Project Standard version 07, section 1 "Corrections", paragraph 1, these corrections do not require prior approval by the Board.

Assessments on the corrections made to the registered PDD are discussed in detail in section 3.2.2 of this report.

As per the Post registration change, the current monitoring period involves temporary deviation for the methodology AMS-I.F. version 02 monitoring components, which has been duly addressed as per the provision of paragraph 2 under Appendix 1 of CDM Project Standard version 07.0^{/21/}. The assessment approach on the temporary deviation has been discussed in details under Section 3.2.1 of this report.

It is to be noted that this project is registered under the previous regulatory framework (VVM track), and the old information is transferred to the new VVS track form. The assessment team confirms that the material (information) included in the new form is materially the same as the information in the registered PDD.

3.2.1 *Temporary deviations from registered monitoring plan or applied methodology*

There were temporary deviations from the registered monitoring plan^{/1/and/1.1/} as well as the applied methodology AMS-I.F. version 2.0^{/15/} during the current monitoring period as proposed by the PP:

- The planned connection of Mufindi Tea and Coffee Company Ltd (MTC) Processing Factory to the project activity power plant could not occur during the first monitoring period, but is still planned to be implemented as described in the registered PDD, as soon as the appropriate interconnection equipment is procured and installed by the PP. However, there are some administrative and legal approvals to be obtained by the PP to set up the planned connection. It is to be noted the administrative and legal issues are completely beyond the control of the PP.
- Furthermore, the individual village transformer meters that were planned to be installed at each village transformer as a means of measuring electricity losses within each village (and additionally as a failsafe means of measuring power supplied to TANESCO in the event of TANESCO billing and check meter failure) had not yet been installed. The materials for this have been procured, and these were in the process of being installed as verified during the verification site visit.

It is worth noting that these meters at each village transformer are not involved for the measurement of net electricity generated by the project activity and the resulting emission reductions as claimed by the project activity following applied methodological approach, as these only become relevant in the event of failure of both the main TANESCO billing and check meters, which did not occur during the current monitoring period.

This was verified and confirmed during the on-site verification and the description from the MR^{/2/} and the associated emission reduction calculations for the AMS-I.F. version 2.0^{/15/} component i.e. EG_{BL,y,1} has been taken as zero which was acceptable and the assessment team confirms that these deviations did not hamper the accuracy of the Emission Reduction calculations in any way. This was checked and confirmed in line with the provision of paragraph 2 under Appendix 1 of the CDM Project Standard version 07.0^{/21/}.

Please refer the assessment under sections 3.4 - 3.5 of this report for further information.

3.2.2 *Corrections*

The following corrections were done to the information provided in section A.3 of registered PDD^{/1/} as a result of the findings in CAR 2:

- Small water channel and low head closed conduit runs 70m rather than 50m, as in registered PDD.
- The statement on environmental flow (1 m³/s) for maintenance of the river during periods of low flow as per the issued final Water Use Permit for the project activity has been added.
- In relation to Table A.3, information regarding maximum instantaneous capacity available out of the turbine, and subsequently the generator terminals as per routine operational tests conducted over the course of wet seasons of 2013 and 2014 by the PP has been added as footnote 5 and 6.
- Installation of rural distribution network infrastructure is larger (35 km of minor spur lines and 40 km of LV distribution lines) than that described in the registered PDD. These are however outside the boundary of the registered CDM project and no emission reductions are claimed for this element of the project.

The assessment team confirms that there is no change in the project capacity which was considered as 3.486 MWe in the registered PDD as well as for the purpose of ER calculations at the time of project registration. The above changes in the project activity plant specifications were regarded as corrections only and therefore do not affect the scale of the project activity, applicability of the methodologies as well as additionality of the project activity being auto additional. This resulted in the revised PDD^{/1.1/} which is being

submitted with the request for issuance of first Monitoring Period as per paragraph 142 of the CDM PCP version 07.0^{/22/}.

- A further summary paragraph related to baseline scenario in the absence of the project activity has been added under sections A.1 and A.3 of the revised PDD.
- Further clarity in terms of an addition of a statement has been provided under sections B.6.1, B.6.2 and B.7.3 that the parameter $EF_{CO_2,y}$ is calculated based on the ex-ante data vintages option for the estimates appearing in the registered PDD. However, as stated in the Monitoring Plan, ex-post monitoring shall be used for this parameter.
- Due to the requirements of using the latest version of the CDM-SSC-PDD-FORM^{/24/} the PP has updated the relevant sections as follows:
 - i. The cover page rows, sections A.1 for the pre project scenario description,
 - ii. Section B.6.2: 'Purpose of data' rows filled for all the parameters,
 - iii. Section B.7.1:- 'Monitoring frequency' and 'Purpose of data' rows filled for all the parameters,
 - iv. Section B.7.2: mentioned as not applicable,
 - v. Section F: LoA details added,
 - vi. Appendix 3: additional information about the applicability of the methodology is added
 - vii. Appendix 6: All the corrections made in the revised PDD is listed.

Also, the corrections were made to the cross referencing between the old and the new templates of the PDD in terms of sections and appendices referred.

The assessment team followed the requirements specified in paragraph 302 of VVS version 07.0^{/20/} as well as Appendix 1 of the CDM PS version 07.0^{/21/} and concluded that the corrections made in the revised PDD^{/1.1/} were appropriate.

Furthermore, the assessment team also verified that the PP used the valid CDM-SSC-PDD-FORM template i.e. version 05.0^{/24/} for completing the revised PDD^{/1.1/} as per the provision of Transitional measures from version 07.0 to version 09.0 of the PS, VVS and PCP available at https://cdm.unfccc.int/Reference/regulatory_revision_olddocs.html. This was deemed appropriate and thus accepted.

Discussion of CARs/CLs

CAR #1 was raised requesting the clarification for the following issues:

MR:

1. The information provided on first page of the MR was not in line with instructions to complete the MR form.
2. Section A.1: the requisite details related to the installed technology/equipment, relevant dates and emission reductions achieved during the current monitoring period were not provided.
3. Section A.4: the tools referred by the applied methodologies and applied for the project activity registered were not described transparently.
4. Section E.7: information on the ER achieved from 01/01/2013 was not provided transparently.

Revised PDD (PRC changes) and Registered PDD (VVM to VVS track):

1. The PP has not submitted the registered PDD in VVS track using the latest CDM-PDD-SSC-FORM template version 05.0

2. The changes made in the relevant sections of the revised PDD were not found to be in line with the post registration changes observed during the current monitoring period. Also the PRC were not summarized transparently under appendix 6 of the revised PDD

In response the PP has submitted the revised MR^{/2/}, revised PDD^{/1.1/} and registered PDD (VVS track)^{/1/}. The assessment team has checked the revised documents and confirmed that all the issues are addressed satisfactorily, hence **CAR #1** was closed. For details please refer **CAR #1** in the discussion of findings under section 9 of this report.

CAR #2 was raised requesting the clarification for the following issues:

1. The information provided under section B.1 of MR regarding the actual implementation of the project activity was not found to be consistent with the registered PDD.
2. The corrections observed to the registered PDD were not discussed in section B.2.2 of the monitoring report.
3. Location map provided in section B.1 of the MR was not found to be legible and no labels were mentioned in line with the registered PDD.

In response the PP has submitted the revised MR^{/2/} and the revised PDD^{/1.1/}, clarifying that the corrections observed in the registered PDD are now updated in the revised PDD and MR. The assessment team has verified the revised documents and confirmed that all the issues have been addressed satisfactorily, hence **CAR #2** was closed. For details please refer **CAR #2** in the discussion of findings under section 9 of this report.

CAR #6 was raised requesting the clarifications for the following issues:

1. It was not clear why the reference to the revised PDD is not mentioned in the MR.
2. The information regarding the approximate distance of minor spur lines and LV distribution lines as mentioned on page 6 of MR was not consistent with the revised PDD.
3. There was uncertainty as to whether the start date or the registration date was being mentioned on page 7.
4. It was unclear why the changes discussed under point 4 (p.9) were not mentioned under appendix 6 of the revised PDD. Also, the reference of sections as mentioned in the MR and revised PDD was not found to be correct (e.g. section B7.1 or B.7.1)
5. All the information from the registered PDD (VVM track) was not correctly transferred to the updated PDD (registered PDD VVS track).

Revised PDD version 06:

1. Section A.5 refers to Annex 2 of the revised PDD however the revised PDD was not consisting Annexes.
2. Appendix 1 did not include a table with CAMCO information, to match the information in section B.7.4, as per instructions in PDD template.
3. VVS PDD: Appendix 1: It was not clear if Mwenga Hydro Limited is the Party responsible for the application of the selected methodology.
4. Appendix 6: the correction made to section B.7.3. However this was not mentioned.

Downtime figures spreadsheet

“Summary” tab: The current monitoring period is from 30/01/2013 up to 29/01/2014. But the specific period for Jan 2013 and Jan 2014 was not mentioned.

It was not clear why the information prior to start date and after the end date of current monitoring period provided (Ref: Tab_Jan 13 & Jan 14).

It was not clear why the tab for March 2013 is not provided in the sheet missing.

GEF spreadsheet

“OM_2013” tab: complete identification of the tool was not mentioned (row 4 and row 34)

Generation and Sales data spreadsheet

“Generation and billing data” tab: the note in the cell N10 was mentioned that “uncelebrated meters from Aug 2013” but this information was not consistent with MR (page 16).

In response the PP has submitted the revised MR^{/2/}, revised PDD^{/1.1/}, revised ER sheet^{/3/}, revised downtime data records^{/19/}, revised GEF spreadsheet^{/10/} and the revised Generation and Sales data^{/12/}. The assessment team has checked the revised documents and confirmed that all the issues are addressed satisfactorily, hence **CAR #6** was closed.

Detailed discussion on these findings can be referred under **CAR #6** in section 9 of this verification report.

3.2.3 Permanent changes from registered monitoring plan or applied methodology

During verification site visit of the project activity, it was checked and confirmed that the monitoring plan implemented at the project site (which is also described consistently in the MR^{/2/}) was in line with the monitoring plan described in the registered PDD^{/1/} and revised PDD^{/1.1/} as well as is in conformance with the applied methodology^{/14/}.

Hence, no permanent changes from the monitoring plan are involved during the current monitoring period; only corrections were done in the monitoring sections B.6 and B.7 in line with the requirement of the latest PDD template, as discussed in section 3.2.2 of this report. This was checked and confirmed in line with the requirements specified in paragraph 307 of VVS version 07.0^{/20/}.

Please refer to the assessment under sections 3.4-3.5 of this report for further information.

3.2.4 Changes to project design of registered project activity

The project activity is implemented and is operational in compliance with the project description mentioned in the registered PDD^{/1/} except for certain minor changes in the implementation features outside of the plant premises as described in the revised PDD^{/1.1/}. These corrections have been discussed under section 3.2.2 of this report. The project implementation status and compliance was verified and confirmed based on the on-site verification observations and the description provided in the MR^{/2/}, the registered PDD^{/1/}, the revised PDD^{/1.1/} and the UNFCCC project webpage^{/4/}. This was checked and confirmed in line with the requirements specified in paragraph 314 of VVS version 07.0^{/20/}.

Please refer to the assessment under section 3.1 of this report for further information.

3.2.5 Changes to start date of crediting period

There has been no change in the start date of the crediting period (covering 30/01/2013 to 29/01/2020 (Including both days)) since the registration of the project activity. It was verified and confirmed through the UNFCCC project webpage^{/4/}. This was checked and confirmed in line with the requirements specified in paragraph 305 of VVS version 07.0^{/20/}.

3.3 Remaining Issues, CAR's, FAR's from Previous Validation or Verification

The project activity is registered with the UNFCCC Clean Development Mechanism by the CDM Executive Board on 30/01/2013 (UNFCCC Ref. 9550) and this is the first verification of the project activity.

This is the first periodic verification since project registration and in line with the requirement of paragraph 258 of VVS version 07.0^{/20/}, the verification team has reviewed the validation report^{/16/}, there are no FARs, or other pending or open issues observed for this project activity.

3.4 Completeness and accuracy of Monitoring

3.4.1 Verification of monitoring of parameters

The monitoring parameters and procedure as per the applied methodological choice have been implemented in accordance with the monitoring plan contained in the registered PDD^{/1/} (as well as the revised PDD^{/1.1/}, since no change made in this regard). The monitoring mechanism, including the data collection system, is found to be effective and reliable.

The monitoring plan as described in the registered PDD^{/1/} and revised PDD^{/1.1/} has also been checked and it is found to be in compliance with the requirements of the applied monitoring methodology AMS-I.D version 17.0^{/14/} as well as AMS-I.F. version 2.0^{/15/}. This was checked as per the requirements specified under the paragraphs 256, 274 and 278 of VVS version 07.0^{/20/}. The various elements in the project boundary were found to be consistent with the revised PDD^{/1.1/}. It was checked and confirmed during the site visit that there is no other additional source of GHG emissions which is attributable to the project activity. During the site visit, personnel involved at various levels of operation of the project activity have been interviewed. It has been confirmed that the O&M personnel from the plant are conscious of the importance of the monitoring activities. On site verification of the electricity and other operation related records substantiate consistency in recording and reporting of monitored data. The parameters described in the monitoring report^{/2/} have been assessed as follows and against the revised PDD^{/1.1/} and the relevant requirements in the applied methodologies^{/14/, /15/}.

(1) **EG_{BL,y,1} - Net electricity generated by the Hydropower plant which is to be delivered to meet the requirements of the MTC Processing Factory, but not including offset emissions from diesel backup generators (MWh)**

Monitoring Report, onsite checks revised PDD & Approved Methodology	Requirement in the applicable methodology ^{/15/} and relevant Documents	Requirement in the monitoring plan in the revised PDD ^{/1.1/}	Implementation of the project ^{/2/}	Conclusion on the compliance of the implementation with the monitoring plan & applicable methodology.
Data/Parameter	EG _{BL,y}	EG _{BL,y,1}	EG _{BL,y,1}	Requirement is complied.
Description	Quantity of net electricity displaced in year y	Net electricity generated by the Hydropower plant which is to be delivered to meet the requirements of the MTC Processing Factory, but not including offset emissions from diesel backup generators	Net electricity generated by the Hydropower plant which is to be delivered to meet the requirements of the MTC Processing Factory, but not including offset emissions from diesel backup generators	Requirement is complied.
Measured/Calculated/Default	Measured	Measured	As discussed under Section 3.2.1 above, AMS-I.F. version 2.0 component i.e. planned connection of	As discussed under Section 3.2.1 above, AMS-I.F. version 2.0 component i.e. planned connection of

			Mufindi Tea and Coffee Company Ltd (MTC) Processing Factory to the project activity power plant could not occur during the first monitoring period not yet implemented during the current monitoring period.	Mufindi Tea and Coffee Company Ltd (MTC) Processing Factory to the project activity power plant could not occur during the first monitoring period not yet implemented during the current monitoring period.
Source of data	Not specified	Plant records	AMS-I.F. version 2.0 component not yet implemented	AMS-I.F. version 2.0 component not yet implemented
Monitoring equipment	Energy meters	Energy meters	AMS-I.F. version 2.0 component not yet implemented	AMS-I.F. version 2.0 component not yet implemented
Measuring/Reading / Recording frequency	Continuous monitoring, hourly measurement and at least monthly recording		AMS-I.F. version 2.0 component not yet implemented	AMS-I.F. version 2.0 component not yet implemented
Calculation method (if applicable)	Not applicable	Not applicable	AMS-I.F. version 2.0 component not yet implemented	AMS-I.F. version 2.0 component not yet implemented
QA/QC procedures	<p>Calibration should be undertaken as prescribed in the relevant paragraph of the 'General Guidelines to SSC CDM Methodologies'.</p> <p>In the case of electricity sold to a third party, measurement results shall be cross-checked with records of sold/purchased electricity (e.g. invoices/receipts).</p>	<p>Meters tested and, if necessary, re-calibrated at least once every twenty four months or whenever a Party has reason to believe that the equipment is no longer performing to applicable IEC or national standards. TANESCO is responsible for testing and calibration of these meters as per Article 4 h) of the SPPA agreement. All testing and calibration will be performed in accordance with the manufacturers' specifications and instructions.</p> <p>Data from MHL's main meter compared with sales receipts and consumption figures obtained from meter readings by TANESCO, and</p>	AMS-I.F. version 2.0 component not yet implemented	AMS-I.F. version 2.0 component not yet implemented

		cross-checked against a check meter on the MHL side of the grid interconnection.		
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The parameter is dependent on the interconnection of MHL plant with MTC applying the methodology AMS-I.F. version 2.0. As already assessed under section 3.2.1 of this report, this component of the project activity could not be implemented till the end of the current monitoring period, there was no supply from the project activity power plant to MTC and therefore, the final verified value for **EG_{BL,y,1}** during the current monitoring period is **0 MWh**.

(2) EG_{BL,y,2}: Net electricity generated by the Hydropower plant which is delivered to the TANESCO national grid (MWh)

Monitoring Report, onsite checks revised PDD & Approved Methodology	Requirement in the applicable methodology ^{14/} and relevant Documents	Requirement in the monitoring plan in the revised PDD ^{1.1/}	Implementation of the project/2/	Conclusion on the compliance of the implementation with the monitoring plan & applicable methodology.
Data/Parameter	EG _{facility,,y} , EG _{actual,,y} EG _{add,,y}	EG _{BL,y,2}	EG _{BL,y,2}	Requirement is complied.
Description	Quantity of net electricity supplied to the grid in year y	Net electricity generated by the Hydropower plant which is delivered to the TANESCO national grid	Net electricity generated by the Hydropower plant which is delivered to the TANESCO national grid	Requirement is complied as TANESCO is the grid authority in Tanzania.
Measured/Calculated/Default	Measured (Export and import separately to derive net electricity)	Measured (Export and import separately to derive net electricity) ¹	Measured (Export and import separately to derive net electricity)	Requirement is complied.
Source of data	Not specified	Data from MHL's main meter compared with sales receipts and consumption figures obtained from meter readings by TANESCO ²	Joint monthly meter reading sheet ^{5/} of monthly billing and check meters installed at the TANESCO meter interconnection point	Requirement is complied.
Monitoring equipment	Energy Meters	Billing meter installed at the TANESCO meter interconnection point (EDMI Mk10E Class 0.5) ³	EDMI Mk10E Class 0.5, serial numbers 211309937 (main meter) and 211105245 (check meter)	The requirement is complied; the monitoring is under the control of TANESCO and the actual meters have

¹ As per the parameter table under section B.7.1 of the registered PDD/ revised PDD in the rows 'Measurement methods and procedures' and 'Description'

² As per the parameter table under section B.7.1 of the registered PDD/ revised PDD in the row 'QA/QC procedures'

³ As per the parameter table under section B.7.1 of the registered PDD/ revised PDD in the row 'Source of data'

				an accuracy class of 0.5 % as verified during the site visit assessment
Measuring/Reading / Recording frequency	Continuous monitoring, hourly measurement and at least monthly recording	Continuous measurement of electricity and monthly recording ⁴	Continuous measurement being cumulative type meters, hourly recording by plant personnel into the Daily log sheets ^{12/} and monthly recording in the electricity bills ^{5/6/} by TANESCO and PP personnel	The net electricity exported to the grid system has been verified based on monthly electricity bills ^{5/6/} by TANESCO for the current monitoring period.
Calculation method (if applicable)	The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import.	The import and export are measured separately, and the net electricity is calculated from the measured parameters ⁵	The import and export are measured separately, and the net is calculated from the measured parameters	Requirement is complied. As the net electricity is derived from the separately measured import and export of electricity.
QA/QC procedures	<p>Calibration should be undertaken as prescribed in the relevant paragraph of 'General Guidelines to SSC CDM Methodologies'.</p> <p>If applicable, measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts). If applicable, cross check net electricity supplied to a grid as gross energy generation in the project activity power plant minus the auxiliary/station electricity consumption, technical losses and electricity import from the grid to the project power plant measured at the grid interface/connection used for billing</p>	<p>Meters tested and, if necessary, re-calibrated at least once every twelve months or whenever a Party has reason to believe that the equipment is no longer performing to applicable IEC or national standards. TANESCO is responsible for testing and calibration of these meters as per Article 4 h) of the SPPA agreement. All testing and calibration will be performed in accordance with the manufacturers' specifications and instructions.</p> <p>Data from MHL's main meter compared with sales receipts and consumption figures obtained from meter readings by TANESCO, and cross-checked</p>	During the current monitoring period, calibration of the meters has not been carried out in line with the frequency as outlined in the revised PDD. Hence the measured data adjustment is applied to the measured parameters in a conservative manner to address the delay in calibration. The same is discussed in details under section 3.6 of this report.	Requirement is complied.

⁴ As per the parameter table under section B.7.1 of the registered PDD/ revised PDD in the row 'Measurement methods and procedures'

⁵ As per the parameter table under section B.7.1 of the registered PDD/ revised PDD in the row 'Description'

	purposes	against a check meter on the MHL side of the grid interconnection.		
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This parameter is measured using the set of bidirectional trivector main (with serial number 211309937) as well as check energy meter (with serial number 211105245) located at the grid interconnection point with accuracy class of $\pm 0.5\%$ (for KWh reading). Measuring is continuous and data is recorded on monthly basis^{/12/} by the TANESCO personnel jointly with MHL personnel to generate the JMR sheets^{/5/}. The energy meters are cumulative type and capable of continuous monitoring as well as logging. The parameter is verified to represent the net electricity exported to the grid by the project activity hydro power plant. The monthly value is recorded as the difference of the opening reading (equivalent to closing reading of the previous month) and the closing reading of that month. The JMR sheets were also cross checked by referring to the Monthly electricity sales invoices^{/6/} submitted by MHL to TANESCO.

There was delayed calibration observed during the current monitoring period for the meter involved to measure **EG_{BL,y,2}**. Please refer sections 3.5 and 3.6 for the detailed analysis of the same.

The measured value of the net electricity exported to the grid system has been verified based on the monthly electricity bills^{/5/ & /6/} by MSEDCL and the final verified value (adjusted for delay in calibration) for **EG_{BL,y,2}** during the current monitoring period is **17,801.36 MWh**.

This is found to be in line with the paragraphs 274-281 of the VVS version 07.0^{/20/}, and hence accepted by the verification team.

As per paragraphs 277, 280 and 281 of the VVS version 07.0^{/20/}, assessment team confirms as follows;

- The described monitoring plan is in compliance with the requirements of the methodology^{/14/};
- During the site visit it is verified that the monitoring arrangements described in the monitoring plan as described in the PDDs^{/1/ and /1.1/} have been implemented onsite; and
- All the parameters described in the monitoring plan as described in the PDDs^{/1/ and /1.1/} have been listed in this section assessing the information/data flow from monitoring point to the ER sheet, metering related details and values verified.

Discussion of CARs/CLs

CAR #4 was raised requesting the clarification for the following issues:

- Under section D.1 of the webhosted MR, no parameters were seen as compared to section B.6.2 of the registered PDD.
- For all the parameters included under section D.2 of the webhosted MR, the rows 'Source of data' and 'Purpose of data' were filled incorrectly..
- It was observed that the parameter **EG_{BL,y,2}** in the project activity referred to Net electricity, while only the export readings had been considered for emission reduction calculations, the PP was requested to transparently consider the import readings as well.
- The value of electricity for the parameter **EG_{BL,y,2}** in the project activity was not found to be consistent with that of the JMR reports for the month of October 2013. Furthermore, the PP was requested to clarify how the prorated value considered for the end of the monitoring period was conservative with reference to paragraph 291 of the CDM Validation and Verification Standard version 07.0.
- The PP was requested to clearly indicate the dates of each month in column B of the Generation and Billing Data in the ER sheet for transparency in the ER sheet.

In response, the PP made corrections in the revised MR^{/2/} as well as the revised ER sheet^{/3/} in the due course of verification. The changes were found appropriate and thus accepted.

Thus, **CAR #4** was closed out.

Detailed discussion on these findings can be referred in section 9 of this verification report.

3.4.2 Verification of implementation of sampling plan

Not applicable as the monitoring plan as per the registered PDD^{/1/} and revised PDD^{/1.1/} does not require sampling; further 100% of the data is verified as required under the monitoring plan in the context of the project activity.

3.5 Accuracy of Equipment

The AMS-I.F. version 2.0 component, which will require the monitoring of the parameter **EG_{BL,y,1}**, has not yet been implemented as assessed under section 3.2.2 of this report. During the 1st monitoring period, the metering equipment installed in the project activity consists of a set of (main and check) bidirectional tri-vector energy meters which are used to monitor the parameter **EG_{BL,y,2}**. The meters have $\pm 0.5\%$ (for KWh reading) accuracy class.

The accuracy of the meters has been observed to be in line with the industry standard practices in the country referred in the PPA^{/11/} as well as in the revised PDD^{/1.1/}.

In light of the relevant EB guidance in the VVS version 07.0^{/20/} paragraph 262 (b) (v), the assessment team checked the calibration information of all the above meters including any observed events of delay. The calibration interval is once in twelve months for the grid interconnection meters. The results of the calibration for all energy meters during the current monitoring period (since commissioning) have been checked based on the available calibration certificates^{/7/}. There was no change in the installed meters observed since commissioning of the project activity plant i.e. 01/09/2012 (meters installed since 12/08/2012) as well as during the current monitoring period as verified from the tests during commissioning stage^{/9/} versus observations on site. The calibration of the grid interconnection meters (billing meters) was done by qualified and authorized personnel from TANESCO. The assessment team has checked the calibration certificates for accuracy and validity, so as to assure reliability and authenticity of monitoring results. It was observed that calibration delays occurred during the current monitoring period, as compared against the frequencies specified in the monitoring plan of the revised PDD^{/1.1/} and have been verified as below:

Metering	Monitoring Parameter	Monitoring Equipment	Location	Meter S/N	Accuracy Class	Calibration Entity	Calibration Date ⁶	
							2014	2012
Electricity	EG_{BL,y,2}	Trivector Energy meter (Main)	Grid Interconnection	211309937	$\pm 0.5\%$	TANESCO	09/07/2014	12/08/2012
	EG_{BL,y,2}	Trivector Energy meter (Check)	Grid Interconnection	211105245	$\pm 0.5\%$	TANESCO	09/07/2014	12/08/2012

These meters are not under the direct custody and control of the PP as per PPA^{/11/}. The installation and working condition of the plant equipment and meters were checked during the site visit and it was found to be satisfactory. The accuracy class of the interconnection/grid meters is found to be in line with the requisite guidance^{/11/} as well as in the revised PDD^{/1.1/}. Hence the accuracy classes of 0.5s (for KWh reading) of energy meters installed at site are found to be appropriate and it is accepted.

It is also evident from the table that calibration for the meters involved in the project activity has been delayed^{/7/} for the period 12/08/2013 to 29/01/2014 involved in the current monitoring period against the requirement of annual frequency for the calibration which is stipulated in the revised PDD^{/1.1/}. The same has been discussed in details under section 3.6 below.

⁶ The validity of all the calibration certificates was verified to be 1 year from the date of issue. The gray highlighted dates represent delayed calibrations.

As per the paragraphs 262 (b) (ii), (iv) and (v) of VVS version 07.0^{/20/}, the verification team is able to confirm as follows that;

- a) The equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and it is controlled and calibrated in accordance with the monitoring plan as outlined in the revised PDD^{/1.1/} apart from the delays in calibration for which the PP has applied CDM VVS version 07.0 paragraph 283;
- b) Monitoring results are consistently recorded as per approved frequency in the registered monitoring plan^{/1/} and the revised PDD^{/1.1/};
- c) Quality assurance and quality control procedures have been applied in accordance with the registered monitoring plan^{/1/} and the revised PDD^{/1.1/}.

Discussion of CARs/CLs

CL#3 was raised requesting the clarifications for the following issues:

1. The details of the installed electricity meters were not provided in the webhosted MR under section D.2 as applicable covering
 - a. Meter details like make, type, accuracy class, installation date, serial number etc.
 - b. Calibration entity, calibration dates and results of calibration tests.
2. It was observed that the TANESCO meters at the interconnection point which measure the parameter **EG_{BL,y,2}** in the project activity were installed on the 12/08/2011 (the assessment team later corrected the date in the finding as 12/08/2012) as per the initial test certificates. The calibration certificate dated 17/12/2013 mentions that the meters were calibrated before installation; however the next calibration was done on 09/07/2014. The PP was requested to adopt the guidance under paragraph 283(a) of the CDM Validation and Verification Standard version 07.0. Furthermore, the check meter number on the calibration certificate dated 17/12/2013 was requested to be rectified from the calibrating entity for the typo-error observed.

In response, the PP appropriately provided the information in the revised MR^{/2/}, applied paragraph 283 (a) guidance from CDM VVS version 07.0 to the ER calculation in the revised ER sheet. The PP also submitted the request made to TANESCO for corrected certificate with photographs therein. The actions were found to be appropriate and thus accepted.

Thus, **CL #3** was closed out.

Detailed discussion on these findings can be referred in section 9 of this verification report.

3.6 Summary of compliance with the calibration frequency requirements for measuring instruments.

It was verified that the calibration of the grid interconnection energy meters (set of main and check) have an impact on the claimed emission reductions. It was verified that for the year 2012, the calibration of the energy meters was done at/before the time of installation 12/08/2012^{/7/} of these meters with the calibration validity till 11/08/2013. Considering the calibration frequency as annual next calibration was due on 12/08/2013; however despite formally requesting TANESCO to undertake the required calibration well before the calibration period expired, the calibration was done on 09/07/2014. Hence the delay in calibration for the period from 12/08/2013 to 29/01/2014 is observed during the current monitoring period. To address the delay in calibration, the PP opted to apply the maximum permissible error i.e. 2% of the energy meters to adjust the measured data for the parameter **EG_{BL,y,2}** conservatively for the entire months of July 2013 to January 2014 which resulted in the decreased value of **EG_{BL,y,2}** due to 2% decrease in the export and 2% increase in the import.

This is noteworthy that the PP has opted the maximum tolerance error factor of 2% (for KVARh reading; Reactive Energy) as against 0.5% (for KWh reading; Active Energy) for conservativeness of the error

considered as the meter specified both the accuracy classes separately. This was deemed conservative and accepted by the assessment team. Based on the calibration certificates issued by TANESCO^{/7/} it has been also observed that the calibration certificate has recommended the tolerance level of error limit as $\pm 2\%$.

This was verified to be appropriate and in line with the requirements under paragraphs 283 (a) of VVS version 07.0^{/20/}.

Referring to the paragraph 284 of the VVS version 07.0^{/20/}, it is confirmed that the error is applied;

- i. In a conservative manner such that the adjusted measured values of the delayed calibration shall result in fewer claimed emission reductions.
- ii. For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.

3.7 Accuracy of Emission Reduction Calculations

The calculation of emission reductions in the final MR^{/2/} and the ER sheet^{/3/} is found to be correct and deemed as accurate. The details of the reported and the verified values for all parameters are listed in section 4 of this report, 'Calculation of Emission Reductions'.

The PP has provided the complete set of data for the current monitoring period. The values of the parameters reported in the ER sheet^{/3/} have been crosschecked with the values mentioned in the relevant supporting documents and the same are discussed in details for each parameter in section 3.4 above. The values were found to be consistent and accurate.

The formulae and methods used to calculate the baseline emissions, project emissions and leakage emissions (limited to the AMS-I.D. version 17.0 component) are appropriate and deemed to be in line with the registered PDD^{/1/} as well as the revised PDD^{/1.1/} and applied methodology AMS-I.D version 17^{/14/}.

The external parameter $EF_{CO_2,y}$ is determined ex-post and is appropriate and justified. Please refer section 3.9 below for the further assessment of the data considered from external sources.

Comparison of actual emission reductions with the same projected in the PDD:

The actual emission reduction verified in the current monitoring period is 10,209 tCO₂e; while the estimated emission reductions as per the registered PDD^{/1/} as well as the revised PDD^{/1.1/} are 11,354 tCO₂e per year. The net emission reductions for the reported period are approximately 10 % lesser than the estimated in the registered PDD^{/1/} as well as the revised PDD^{/1.1/} considering 1 year i.e. the current monitoring period from 30/01/2013 – 29/01/2014 (both days included).

The details of the reported and the verified values for all parameters are listed in section 4 of this report, 'Calculation of Emission Reductions'.

Discussion of CARs/CLs

CAR #5 was raised requesting the clarifications for the following issues:

1. The emission reductions calculations were provided under section E.2, which was not the correct section for this purpose referring to the attachment guidance of the CDM-MR-FORM template version 04.0.
2. Further, section E.4 table was filled incorrectly where the baseline emissions value achieved during the current monitoring period needed to be mentioned.
3. Furthermore, the final emission reductions value was not specified in the rounded down form in all the places in the MR.
4. In continuation to CAR #4(1) comment, the emission factor calculation in the spreadsheet titled '2014 Verification GEF' Worksheet' could not be traced while referring to the generation data in the spreadsheet titled 'REQUESTED DATA (CAMCO)'. Furthermore, as an ex-post parameter, the PP was

requested to provide a transparent working calculation either in an additional worksheet to existing ER sheet or in the form of a new spreadsheet to be submitted to UNFCCC for issuance.

In response, the PP made corrections in the revised MR^{/2/} in line with the revised ER sheet^{/3/} in the due course of verification. Furthermore, the PP provided a separate grid emission factor sheet in this regard. The changes were found appropriate and thus accepted. Thus, **CAR #5** was closed out.

Detailed discussion on these findings can be referred in section 9 of this verification report.

3.8 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed in section 3.4 above. All the data recorded is in compliance with the monitoring report.

3.9 Management and operational System and Quality Assurance

It was observed that the key responsibility of the project activity lies with the Managing Director who is supported by the Operations Manager. The Operations Manager has deputed the Plant In-charge/Engineer staff (for periodic checks for the data collected and daily reports and ensure reliability of the monitoring systems and equipment) as well as Shift staff (collection of data as per the monitoring plan) and delegated responsibilities to them to ensure smooth operation of the plant. The responsibility of the calibration of all the monitoring instruments involved in the project activity lies with the Managing Director staff from the PP's side and has to be carried out through TANESCO (Government authority) as per the appropriate calibration procedures applicable^{/11/}. Further, the responsibility of keeping track and achieving relevant compliances/approvals^{/8/} to operate the project activity under the applicable statutory requirements in the region lies with the Managing Director as well as General Manager.

O&M staff has been interviewed and records of competency as well as the trainings imparted related to the project activity were checked during the site visit. It was observed that qualified and competent staff was involved in the O & M. The plant management is informed regularly of the plant performance.

In order to verify data quality, the PP is involved in the project work in accordance with a quality assurance procedure covered in the monitoring plan of the registered PDD^{/1/} as well as the revised PDD^{/1.1/}, which establishes the operational and management structure implemented.

Thus it can be confirmed that the management system for the CDM project is in place; with the responsibilities appropriately identified. This was checked against paragraph 279 (b) (iv) of the CDM VVS 07.0^{/20/}.

3.10 Data from External Sources

The parameter 'Grid emissions factor calculated in accordance with applicable UNFCCC methodologies, guidance, and requirements.' i.e. $EF_{CO_2,y}$ is calculated *ex-post* during the monitoring period as per the monitoring plan in the registered PDD^{/1/} and the revised PDD^{/1.1/}. The grid generation information provided by TANESCO^{/10/} is used to calculate $EF_{CO_2,y}$ as average of the Operating Margin emission factor and the Build Margin emission factor, resulting in a value of **0.5735 tCO₂_e/MWh**. This is in line with the guidance provided in the selected methodology i.e. AMS-I.D. version 17^{/14/} and AMS-I.F. version 2.0^{/15/}. This is applicable for this monitoring period considered for the project activity. The reported value is **0.5735 tCO₂_e/MWh** which is been verified and considered appropriately in the MR^{/2/} and ER calculation excel sheet^{/3/}.

Thus it can be confirmed that the external data was appropriately applied and sources correctly identified. This was checked against paragraph 290 (d)-(e) and 291 (d) of the CDM VVS 07.0^{/20/}.

4. Calculation of Emission Reductions

Parameter	Reported Value Monitoring Report Version 01, dated 17/07/2014	Verified Value Monitoring Report Version 06, dated 15/03/2015
EG_{BL,y,1} - Net electricity generated by the Hydropower plant which is delivered to meet the requirements of the MTC Processing Factory, but not including offset emissions from diesel backup generators (MWh)	0	0
EG_{BL,y,2} - Net electricity generated by the Hydropower plant which is delivered to the TANESCO national grid (MWh)	17,933.76	17,801.36
EF_{CO2,y} - Grid emissions factor calculated in accordance with applicable UNFCCC methodologies, guidance, and requirements. (tCO ₂ e/MWh)	0.557	0.5735

The emission reduction is calculated as follows:

A. Baseline emission calculation (BE_y)

$$\begin{aligned}
 BE_y \text{ (tCO}_2\text{e)} &= (EG_{BL,y,1} + EG_{BL,y,2}) \text{ (MWh)} \times EF_{CO2,y} \text{ (tCO}_2\text{e/MWh)} \\
 &= (0 + 17,801.36) \times 0.5735 \\
 &= 10,209 \text{ t CO}_2\text{e (rounded down value)}
 \end{aligned}$$

B. Project emission calculation (PE_y)

As per paragraph 20-21 of the applied methodology AMS-I.D. version 17^{/14/} and paragraph 19-20 of the AMS-I.F. version 2.0^{/15/}, none of the conditions were applicable in the context of the project activity, thus project emissions are verified as zero.

C. Leakage emission calculation (LE_y)

As per paragraph 22 of the applied methodology AMS-I.D. version 17^{/14/} and paragraph 21 of AMS-I.F. version 2.0^{/15/}, none of the conditions were applicable in the context of the project activity, thus leakage emissions are verified as zero.

Thus emission reductions are calculated as follow:

$$\begin{aligned}
 \text{Emission reductions (ER}_y\text{)} &= \text{Baseline emissions (BE}_y\text{)} - \text{Project emissions (PE}_y\text{)} - \text{Leakage emissions (LE}_y\text{)} \\
 &= 10,209 - 0 - 0 \\
 &= \mathbf{10,209 \text{ tCO}_2\text{e}}
 \end{aligned}$$

Emission Reduction:

Period	Reported Value tCO ₂ e MR version 01,dated 17/07/2014	Verified Value ^{2,4/} tCO ₂ e MR version 06,dated 15/03/2015	If Different, Summary of Issues That Caused the Difference
30/01/2013 – 29/01/2014 (both days included)	9989.10	10,209	Please refer CAR 4 and CL 3
CERs (Up to 31 December 2012 (1st commitment period))	Not applicable	Not applicable	Not applicable
CERs (From 1 January 2013 onwards.	Not applicable	Not applicable	Not applicable

Thus it can be confirmed that the emission reductions were calculated in a transparent manner and the calculations were deemed as correct and consistently applied in the revised MR^{2/} and the ER sheet^{3/}. This was checked against paragraphs 289, 290 (c) and 291 (b)-(c) of the CDM VVS 07.0^{20/}.

5. Recommendations for Changes in the Monitoring Plan

No recommendation has been given during the current verification in order to revise the monitoring plan as per the registered PDD^{/1/} as well as the revised PDD^{/1.1/}.

6. Overview of Results

Assessment Against the Provisions of Decision 17/CP.7:

Is the project documentation in accordance with the requirements of the registered PDD and relevant provision of decision 17/CP.7, EB decisions and guidance and the COP/MOP?

Yes. The results of the compliance assessment are recorded in the verification checklist which is used as an internal report only.

Have on-site inspections been performed that may comprise, inter alia, a review of performance records, interviews with project participants and local stakeholders, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment?

Yes. The assessment team visited the site and undertook interviews, collected data, audited the implementation of procedures, checked calibration certificates and checked data, inter alia.

The results of the site visit are recorded in the verification checklist which is used as an internal report only.

The evidence have been checked and collected. The final monitoring report is attached with this verification report.

Has data from additional sources been used? If yes, please detail the source and significance.

*Data used from external sources is 'Grid emissions factor calculated in accordance with applicable UNFCCC methodologies, guidance, and requirements.' i.e. **EF_{CO₂,y}** as per the registered PDD^{1/} as well as the Revised PDD^{1.1/} and it is determined ex-post during the current verification as **0.5735 tCO₂e/MWh** as per the grid generation information provided by TANESCO.*

Please review the monitoring results and verify that the monitoring methodologies for the estimation of reductions in anthropogenic emissions by sources have been applied correctly and their documentation is complete and transparent.

Yes. The monitoring methodology AMS-I.D. version 17.0 as well as AMS-I.F. version 2.0 has been correctly applied and the monitoring report and supporting references are complete and transparent.

Have any recommendations for changes to the monitoring methodology for any future crediting period been issued to the project participant?

No.

Determine the reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CDM project activity, based on the data and information using calculation procedures consistent with those contained in the registered project design document and the monitoring plan.

*The data used in anthropogenic emission reduction calculation is consistent with those contained in the registered PDD^{1/} as well as the revised PDD^{1.1/} and monitoring plan. The emission reduction was **11,354 tCO₂e** for the period 30/01/2013 – 29/01/2014 (both days included) as per the estimation made in the registered/revised PDD. The actual emission reduction has been verified as **10,209 tCO₂e** for the same period. Section 3.7 of this report may be referred for further information.*

Identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project design document. Project participants shall address the concerns and supply relevant additional information.

Corrections to the registered project design document are identified and described under section 3.2.2 of this report.

Post monitoring report on UNFCCC website

Yes, the monitoring report is available at ref. 9550 on UNFCCC website
<https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view>.

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by Mwenga Hydro Limited to perform the verification of the emission reductions reported for the CDM project activity entitled 'Mwenga Hydro Power Project' (UNFCCC Ref. 9550) in the period 30/01/2013 – 29/01/2014 (both days included).

The verification is based on the validated registered PDD and revised project design document and the monitoring report for this project. Verification is performed in accordance with section I of Decision 3/CMP.1, and relevant decisions of the CDM EB and CoP/MoP. The scope of this engagement covers the verification and certification of greenhouse gas emission reductions generated by the above project during the above mentioned period, as reported in the Monitoring Report version 06 dated 15/03/2015.

The management of Mwenga Hydro Limited is responsible for the preparation, calculation and determination of GHG emission reductions from the project. The development and maintenance of records and reporting procedures are in accordance with the monitoring plan.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 30/01/2013 – 29/01/2014 (both days included) based on the reported emission reductions in the Monitoring Report version 06 dated 15/03/2015 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, SGS planned and performed verification work to obtain the information and explanations that was considered necessary to provide sufficient evidence to give reasonable assurance that the reported amount of GHG emission reductions for the period is fairly stated.

SGS confirms that the project is implemented as described in the validated and revised project design document. Based on the information we have seen and evaluated, we confirm the following:

Project Title:	Mwenga Hydro Power Project
UNFCCC Reference Number:	9550
Registered PDD	PDD version 3.0 dated 28/01/2013 ^{/1/}
Revised PDD	PDD version 08 dated 13/04/2015 ^{/1.1/}
Methodology Used for Verification:	AMS-I.D. version 17.0 AMS-I.F. version 2.0
Applicable Period:	30/01/2013 – 29/01/2014 (both days included)
Total GHG Emission Reductions Verified:	10,209 tCO ₂ e

Signed on behalf of the Verification Body by Authorized Signatory



Signature:

Name: Jonathan Hall

Date: 15/07/2015

8. Document References

ID	Document
/1/	Registered PDD version 3.0 dated 28/01/2013, available at https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view Registered PDD version 0.3, dated 28/01/2013 (VVM to VVS track)
/1.1/	Revised PDD version 4.0 dated 05/11/2014 Revised PDD version 5.0 dated 27/11/2014 Revised PDD version 6.0 dated 28/12/2014 Revised PDD version 7.0 dated 15/03/2015 Revised PDD version 8.0 dated 13/04/2015 (Final)
/2/	Monitoring report version 1 dated 17/07/2014 (webhosted) Revised MR version 2 dated 05/11/2014 Revised MR version 3 dated 27/11/2014 Revised MR version 4 dated 04/12/2014 Revised MR version 5 dated 29/12/2014 Revised MR version 6 dated 15/03/2015 (final)
/3/	Emission reduction sheet dated 17/07/2014 submitted along with the webhosted MR version 1 Revised emission reduction sheet dated 28/10/2014 submitted along with the MR version 2 Revised emission reduction sheet dated 27/11/2014 submitted along with the MR version 3 Revised emission reduction sheet dated 28/12/2014 submitted along with the MR version 5 Revised emission reduction sheet dated 15/03/2015 submitted along with the MR version 6
/4/	UNFCCC Project Webpage (UN Ref: 9550): https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view
/5/	Monthly JMR sheets for electricity exported to TANESCO during the current monitoring period i.e. 30/01/2013 – 29/01/2014
/6/	Monthly electricity sales invoices raised by MWL against the JMR reports issued to TANESCO during the current monitoring period i.e. 30/01/2013 – 29/01/2014
/7/	Calibration Certificates for the energy meters during the monitoring period from 30/01/2013 – 29/01/2014 a. Calibration certificate issued by TANESCO dated 09/07/2014 (calibration test date 09/07/2014) and 17/12/2013 (mentioning calibration tested before installation i.e. 12/08/2012) for the meters with serial numbers 211309937 (main) and 211105245 (check) b. Meter number correction request letter on calibration certificate (certificate dated 17/12/2013) to TANESCO by PP dated 13/10/2014
/8/	a. Electricity Generation License dated 01/03/2013 issued by The Energy and Water Utilities Regulatory Authority, Tanzania (Ref.: EGL – 2013 - 001) b. Electricity Distribution License dated 30/04/2013 issued by The Energy and Water Utilities

	Regulatory Authority, Tanzania (Ref.: EDL – 2013 - 005) c. EIA certificate dated 23/04/2012 issued by the Vice President's Office – Environment, Tanzania (Ref.: EC/EIS/168) d. Grant of Final Water Use Permit dated 29/01/2013 issued by Ministry of Water, Tanzania (Ref.: RBWBO291)
/9/	Mwenga Hydro Power Plant Interconnection (Commissioning) Certificate dated 17/09/2012 issued by TANESCO (Ref: SMSP/MCS/SPPA/26)
/10/	Grid Emission Factor estimation worksheet supported by Hourly Grid generation data for the years 2008-2013 issued by TANESCO as per the below response to the request made by PP through a third party namely CAMCO Advisory Services, Tanzania Letter of response issued by TANESCO along with the GEF data dated 07/01/2014
/11/	Standardized Power Purchase Agreement (SPPA) for the project activity between MHL and TANESCO dated June 2009 approved through Ministry of Energy and Minerals, Tanzania dated 21/01/2010 Commencement of Delivery (COD) amendment dated 19/01/2010 signed (entry into force) dated 10/08/2012 applicable during the current monitoring period i.e. 30/01/2013 – 29/01/2014
/12/	Mwenga Hydro Power Plant Daily Operation Log-sheets i.e. generation and sales record during the current monitoring period i.e. 30/01/2013 – 29/01/2014
/13/	Photographs of metering points taken during site visit dated 08-09/10/2014
/14/	Applied Methodology, AMS-I.D. version 17.0 available at http://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQOQFQQH4SBK
/15/	Applied Methodology, AMS-I.F. version 2.0 available at http://cdm.unfccc.int/methodologies/DB/9KJWQ1G0WEG6LKHX21MLPS8BQR7242
/16/	Validation Report for the project activity revision 03 dated 29/01/2013 issued by SGS United Kingdom Ltd
/17/	Feasibility Study Report dated July 2008 for the project activity power plant issued by Ninham Shand
/18/	Technical specifications of the power plant equipment installed at site (name plate data) Detailed connection diagram for the power plant
/19/	Downtime data records (consolidated from the power plant records) during the current monitoring period i.e. 30/01/2013 – 29/01/2014
/20/	Clean Development Mechanism Validation and Verification Standard version 07.0 dated 01/06/2014 (VVS)
/21/	Clean Development Mechanism Project Standard version 07.0 dated 01/06/2014
/22/	CDM Project Cycle Procedure version 07.0 dated 01/06/2014
/23/	CDM-MR-FORM template version 04.0 dated 25/06/2014
/24/	CDM-SSC-PDD-FORM template version 05.0 dated 25/06/2014
/25/	Training records for the project plant equipment for the operational staff

MR version and date	Main changes reason for Revision
version 1 dated 17/07/2014 ^{2/}	Webhosted MR
Version 6 dated 15/03/2015	<p>Cover Page: Project activity UNFCCC Reference number and last 2 rows updated, template instructions deleted as per CAR 1 comments.</p> <p>Section A: Project description updated under section A.1 as per CAR 1, section A.4 updated with methodology/tool weblinks as per CAR 1. Section A.6 updated with PP name as per comments in CAR 1.</p> <p>Section B: Section B.1 was updated as per CAR 2 comments related to the project description/operational data and the location diagram. Section B.2 updated under its subsections for confirmation regarding corrections as well as the deviations as per CAR 2. Date of registration and start date of crediting period is transparently mentioned (CAR 6).</p> <p>Section D: The information in the various rows parameter tables related to the values and its reasons was included under section D.2 as per CL3 and CAR 4 comments. The metering, calibration and effect on ERs due to delay in calibration was discussed transparently due to CL 3 and CAR 4. Section D.1 updated as per CAR 4.</p> <p>Section E: Section E.1 was amended due to CAR 4 and CAR 5 comments. The electricity as well as the emission reduction values are revised under sections E.1, E.4, E.5 and E.6 as per CAR 4, CAR 5 and CL 3. Section E.7 updated as per CAR 1 comments</p> <p>Annexures: Annexure 1 updated as per the CAR 1 comments related to PP name and Annex 1 party. Reference of PDD is updated as revised PDD throughout the MR (CAR 6)</p>

9. Findings Overview

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	5	1	-

Date:	14/10/2014	Raised by:	Assessment Team
Type:	CAR	Number:	1
		Reference:	Section 2

Lead Assessor Comment:

Date: 14/10/2014

Webhosted MR

1. In line with the general instructions of the attachment guidance of the CDM-MR-FORM template version 04.0, the instruction text on the cover page as well as the Attachment guidance itself needs to be deleted, correction requested.
2. The project number mentioned in row 2 of the cover page is not consistent with the UNFCCC project page, correction requested. Further, the PP needs to describe transparently in the MR (cover page and rest of the section as may be applicable) whether the data for first day (30/01/2013) and the last day (29/01/2014) of the period are included in the current monitoring period.
3. In line with the CDM-MR-FORM template version 04.0, section A.1 of the webhosted MR does not cover the requisite details related to the installed technology/equipment, relevant dates and emission reductions achieved as per the section A.1-bullet points b, c and d of the Attachment guidance in the template.
4. Referring to the attachment guidance of the CDM-MR-FORM template version 04.0, the last 2 rows of the cover page as well as section E.7 are applicable for the monitoring periods covering both 1st and 2nd commitment period, which is not observed to be the case with the project activity, correction requested accordingly.
5. Referring to the attachment guidance of the CDM-MR-FORM template version 04.0, under section A.4 of the webhosted MR, the tools referred by the applied methodologies and applied in the registered PDD are not described transparently. Further, the UNFCCC weblinks for the applied methodologies/tools are not found to be mentioned.
6. Under section A.6 as well as Appendix 1 of the webhosted MR, the PP name is not consistently provided against the PP name on the UNFCCC project page, correction requested.

Corrected PDD

1. The corrected PDD version 3 submitted needs to use the latest CDM-PDD-SSC-FORM template available on https://cdm.unfccc.int/Reference/PDDs_Forms/index.html#proj_cycle⁷ completing all the sections thereof including new sections as well as the general and section completion requirements in the Attachment guidance in the template viz. the cover page, sections A.1, A.3, B.6.2 (additional rows in parameter tables), B.7.1 (additional rows in parameter tables), B.7.2, B.7.4, D.1 (merging information in the sub-sections in the registered PDD under section D) and F as well as Appendix 3 and Appendix 6.
2. The additional text regarding the use of ex-post emission factor as inserted on page 31 of the corrected PD version 3 may also be included in the additional comment row of the section B.6.2 parameter tables for transparency regarding the use of ex-post data during actual monitoring.

Project Participant Response:

Date: 09/11/2014

Webhosted MR

1. Relevant text deleted in attached Monitoring report form 2014-11-08 Mwenga 9550 iss_form07
2. Project number in row 2 of cover page now corrected in attached Monitoring report form 2014-11-08 Mwenga 9550 iss_form07. The monitoring report has been revised to indicate clearly that the start date

⁷ As per the mandate in the UNFCCC notification on use of VVS compliant templates post 31/01/2013 (Please refer https://cdm.unfccc.int/Reference/Notes/gov/info_note35.pdf)

and end date of the monitoring period are both inclusive i.e. these days are included in the monitoring period.

3. Section A.1 of the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07* has now been updated to comply with the bullet points b), c) and d) of the Attachment guidance given in the template.
4. The last two rows of the table on the cover page, as well as section E.7, of the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07* have now been corrected
5. Section A.4 of the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07* now includes transparent descriptions of the tools referred by the applied methodologies and applied in the registered PDD. Additionally the associated UNFCCC weblinks for the applied methodologies/tools are now listed.
6. The PP name referred to in the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07* has now been corrected in section A.6 and in Appendix 1 to match that provided on the UNFCCC project page.

Corrected PDD

1. A corrected version 3 PDD has been prepared using the latest CDM-PDD-SSC-FORM template
2. Additional text regarding the use of ex-post emission factor has been included in the additional comment row of the section B.6.2 parameter tables for transparency regarding the use of ex-post data during actual monitoring

Documentation Provided as Evidence by Project Participant:

Updated Monitoring report form *2014-11-08 Mwenga 9550 iss_form07*
Revised PDD using latest template

Information Verified by Lead Assessor:

Registered PDD version 3.0 dated 28/01/2013
Revised MR version 2 dated 05/11/2014
Revised PDD version 4.0 dated 05/11/2014
CDM-MR-FORM version 04.0 template
CDM-SSC-PDD-FORM version 05.0 template
UNFCCC Project page (UNFCCC ref. 9550) <https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view>
Interconnection (Commissioning) Certificate dated 17/09/2012 issued by TANESCO (Ref: SMSP/MCS/SPPA/26)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 24/11/2014

1. It was verified that the instruction text on the cover page as well as the Attachment guidance CDM-MR-FORM template version 04.0 was deleted by the PP in the revised MR, ok. *However, the sectoral scope number and name are not provided on the cover page of the revised MR.*
2. The project number mentioned in the row 2 of the cover page was verified to be corrected by the PP and the same is now found to be in line with the UNFCCC project page. Further, the PP has specified 'both days included' representing the coverage of the first and the last days in the current monitoring period on the cover page and other sections in the revised MR.
3. It was verified that the PP has now included details related to the installed technology/equipment, relevant dates of construction/commissioning as well as emission reductions achieved under section A.1 of the revised MR. This was found to be in line with that of the section A.1-bullet points b, c and d of the Attachment guidance in the template. Further, the correctness of the included information was verified from the registered PDD and commission certificate.
4. The last 2 rows of the cover page as well as section E.7 are appropriately mentioned as 'Not Applicable' by the PP in the revised MR as the entire monitoring period is beyond 2012, ok.
5. Under section A.4 of the webhosted MR, the methodologies as well as the tools referred by the applied methodologies in the context of the verification have been referred by the PP along with the relevant weblinks and the same is found to be appropriate.
6. Under section A.6 as well as Appendix 1 of the revised MR, the PP name was verified to be corrected by the PP and the same is found to be consistently provided against the PP name on the UNFCCC project

page, ok.

Corrected/Revised PDD

1. It was assessed that the PP has submitted the revised PDD, using the latest version of the template CDM-PDD-SSC-FORM template i.e. version 05.0 available. Further,

The below observations were made in the transferred text PDD (The below comments are observed to be the errors while transferring text from the registered PDD in the latest template, and also apply to the revised version of the PDD).

- a. *In line with the general instructions of the attachment guidance of the CDM-PDD-SSC-FORM template version 05.0, the instruction text on the cover page needs to be deleted, correction requested.*
- b. *The name of sectoral scope is not found to be consistent with the one specified in the applied methodologies.*
- c. *Some text is mentioned in track change mode under sections A.1 and A.3 of the revised PDD which do not seem to represent any change from the information provided in the registered PDD, clarification/correction requested.*
- d. *Under section B.6.4, the 'Total number of crediting years is specified as 21', please refer section C.2.3 for consistency.*
- e. *The Section D.2 text from the registered PDD is missing under section D.1 of the revised PDD, correction requested.*
- f. *In the first table under Appendix 1, please clarify why the text was not in line with the registered PDD as shown without track change.*

The below observations were made in the revised PDD version 4.0 dated 05/11/2014

- a. *Appendix 6 of the revised PDD is not covering section-wise changes in the form of summaries thus not transparent, correction requested.*
- b. *The revised Annex references in the registered PDD have been changed in the revised PDD due to template change and the same are not stated in track change (as an example: last row of prior consideration table under section B.5 of the revised PDD).*

2. It was assessed that the additional text regarding the use of ex-post emission factor was inserted on page 27 of the revised PDD and it was found to be also included appropriately by the PP in the additional comment row of all the parameter tables under the section B.6.2, this was verified to support the fact that the emission factor parameter ($EF_{CO_2,y}$) under section B.7.1 of the revised PDD will be calculated ex-post and used for ER calculations. The revised PDD is deemed transparent with regards to the ex-post calculation of baseline emission factor ($EF_{CO_2,y}$).

CAR is open.

Project Participant Response:

Date: 28/11/2014

1. Sectoral scope number and name are now provided on the cover page of the revised MR.

Corrected/ Revised PDD

1. A

- a. instruction text on the cover page has been deleted
- b. The name of sectoral scope has been revised to be consistent with the one specified in the applied methodologies.
- c. This text indeed does not represent any change from the information provided in the registered PDD, rather the new text is added according to the guidelines for completing this new version of the PDD template. The 'track changes' has been removed.
- d. Under section B.6.4, the 'Total number of crediting years' has been revised to 7 to be consistent with section C.2.3

<p>e. The Section D.2 text from the registered PDD has been added under section D.1 of the revised PDD</p> <p>f. In the first table under Appendix 1, the text is now in line with the registered PDD</p> <p>1. B</p> <p>a. Appendix 6 of the revised PDD has been corrected to give section-wise changes in the form of summaries to increase transparency</p> <p>b. As this change is due to changes in the PDD template rather than a change to the project design then track changes were not deemed necessary (refer to question c above where a correction was requested as new text added due to PDD template changes was requested to be in normal type rather than track changes).</p>	
Documentation Provided as Evidence by Project Participant:	
Revised PDD Updated Monitoring Report	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 3 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised PDD version 5.0 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) CDM-MR-FORM version 04.0 template CDM-SSC-PDD-FORM version 05.0 template UNFCCC Project page (UNFCCC ref. 9550) https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2014
<p>1. The sectoral scope number and name is found to be appropriately provided on the cover page of the revised MR, ok.</p> <p>Corrected/Revised PDD</p> <p>2. Related to the the revised PDD, using the latest version of the template CDM-PDD-SSC-FORM template i.e. version 05.0 available.</p> <p>A. Related to observations in the transferred text registered PDD.</p> <p>a. It was assessed that the PP has correctly deleted the instruction text on the cover page, ok</p> <p>b. It was assessed that the name of sectoral scope is corrected by the PP in the applied methodologies.</p> <p>c. It was assessed that being no proposed changes in the PDD text proposed thus, all the text is mentioned in the non- track change mode under sections A.1 and A.3 of the revised PDD, the same is accepted.</p> <p>d. It was assessed that the PP has now rightly specified the number of crediting years (7) in the 1st crediting period under section B.6.4, ok.</p> <p>e. It was assessed that the PP has now described the text from the sections D.1 as well as section D.2 from the registered PDD, under section D.1 of the revised PDD, the same is deemed correctly done.</p> <p>f. It was assessed that the PP has reverted to the registered PDD for the first table under Appendix 1, ok.</p> <p>B. Related to observations in the revised PDD</p> <p>a. It was assessed that Appendix 6 of the revised PDD is now covering section-wise changes in the form of summaries, which is in line with the SSC PDD completion guidance in the</p>	

attachment to the template, thus accepted.

- b. It was assessed that the revised 'Annex' references in the registered PDD have been changed in the revised PDD as 'Appendix'. The argument provided by the PP is acceptable for the representation approach, ok.

Thus, CAR is closed.

CAR is reopened (24/12/2014)

Monitoring Report

3. In line with the CDM-MR-FORM template version 04.0, section A.1 of the MR does not cover the requisite complete details related to the installed alternator as well as turbine capacity as well as serial numbers of these equipment.

Corrected/Revised PDD

- 1.A.c. The transferred text PDD (registered PDD applying the new template) should only describe the exact text from the registered PDD, without specifying any additional text, thus, the cover page, section A.1, B.6.2, B.7.1, B.7.4, F and Appendix 3 need to be updated accordingly.
- 1.B.a The Appendix 6 of the revised/corrected PDD does not cover the changes due to adoption of the new template of the PDD covering the revised Appendix references updated in the entire PDD text, Inclusion of additional text on the cover page, section A.1, B.6.2, B.7.1, B.7.4, F and Appendix 3 in continuation to the comment 1.A.c above.

Project Participant Response:	Date: 29/12/2014
--------------------------------------	-------------------------

MR has been revised to cover details related to installed alternator and turbine including capacity and serial numbers.

Registered PDD in new template has been revised to only have exact text from registered PDD

Corrected PDD has been revised so that Appendix 6 now also covers changes due to new PDD template.

Documentation Provided as Evidence by Project Participant:

Revised MR
Alternator and turbine specifications and serial numbers
Revised Registered PDD in new template
Revised corrected PDD

Information Verified by Lead Assessor:

Registered PDD version 3.0 dated 28/01/2013 available on the project page on UNFCCC website (UNFCCC Ref. 9550)

Revised MR version 5 dated 29/12/2014

Revised PDD version 6.0 dated 28/12/2014

Transferred Text (new template) Registered PDD version 3.0 dated 28/01/2013

CDM-MR-FORM version 04.0 template

CDM-SSC-PDD-FORM version 05.0 template

Name plate specifications of the turbine and generator installed onsite

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 07/01/2015
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Monitoring Report

3. It was assessed that the section A.1 of the revised MR now covers the installed alternator as well as turbine capacity as well as serial numbers of these equipment; these were verified during the site visit and found appropriate.

Corrected/Revised PDD

- 1.A.c. It was assessed that the transferred text PDD (registered PDD applying the new template submitted dated 29/12/2014) describes the text directly copied from the registered PDD, without specifying any additional text on the cover page, section A.1, B.6.2, B.7.1, B.7.4, F and Appendix 3 and the same was found to be appropriately done.

- 1.B.a It was assessed that the Appendix 6 of the revised/corrected PDD now also mentions the changes due to adoption of the new PDD template covering the revised Appendix references updated in the entire PDD text, inclusion of additional text on the cover page, section A.1, B.6.2, B.7.1, B.7.4, F and

Appendix 3, this was found to be appropriate and thus accepted.

Thus, CAR is closed.

Acceptance and Close out by Lead Assessor: closed	Date: 07/01/2015
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Date:	14/10/2014		Raised by:	Assessment Team	
Type:	CAR	Number:	2	Reference:	Section 2
Lead Assessor Comment:				Date: 14/10/2014	

1. Under section B.1, in the project implementation related information stated, it was observed that below details have been updated as compared to the information provided in the registered PDD, please clarify.
 - a. Small water channel running 70m
 - b. 70m low head closed conduit
 - c. Water permit issued @1 m³/s
 - d. Power (turbine axis) reported as 3.85 MW
 - e. Power at (generator Terminals) reported as 3.750 MW.
 - f. The 35 Km of minor spur lines
 - g. 40 Km of LV distribution lines
2. The corrections in the project activity details as per the above also need to be listed under section B.2.2 of the MR with relevant justification on the effect of these changes following Annexure 1 of the CDM Project Standard version 07.0 and a corrected PDD is sought in this regard.
3. The location map included in the section B.1 is not found to be legible and no labels are provided as per the registered PDD, correction requested.

Project Participant Response:	Date: 09/11/2014
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1. A number of minor changes occurred during the course of actual construction of the project facilities, each of which is elaborated upon further below:
 - a) 'Small water channel running 70m' refers to the 2.0m x 2.0m square closed concrete conduit headrace that was ultimately constructed. The planned headrace / conduit / channel was initially expected to be approximately 50 meters in length, but during the course of construction, ground conditions (excessive subterranean rock) were such that the sediment tank / forebay could not realistically be constructed in the initial location, and it was judged as necessary to move this 20 meters further downstream to facilitate construction. This in turn resulted in the headrace / conduit / channel being 70 meters long, versus 50 meters initially planned. This change has had no measurable effect on the performance of the hydro plant. The PDD has been updated to reflect the new numbers and clarify terminology used to describe the headrace.
 - b) As for a) above.
 - c) The Final Water Use Permit for this hydro project was eventually issued on 29th January 2013 with an environmental flow requirement of 1 m³/sec. At the time the PDD was being composed, the project was in procession of a Provisional Water Use Permit that stipulated that an environmental flow of 2.5 m³/sec be provided for. It should be noted that the PDD makes mention of the fact that the environmental flow requirement would likely be reduced into the future once appropriate ecological evidence is available to prove that such a reduction is acceptable ecologically – which ultimately occurred. The PDD has been updated to reflect the final Water Permit environmental flow requirement.
 - d) The type of turbine and the name plate data of the turbine and alternator have not altered in any way. During routine operational tests conducted over the course of wet seasons of 2013 and 2014, we have been able to determine that the maximum instantaneous capacity available out of the turbine, and subsequently the generator terminals. These instantaneous values are observed peaks recorded under high flow conditions, rather than current generation performance figures - and are prone to reductions over the course of the year as various parts of the turbine move or wear out of ideal

alignment, and water levels drop to design flow levels. We have estimated the generator axis maximum instantaneous power at 3.85 MW, based on the performance figures of the alternator manual, and have observed a maximum instantaneous power at alternator terminals of 3.75 MW for short periods under high flow conditions. This measured data is judged as useful additional information, and is now incorporated as a footnote in the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07*. The PDD has also been updated to reflect the maximum estimated instantaneous power available from the generation facility.

e) As for d) above.

f) The project supplies a small but growing rural customer base through its existing rural distribution network. This network currently consists of an estimated 35 km of 33 kV overhead power lines, and approximately 40 km of 400 V village distribution lines. This additional rural distribution infrastructure is illustrated in the original PDD in Fig A.6, though the actual current installed lengths the associated network have now grown larger than those originally described in the PDD, and are expected to continue to grow in time. It should be noted that the villages fall outside of the project boundary and therefore these minor changes have no impact on the calculation of emission reductions for the project.

g) As for f) above.

2. The corrections in the project activity details as per the above items a-e have been listed under section B.2.2 of the MR with relevant justification on the effect of these changes following Annexure 1 of the CDM Project Standard version 07.0. Items a-e have also been reflected in the revised PDD.
3. The location map provided in section B1 has now been updated to the version contained in the PDD, and now contains legible labels – see the attached Monitoring report form *2014-11-08 Mwenga 9550 iss_form07*.

Documentation Provided as Evidence by Project Participant:

Final Water Use Permit
Updated Monitoring report form *2014-11-08 Mwenga 9550 iss_form07*
Revised PDD

Information Verified by Lead Assessor:

Registered PDD version 3.0 dated 28/01/2013
Revised MR version 2 dated 05/11/2014
Revised PDD version dated 4.0 dated 05/11/2014
CDM project standard version 07.0
Revised ER sheet dated 28/10/2014

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 24/11/2014

1. Under section B.1 of the revised MR and hence section A.3 of the revised PDD, it was assessed that none of the changes listed in the comments a-g have any impact over the additionality (the project does not apply investment analysis for additionality), applicability and scale (the project capacity remains well within the small scale threshold). Thus, it was concluded that, the changes were also made in the revised PDD under section A.3 of the revised PDD and will be submitted along with the MR for issuance process. No prior approval from UNFCCC is needed as per the Appendix 1 of the CDM project standard version 07.0
2. The corrections in the project activity details as per the above comment were verified to be listed under section B.2.2 of the revised MR with relevant justification on the effect of these changes following Annexure 1 of the CDM Project Standard version 07.0. *However, changes in the revised PDD other than the ones in the above comment also need to be listed as per the MR completion instructions in the template.* The revised PDD was also submitted by the PP in this regard. The comments in the PDD are covered under CAR 1 separately, so this part of the comment stands closed.
3. The corrected location map with labels is found to be included in the section B.1 of the revised MR, the same is legible and appropriate, ok.
4. *In the revised ER sheet, referring to the worksheet titled 'Outages', the outage data post January 2014 is not relevant to the current monitoring period and needs to be removed, correction requested.*

Project Participant Response:	Date: 28/11/2014
2. Changes in the revised PDD other than the ones in the above comment are now also listed in the MR section B.2.2 4. In the revised ER sheet, referring to the worksheet titled 'Outages', the outage data post January 2014 has been removed	
Documentation Provided as Evidence by Project Participant:	
Revised Monitoring Report Revised ER sheet	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 3 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised PDD version 5.0 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised ER sheet dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) CDM-MR-FORM version 04.0 template CDM PS version 07.0	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2014
2. It was assessed that all the changes identified as corrections are listed under section B.2.2 of the revised MR. Furthermore, the PP also added that the changes are not affecting the applicability, additionality and scale of the registered project activity as per Appendix 1 of the CDM PS version 07.0. The same is found to be acceptable, ok. 4. It was verified that in the revised ER sheet, in the worksheet titled 'Outages', the outage data post January 2014 is now removed and only the relevant outage data for the current monitoring period has been described, ok. Thus, CAR is closed. CAR is reopened (24/12/2014) <i>The open CAR 1 comment 1.B.a applies to the section B.2.2. of the MR.</i> <i>The exact periods of downtime in terms of dates/hours also need to be mentioned which can be seen in monthly percentages of the data of the excel sheet. Further, the section B.1 of the MR does not talk about the confirmation of no such equipment change due to any major shutdown, please clarify. Furthermore, the justification related to the changes stated complying the Appendix I of the CDM PS version 07.0 is not provided under section B.2.2, please clarify.</i>	
Project Participant Response:	Date: 29/12/2014
Revised MR contains additional information in section B2.2 relating to changes in corrected PDD due to new PDD template Revised MR contains additional text: <ul style="list-style-type: none"> Referring to "Mwenga downtime figures" spreadsheet for exact periods of downtime Confirming no equipment changes due to major shutdown Justifying that changes comply with Appendix 1 of the CDM PS version 7.0 	
Documentation Provided as Evidence by Project Participant:	
Revised MR "Mwenga downtime figures" spreadsheet	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 available on the project page on UNFCCC website (UNFCCC	

Ref. 9550) Revised MR version 5 dated 29/12/2014 Revised PDD version 6.0 dated 28/12/2014 Consolidated Downtime data worksheet during the monitoring period CDM PS version 07.0 Appendix 1	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 07/01/2015
<p>2. In line with the response to the CAR 1 comment 1.B.a, the PP has now appropriately included the template related changes in the revised PDD under section B.2.2. of the revised MR, the same are assessed to be done appropriately, ok.</p> <p>4. The PP has submitted the additional worksheet and the same was referred in the revised MR. The additional worksheet has been verified to contain the exact periods of downtime in terms of dates/hours as well as monthly percentages of the data. The detailed check was made during the site visit already related to the downtime and operation data. Further, the section B.1 of the revised MR also includes the declaration of no such equipment change due to any major shutdown.</p> <p>Furthermore, the justification was also included in relation to the changes and the effect on scale, applicability and additionality as required in the Appendix I of the CDM PS version 07.0 under section B.2.2 of the revised MR. The arguments provided by the PP are deemed appropriate and sufficient to demonstrate the changes to be considered in line with the Appendix 1 of the CDM PS version 07.0</p> <p>Thus, CAR is closed.</p>	
Acceptance and Close out by Lead Assessor: closed	Date: 07/01/2015

Date:	14/10/2014	Raised by:	Assessment Team		
Type:	CL	Number:	3	Reference:	Section 2
Lead Assessor Comment:			Date: 14/10/2014		
<p>1. The details of the installed electricity meters are not provided in the webhosted MR under section D.2 as applicable covering</p> <ul style="list-style-type: none">a. Meter details like make, type, accuracy class, installation date, serial number etc.b. Calibration entity, calibration dates and results of calibration tests.					
<p>2. It was observed that the TANESCO meters at the interconnection point which measure the parameter EG_{BL,y,2} in the project activity were installed on the 12/08/2011 as per the initial test certificates while the first calibration was performed on 16/12/2013. Thus a delay of calibration was observed during the period 13/08/2013 and 16/12/2013. The PP needs to adopt the guidance under paragraph 283(a) of the CDM Validation and Verification Standard version 07.0. Furthermore, the check meter number on the calibration certificate dated 17/12/2013 needs to be rectified from the calibrating entity for the typo-error observed.</p>					
Project Participant Response:			Date: 08/11/2014		
<p>1. Meter details and calibration details now provided into section D.2 of the attached Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i></p> <p>2. We point out that the TANESCO meters at the interconnection point were actually installed and commissioned on the 12th August 2012, and not on the 12th August 2011 as stated in point 2 above. We assume that this date error is a typo from SGS. We also point out that the calibration certificate dated 17th December 2013 clearly states that the ‘Revenue Meters (Main and Check) at Mwenga Mini Hydro Plant in Iringa Region were tested by TANESCO before installation” – and not on the 17th December as has been implied by SGS in point 2 above. We accept that the meters required recalibration on the 13th August 2013, and that we operated with untested/uncalibrated meters for the period between the 13th August 2013 and 9th July 2014, and have adjusted the CER calculation accordingly to comply with the guidance under paragraph 283(a) of the CDM Validation and Verification Standard version 07.0.</p> <p>A formal request to the Calibrating entity (TANESCO) for a correction of the typo in the check meter number on the original calibration certificate has been made, and a response is awaited.</p>					
Documentation Provided as Evidence by Project Participant:					
Updated Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i>					

Copy of letter to TANESCO (Calibrating Entity) requesting that a correction be made to the check meter number on the check meter calibration certificate dated 17/12/2013.	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 2 dated 05/11/2014 Revised PDD version dated 4.0 dated 05/11/2014 Meter number correction on calibration certificate letter to TANESCO by PP dated 13/10/2014 Meter calibration certificates dated 09/07/2014 as well as 17/12/2013 Revised ER sheet dated 28/10/2014	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/11/2014
<p>1. It was verified that the details of the installed electricity meters are now provided by the PP under section D.2 parameter tables in the revised MR with reference to the metering information for the parameter EG_{BL,y,2}. The same covers...</p> <ul style="list-style-type: none"> a. Meter details with regards to the make, type, accuracy class, installation date, serial number b. Calibration entity and calibration dates, <i>however does not cover results of calibration tests (for instance errors found beyond/within maximum accuracy limits??)</i> <p>It was also noted that as the connection point to the MTC has still not been commissioned due to institutional issues not in control of the PP, the meters for the parameter EG_{BL,y,1} are yet not installed and the quoted electricity is obviously stated 0.</p> <p>2. For the parameter EG_{BL,y,2} in the project activity the meters were installed on the 12/08/2012 (as pointed out correctly by the PP in the response) as per the initial test certificates. <i>It was verified that the first calibration was performed before installation by TANESCO and the calibration test date is mentioned as 08/07/2012 and seems to be system generated and was found to be present on page 2 of the certificate dated 17/12/2013, please clarify if this is the date in July, the maximum permissible error needs to be applied for the month of July 2013 as well, which is currently applied from August 2013 to January 2014 values.</i> Accordingly, it was verified that the PP has applied the guidance under paragraph 283(a) of the CDM VVS version 07.0. As can be seen that the maximum permissible error by TANESCO is mentioned as +/- 2 % in the covering letter/certificate dated 17/12/2013 while the meter accuracy class is mentioned as 0.5 % on the meter name plate. The consideration of the error of + 2% for import and -2% for export is deemed conservative and thus accepted.</p> <p>Furthermore, regarding the error in the check meter number on the calibration certificate dated 17/12/2013, it was verified that the PP after making their own observations, submitted a letter for the correction to be done on the certificate, being a type error in only that certificate, however, the manufacturer data, the other calibration certificates dated 09/07/2014 as well as the observations onsite, it can be accepted considering that the PP has no control over the certificate as well as the action made by the PP at this point.</p>	
Project Participant Response:	Date: 28/11/2014
<p>1. Further information has been added under section D2 parameter tables in the revised MR with reference to the metering information for the parameter EG_{BL,y,2}. This covers the results of the calibration tests outlining that errors found were within maximum accuracy limits.</p> <p>2. The July date corresponds to the date that the meters would have been drawn from stock and sent for routine calibration prior to installation (installation that ultimately took place in August). The maximum permissible error has therefore now been applied for the month of July 2013 as well in the revised ER sheet. We note though that evidence from the next calibration performed demonstrates that the meters were not actually out of calibration at that point – so were very likely not out of calibration during the operating period.</p>	
Documentation Provided as Evidence by Project Participant:	
Revised MR	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 3 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document)	

Revised PDD version 5.0 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised ER sheet dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) CDM-MR-FORM version 04.0 template CDM VVS version 07.0	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2014
1. It was verified that under section D.2 parameter tables in the revised MR, with reference to the metering information for the parameter EG_{BL,y,2} . b. The calibration information transparently covers results of calibration tests and it rightly states that the errors found during the tests are within the permissible limit. 2. For the parameter EG_{BL,y,2} in the project activity, in continuation to the comment identified above, the PP has applied the maximum permissible error of to the readings of July 2013. It was verified that the PP has correctly applied the guidance under paragraph 283(a) of the CDM VVS version 07.0 in this regard. Thus, CL is closed.	
Acceptance and Close out by Lead Assessor: closed	Date: 03/12/2014

Date:	14/10/2014	Raised by:	Assessment Team		
Type:	CAR	Number:	4	Reference:	Section 2
Lead Assessor Comment:			Date: 14/10/2014		
1. Under section D.1 of the webhosted MR, no parameters are seen as compared to section B.6.2 of the registered PDD, please clarify. 2. For all the parameters included under section D.2 of the webhosted MR, the rows 'Source of data' and 'Purpose of data' are filled incorrectly; which refers to the document referred and baseline/project/leakage emission streams respectively, correction requested. 3. It was observed that the parameter EG_{BL,y,2} in the project activity refers to Net electricity, while only the export readings have been considered for emission reduction calculations, the PP is requested to transparently consider the import readings as well. 4. The value of electricity for the parameter EG_{BL,y,2} in the project activity was not found to be consistent with that of the JMR reports for the month of October 2013, correction requested. Furthermore, please clarify how the prorated value considered for the end of the monitoring period is conservative with reference to paragraph 291 of the CDM Validation and Verification Standard version 07.0.					
Project Participant Response:			Date: 08/11/2014		
1. The parameters listed in section B6.2 of the registered PDD refer to those parameters needed to calculate the grid emission factor. However, as seen in the corrected PDD, the Simple Adjusted OM is calculated based on the Ex ante data vintages for the estimates appearing in the PDD. As stated in the Monitoring Plan, Ex Post monitoring shall be used and therefore no parameters are listed in section D1 of the monitoring report. 2. The sections 'Source of Data' and 'Purpose of Data' with section D.2 of the Monitoring Report have now been corrected within the attached Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i> . 3. The parameter EG_{BL,y,2} in the project activity has now been corrected to transparently consider the import readings as well, and the corrected values are now shown within the attached Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i> , and the excel file <i>Mwenga Hydro Generation and Sales Data 28th Oct 14</i> . 4. The value of electricity of the parameter EG_{BL,y,2} in the project activity for the month of October 2013 has now been checked and appropriate corrections made, in conjunction with the adjustments discussed in point 3 immediately above. The corrected value is now shown within the attached Monitoring report form					

2014-11-08 Mwenga 9550 iss_form07 and the excel file *Mwenga Hydro Generation and Sales Data 28th Oct 14*. No meter reading was available for the exact end of the monitoring period (i.e. midnight on 29/01/2014). Data for the partial month of January 2014 has been therefore adjusted pro rata (i.e., 29/31 of invoice amount) to exclude sales attributable to 30 and 31 January, 2014, which fall outside the monitoring period. This approach can be deemed appropriate as daily amounts of electricity production at the hydro power plant vary only due to changes in precipitation and run-off. January daily power production amounts are relatively constant and a pro-rata approach is appropriate.

Documentation Provided as Evidence by Project Participant:

Updated Monitoring report form 2014-11-08 Mwenga 9550 iss_form07
Excel file named *Mwenga Hydro Generation and Sales Data 28th Oct 14* that also contains the emissions reductions calculations and stoppage data

Information Verified by Lead Assessor:

Registered PDD version 3.0 dated 28/01/2013
Revised MR version 2 dated 05/11/2014
Revised PDD version dated 4.0 dated 05/11/2014
CDM-MR-FORM version 04.0 template
Revised ER sheet dated 27/11/2014
JMR reports/sheets for the month of October 2013, January 2014
Emission Factor calculation worksheet as well as generation data for 2011-2013 submitted by TANESCO to the PP.

Reasoning for not Acceptance or Acceptance and Close Out:
Date: 24/11/2014

1. The PP has included relevant note under section D.1 of the revised MR about the missing parameters from the registered/revised PDD that will be fixed ex-ante. *However, as the revised PDD still mentions the parameters under section B.6.2, how the same can be included as a part of section D.2 of the MR. Saying this, while additional comment needs to be included in the parameter table for the ex-post emission factor parameter $EF_{CO_2,y}$ about the logic of calculation to arrive at the value of this parameter.*
2. The PP has included the appropriate descriptions for the parameter tables under section D.2 of the revised MR in the rows 'Source of data' (supporting documents referred) and 'Purpose of data' (all parameters used for baseline calculations), the same is found to be in line with the revised PDD as well as the CDM-MR-FORM template and its filling instructions.
3. It was verified that the PP has used the export and import values for determining the final value for the value of the parameter $EG_{BL,y,2}$ in the project activity being Net electricity. *However, inconsistency observed under sections E.1 and E.6 regarding the same, correction requested. Also, wherever the value is specified in the MR or the ER sheet, a note of adjusted value should be mentioned for transparency due to delayed calibration.*
4. The value of electricity the parameter $EG_{BL,y,2}$ in the project activity was verified to be corrected by the PP in the revised ER sheet and the same is now verified as consistent with that of the JMR reports for the month of October 2013, ok. *Furthermore, though the argument provided by the PP seems to be fine, however, the same may be demonstrated using the daily electricity production data. The PP needs to clarify, if the data monitoring is continuous, is the data for the period of 30 and 31/01/2014 available separately (through TANESCO, it was noted during the site visit that such data is at the discretion of TANESCO and monthly recording occurs) and may have been available and can be subtracted for the actual values.*

CAR is open.

Project Participant Response:
Date: 28/11/2014

1. Section D1 of the revised MR has been revised to include the parameters included in section B6.2 of the revised PDD. An additional comment has been included in the parameter table for the ex-post emission factor parameter $EF_{CO_2,y}$ about the logic of calculation to arrive at the value of this parameter.
3. Section E.1 and E.6 have been revised to take account of using import and export values for determining the final net value of the parameter $EG_{BL,y,2}$. A note of adjusted value has been mentioned in sections E.1 and E.6 for transparency due to delayed calibration.
4. The PP tried to get the electronic records of the daily meter readings from TANESCO, but were

unsuccessful in obtaining the specific information that is required - hence the PP has opted to use the current approach as a credible and appropriate alternative.	
Documentation Provided as Evidence by Project Participant:	
Revised MR	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 3 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised PDD version 5.0 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised ER sheet dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) CDM-MR-FORM version 04.0 template	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2014
<p>1. It was verified that the PP has included relevant note under section D.1 of the revised MR opting to describe the parameters that will be fixed ex-ante, however the same will not be used in the monitoring where $EF_{CO_2,y}$ is already available as a separate parameter and the same will be based on the same approach for determination of the emission factor. This was found to be appropriate and thus accepted.</p> <p>3. Regarding the parameter $EG_{BL,y,2}$, the inconsistency is still observed under sections D.2, E.1 and E.6 due to decimal places, correction requested. The note for the adjusted value has been provided by the PP in the revised MR as may apply.</p> <p>4. The value of electricity the parameter $EG_{BL,y,2}$ in the argument provided by the PP is accepted being the most conservative approach possible for calculation of emission reductions considering the data is available with the grid authority i.e. TANESCO, over which the PP does not have any control.</p> <p>CAR is open.</p>	
Project Participant Response:	Date: 04/12/2014
3. Inconsistencies in sections D.2, E.1 and E.6 have been corrected	
Documentation Provided as Evidence by Project Participant:	
Revised MR version 4 dated 04/12/2014	
Information Verified by Lead Assessor:	
ER sheet dated 27/11/2014 Revised MR version 4 dated 04/12/2014	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 05/12/2014
<p>3. Regarding the parameter $EG_{BL,y,2}$, the parameter value has been verified to be corrected throughout the revised MR, the same is found to be now consistent with the ER sheet, ok.</p> <p>Thus, CAR is closed.</p> <p>CAR is reopened (24/12/2014)</p> <p>5. PP is requested to clearly indicate the dates of each month in column B of the Generation and Billing Data in the ER sheet for transparency.</p>	
Project Participant Response:	Date: 29/12/2014
Dates if each month in column B of the Generation and Billing Data in the ER sheet have been added	
Documentation Provided as Evidence by Project Participant:	
Revised ER spreadsheet	
Information Verified by Lead Assessor:	
Revised ER sheet dated 28/12/2014 submitted along with revised MR version 5	

Cross checked with Monthly JMR sheets for the entire monitoring period	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 07/01/2015
5. It was assessed that the PP has now indicated the reading dates of each month in column B of the Generation and Billing Data in the revised ER sheet. The same were verified to be correct and in line with the JMR sheets submitted during the site visit assessment.	
Thus, CAR is closed.	
Acceptance and Close out by Lead Assessor: closed	Date: 07/01/2015

Date:	14/10/2014	Raised by:	Assessment Team		
Type:	CAR	Number:	5	Reference:	Section 2
Lead Assessor Comment:			Date: 14/10/2014		
<div>1. The emission reductions calculations are provided under section E.2, which is not the correction section for this purpose referring to the attachment guidance of the CDM-MR-FORM template version 04.0, correction requested.</div> <div>2. Further section E.4 table is filled incorrectly where the baseline emissions value achieved during the current monitoring period needs to be mentioned.</div> <div>3. Furthermore, the final emission reductions value needs to be specified in the rounded down form in all the places in the MR.</div>					
Project Participant Response:			Date: 08/11/2014		
<div>1. The emission reduction calculations have now been moved to sections E.1-E4 in the attached Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i>, as per the guidance in the CDM-MR-FORM template.</div> <div>2. The table in section E.4 has been updated to include the baseline emissions value achieved during the current monitoring period, and is shown in the attached Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i>.</div> <div>3. The calculated final emissions reductions value is now specified in the rounded down form in all places within the updated Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i> that is attached.</div>					
Documentation Provided as Evidence by Project Participant:					
Updated Monitoring report form <i>2014-11-08 Mwenga 9550 iss_form07</i>					
Information Verified by Lead Assessor:					
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 2 dated 05/11/2014 Revised PDD version dated 4.0 dated 05/11/2014 Revised ER sheet dated 28/10/2014 AMS-I.D. version 17					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 24/11/2014		
<div>1. The emission reductions calculations are now verified to be appropriately described by the PP under section E.1, the same is acceptable in line with the CDM-MR-FORM version 04.0 template.</div> <div>2. Further section E.4 table is verified to be filled appropriately; the same is acceptable in line with the CDM-MR-FORM version 04.0 template.</div> <div>3. <i>It was verified that the final emission reductions value was not rounded down as referred to cell L22 (rounded up values are used) in the worksheet titled 'Carbon Calculation' of the ER sheet and the same needs to be corrected in all the relevant sections in the MR.</i></div> <div>4. <i>In continuation to CAR 4(1) comment, the emission factor calculation in the spreadsheet titled '2014 Verification GEF' Worksheet' could not be traced while referring to the generation data in the spreadsheet titled 'REQUESTED DATA (CAMCO)'. Furthermore, as an ex-post parameter, the PP needs to provide a transparent working calculation either in an additional worksheet to existing ER sheet or in the form of a new spreadsheet to be submitted to UNFCCC for issuance.</i></div>					
CAR is open.					

Project Participant Response:	Date: 28/11/2014
3. Final emissions value has been rounded down and has been corrected in all the relevant sections in the MR 4. Transparent working calculation has been provided	
Documentation Provided as Evidence by Project Participant:	
Revised ER sheet Revised MR GEF calculation spreadsheet	
Information Verified by Lead Assessor:	
Registered PDD version 3.0 dated 28/01/2013 Revised MR version 3 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised PDD version 5.0 dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) Revised ER sheet dated 27/11/2014 (The PP missed out revising the version and date of this document in response, thus, the next applicable version and document name date was considered to represent the document) GEF calculation worksheet with generation data	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 03/12/2014
3. It was verified that the final emission reductions value is now rounded down as referred to cell L22, the same is rounded down automatically due to the presence of .1 post decimal place in the worksheet titled 'Carbon Calculation' of the revised ER sheet and the same was found to be corrected in all the relevant sections in the entire MR, ok. 4. It was assessed that the PP has now provided the emission factor calculation in the form of the revised GEF worksheet entailing traceability of the calculated emission factor. <i>However, the emission factor in the parameter table under section D.2 of the MR are not consistent with the GEF sheet as well as ER sheet value and considered vintage is not specified.</i> <i>CAR is open.</i>	
Project Participant Response:	Date: 04/12/2014
4. Emission factor in the parameter table under section D.2 of the MR has been corrected to be consistent with the GEF sheet as well as ER sheet value. Considered vintage has also now been specified in section D.2 of the MR.	
Documentation Provided as Evidence by Project Participant:	
Revised MR version 4 dated 04/12/2014	
Information Verified by Lead Assessor:	
ER sheet dated 27/11/2014 Revised MR version 4 dated 04/12/2014 GEF calculation worksheet with generation data	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 05/12/2014
4. It was verified that the emission factor value was corrected by the PP in the parameter table under section D.2 of the revised MR. The same is deemed to be consistent with the GEF sheet as well as ER sheet value, further, the PP also included the vintage information in the 'Additional Comment' row of the table and the same was found to be correct. Thus, CAR is closed.	
Acceptance and Close out by Lead Assessor: closed	Date: 05/12/2014

Date:	10/03/2015	Raised by:	Assessment Team														
Type:	CAR	Number:	6	Reference:	Section 2												
Lead Assessor Comment:			Date: 10/03/2015														
<p>MR Version 05:</p> <ol style="list-style-type: none"> 1. It is verified during the site visit that monitoring and implementation of the project activity is done as per the revised PDD. In view of this information please clarify why the reference of revised PDD is not mentioned in the MR(whenever applicable) 2. The information about the approximate distance of minor spur lines and LV distribution lines as mention at page 6 of MR is not consistent with the revised PDD. 3. It is not clear whether start date or registration date is being stated at page 7. 4. It is not clear why the changes discussed under point 4(p.9) is not mentioned under appendix 6 of the revised PDD. 5. Please mention the correct reference of section in MR i.e. B7.1 should be B.7.1.This comment is also applicable for revised PDD. <p>Registered PDD (VVM) vs. Transfer to VVS (VVS): All the information's from VVM PDD have not been transferred to VVS template. Also some additional information's are added in the VVS template. Please submit the PDD in VVS template transferring the information from VVM PDD without modification/addition/deletion.</p> <p>Revised PDD version 06:</p> <ol style="list-style-type: none"> 1. Section A.5 refers to Annex 2 of the PDD however the PDD does not consisting Annexes. 2. Appendix 1 does not include a table with CAMCO information, to match the information in section B.7.4, as per instructions in PDD template. 3. VVS PDD: Appendix 1: Please clarify if Mwenga Hydro Limited is the Party responsible for the application of the selected methodology. As this contradicts the information in section B.7.4. 4. Appendix 6: the correction made to section B.7.3. However this is not mentioned. Also in the history table error is to be rectified. <p>Downtime figures spreadsheet</p> <p>"Summary" tab: The current monitoring period is from 30/01/2013 up to 29/01/2014. In view of this information please clarify why the specific period for Jan 2013 and Jan 2014 is not mentioned. Also please check and confirm the number of days shown under Row 3.</p> <p>Please clarify why the information prior to start date and after the end date of current monitoring period is provided (Ref: Tab_Jan 13 & Jan 14).</p> <p>Please clarify why the tab for March 2013 is missing. Also the information provided in Apr 13 to Jan 14 in different format as compared with other tabs.</p> <p>GEF spreadsheet</p> <p>"OM_2013" tab: Please clarify why the complete identification of the tool is not mentioned (row 4 and row 34)</p> <p>Generation and Sales data spreadsheet</p> <p>"generation and billing data" tab: the note in the cell N10 states that "uncelebrated meters from Aug 2013" but the MR (page 16) states "July 2013".Please clarify</p> <tr> <td colspan="3">Project Participant Response:</td><td colspan="3">Date: 15/03/2015</td></tr> <tr> <td colspan="6"> <p>MR</p> <ol style="list-style-type: none"> 1. Reference of the revised PDD is now mentioned in the MR where applicable 2. The revised PDD has been further revised so that the approximate distance of minor spur lines and LV distribution lines is now consistent with the MR. 3. The date referred to on p7 is the registration date and start date of the crediting period. This has been clarified in the revised MR 4. The changes discussed under point 4 (p.9) are now mentioned under appendix 6 of the revised PDD. 5. This has been corrected in the revised MR and PDD <p>Registered PDD (VVM) vs. Transfer to VVS (VVS):</p> </td></tr>						Project Participant Response:			Date: 15/03/2015			<p>MR</p> <ol style="list-style-type: none"> 1. Reference of the revised PDD is now mentioned in the MR where applicable 2. The revised PDD has been further revised so that the approximate distance of minor spur lines and LV distribution lines is now consistent with the MR. 3. The date referred to on p7 is the registration date and start date of the crediting period. This has been clarified in the revised MR 4. The changes discussed under point 4 (p.9) are now mentioned under appendix 6 of the revised PDD. 5. This has been corrected in the revised MR and PDD <p>Registered PDD (VVM) vs. Transfer to VVS (VVS):</p>					
Project Participant Response:			Date: 15/03/2015														
<p>MR</p> <ol style="list-style-type: none"> 1. Reference of the revised PDD is now mentioned in the MR where applicable 2. The revised PDD has been further revised so that the approximate distance of minor spur lines and LV distribution lines is now consistent with the MR. 3. The date referred to on p7 is the registration date and start date of the crediting period. This has been clarified in the revised MR 4. The changes discussed under point 4 (p.9) are now mentioned under appendix 6 of the revised PDD. 5. This has been corrected in the revised MR and PDD <p>Registered PDD (VVM) vs. Transfer to VVS (VVS):</p>																	

The PDD in VVS template is now submitted transferring the information from VVM PDD without modification/addition/deletion

Revised PDD

1. This has been revised to Appendix 2
2. CAMCO information is now included in Appendix 1 to match the information in section B.7.4, as per instructions in PDD template.
3. Mwenga Hydro Limited is not the Party responsible for the application of the selected methodology. This has been corrected in Appendix 1 of the revised PDD
4. The correction made to section B.7.3 is now mentioned in Appendix 6

Downtime figures spreadsheet

Monthly figures for outages have been given so this includes some time out of the monitoring period (in Jan13 and Jan14). Outage figures are not used for ER calculations rather they are used to explain why actual power generation is less than estimated in the PDD. On this basis, we suggest that monthly figures are more useful to identify patterns of outage. Further, for January 13, only monthly figures are available: as explained in the MR p8, during the initial months of the plant's operation, the process for recording daily production logs was still in development.

Row 3 has been checked and the numbers found to be correct for the calculations that they are used for.

Tab for March 2013 is not available; rather outage figures for this month have been calculated based on outage hours during this month and total hours in March

Information provided from Apr13-Jan14 is in a different format to that for Jan13-March13. As explained in the MR p8, during the initial months of the plant's operation, the process for recording daily production logs was still in development. For the first three months of the project activity, only monthly figures are available.

GEF spreadsheet

"OM_2013" tab: the complete identification of the tool is now mentioned (row 4 and row 34) in the revised spreadsheet

Generation and Sales data spreadsheet

Generation and billing data" tab: the note in the cell N10 stated "uncelebrated meters from Aug 2013". This was an error and has been corrected to "July 2013" in the revised spreadsheet.

Documentation Provided as Evidence by Project Participant:

Revised Monitoring Report (version 6 dated 15/03/2015)
Registered PDD (VVS template) dated 15/03/2015
Revised PDD (version 7 dated 15/03/2015)
GEF spreadsheet dated 15/03/2015
Generation and Sales data spreadsheet dated 15/03/2015

Information Verified by Lead Assessor:

The following documents are checked:
Revised Monitoring Report (version 6 dated 15/03/2015)
Registered PDD (VVS template) dated 15/03/2015 (The PP has mistakenly updated the date of registered PDD)
Revised PDD (version 7 dated 15/03/2015)
GEF spreadsheet dated 15/03/2015
Generation and Sales data spreadsheet dated 15/03/2015

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 30/03/2015

The PP has addressed all the issues satisfactorily; this is checked and confirmed through the revised documents, hence accepted.

Acceptance and Close out by Lead Assessor:

Date: 30/03/2015

CAR #6 re-opened

Date: 13/04/2015

Lead Assessor Comment:

Registered PDD (VVM) vs. Transfer to VVS (VVS)

VVS PDD: the labelling of power station and penstock is not fully legible in the figure A.2: the text is not fully showing/legible

The letter in VVM PDD has text blanked out which has not been blanked out in the transfer PDD(VVS version ,p61)

<u>Revised Track Changed PDD vs. Revised Clean PDD</u>	
References to PDD sections are not correctly quoted in appendix 6 (e.g. A3). The history table error is to be rectified.	
Project Participant Response:	Date: 14/04/2015
Registered PDD (VVS track): figure A.2: text is now fully legible. Letter in VVM PDD that has text blanked out has now been similarly blanked out in VVS PDD. Revised PDD has been amended so that references to PDD are now correctly quoted in appendix 6. History table error has been rectified.	
Documentation Provided as Evidence by Project Participant:	
Mwenga registered PDD_150413 Mwenga revised PDD_150413 (version 8)	
Information Verified by Lead Assessor:	
Registered PDD(VVM to VVS transfer) and revised PDD version 08,dated 13/04/2015 is checked	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 20/04/2015
The corrections done in the documents are in line with the issues and found to be satisfactory. Closed	
Acceptance and Close out by Lead Assessor:	Date: 20/04/2015

10. Statement of Competence

Statement of Competence

Name: Ravi Kant Soni

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	x
Technical Area(s): TA 1.2 Renewables	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by:
Continued Compliance
confirmation

Siddharth Yadav
Lisa Brough

Date: 12/10/2012
13/01/2015

Statement of Competence

Name: Philip Otieno Abuor

Status

- Lead Assessor		- Expert	
- Assessor		- Financial Expert	
- Local Assessor	Tanzania	- Technical Reviewer	

Scopes of Expertise

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

Approved Member of Staff by:

Siddharth
Yadav

Date:

10/07/2013

Continued Compliance
confirmation

Lisa Brough

20/03/2015

Statement of Competence

Name: Nareshkumar Suneja

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	x
Technical Area(s): <i>TA 1.2 Energy generation from renewable energy sources</i>	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by:
Continued Compliance
confirmation

Siddharth Yadav
Lisa Brough

Date: 25/04/2013
16/01/2015

Statement of Competence

Name: Ajoy Gupta

Status

- Lead Assessor	x	- Expert	
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

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

Approved Member of Staff by:	Siddharth Yadav	Date:	22/02/2012
Continued Compliance confirmation	Lisa Brough		12/01/2015

Statement of Competence

Name: Shivaji Chakraborty

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)

x

Technical Area(s): TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar

TA 1.2 Energy generation from renewable energy sources

2. Energy Distribution

x

Technical Area(s): TA 2.1 Electricity distribution

TA 2.2 Heat distribution

3. Energy Demand

x

Technical Area(s): TA 3.1 Energy Demand

4. Manufacturing

Technical Area(s):

5. Chemical Industry

Technical Area(s):

6. Construction

Technical Area(s):

7. Transport

Technical Area(s):

8. Mining/Mineral Production

Technical Area(s):

9. Metal Production

Technical Area(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s):

11. Fugitive Emissions from Production and

Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s):

12. Solvent Use

Technical Area(s):

13. Waste Handling and Disposal

Technical Area(s):

14. Afforestation and Reforestation

Technical Area(s):

15. Agriculture

Technical Area(s):

Approved Member of Staff by:
Continued Compliance
confirmation

Siddharth Yadav
Lisa Brough

Date: 19/09/2012
16/01/2015

11. Photographic Evidence

Name of equipment: Trivector Energy Meters at grid interconnection point

Date: 08-09/10/2014

Serial Number : 211309937 (Main)

Serial Number: 211105245 (Check)



Power plant photographs

Date: 08-09/10/2014

Project activity location



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