

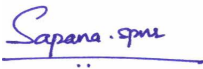


**Verification and certification report form for
CDM programme of activities
(version 02.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	Tanzania Renewable Energy Programme Ref. no. 9904	
Version number(s) of the PoA-DD(s) to which this report applies	Version 08 dated 23/04/2014	
Version number of the verification and certification report	01.3	
Completion date of the verification and certification report	08/02/2019	
Monitoring period number and duration of this monitoring period	First monitoring period From 08/05/2014 to 31/12/2016 (first and last days included)	
Number and version number of the monitoring report to which this report applies	Monitoring Report number 02, version 02	
Coordinating/managing entity (CME)	Rural Energy Agency (REA)	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	United Republic of Tanzania	Yes
Applied methodologies and standardized baselines	AMS I.D. Grid connected renewable electricity generation, Version 17 AMS I.F. Renewable electricity generation for captive use and mini-grid, Version 02	
Mandatory sectoral scopes linked to the applied methodologies	01 - Energy Industries (renewable / non-renewable sources)	
Conditional sectoral scopes linked to the applied methodologies, if applicable	Not Applicable	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	5,372 tCO ₂ e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	1,996 tCO ₂ e	

Name and UNFCCC reference number of the DOE	Bureau Veritas India Pvt Ltd (BVI) Ref. no. E-0009
Name, position and signature of the approver of the verification and certification report	 Sapana Pednekar Global Quality Manager - Operations

SECTION A. Executive summary

Bureau Veritas India Pvt Ltd has conducted the 1st periodic verification of the PoA “Tanzania Renewable Energy Programme”; UNFCCC reference number 9904. The PoA is coordinated and managed by the Rural Energy Agency (REA) and is located in the United Republic of Tanzania. The PoA aims to increase access to modern energy services in Tanzania by promoting both the off-grid (that is, isolated mini-grid) and national grid connected renewable energy projects, within the country. The technologies promoted include: photovoltaic, wind, hydro and biomass technologies for electricity generation. The PoA Applies the following two methodologies: AMS.I-D “Grid connected renewable electricity generation”, Version 17 and AMS.I-F “Renewable electricity generation for captive use and mini-grid”, Version 02. Component project activities (CPAs) can be included into the PoA in any one of the following three categories of generic CPAs, by fulfilling the requirements therein:

- a) CPA Category 1: this comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to the main national grid. The CPAs are required to comply with the requirements of methodology AMS-I.D version 17.
- b) CPA Category 2: this comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to an existing mini-grids being operated by the national utility (TANESCO), or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of methodology AMS-I.F version 02.
- c) CPA Category 3: This comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to the main national grid and an existing mini-grids being operated by the national utility (TANESCO), and/or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of both methodology AMS-I.D version 17 and AMS-I.F version 02.

Reporting of the monitoring activities for the PoA, for this first monitoring period from 08/05/2014 to 31/12/2016 has been done in batches. This verification and certification report covers the second batch consisting of monitoring report number 02, version 02 dated 07/02/2019. The monitoring report comprises a single CPA, the Yovi Small Hydro Power Project, and reference no. 9904- 0004. Issuance request for the first batch has already been submitted (refer to [9904-MP1-IRP1](#)).

The CPA 9904-0004 is a phased development of a 2.3 MW small hydropower project, starting with 1MW in phase 1 followed by 1.3 MW in phase 2. The CPA was included in the PoA, on 06/11/2015 as a category 2 CPA. However during implementation, the project has not supplied electricity to a mini-grid as proposed, but has supplied electricity to the national grid operated by TANESCO. This has necessitated a post registration change, proposed as a change in design of the CPA. A notification for post registration change has been submitted and approved (refer to [PRC-9904-003](#)).

The verification scope is defined as a periodic independent review and ex post determination, by the Designated Operational Entity, of the monitored reductions in GHG emissions during the defined verification period, and consisted of the following three phases:

- i) Desk review of the PoA and CPA design documents, the baseline, monitoring plan, reported parameters and ER calculations;
- ii) Onsite observations, crosschecks with plant logs and follow-up interviews with PoA stakeholders;
- iii) Resolution of outstanding issues and the issuance of the final verification report and opinion.

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 monitoring towards reductions in the GHG emissions.

The overall verification, from Contract Review to Verification Report and Opinion, was conducted using Bureau Veritas India Pvt Ltd internal procedures. The first output of a verification process is a list of Clarification Request, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR). However in this verification no CL, CARs or FARs were raised.

In summary, Bureau Veritas India Pvt Ltd confirms that the PoA is implemented as planned and described in the validated and registered PoA design documents, and in the revised approved CPA-DD version 05, dated 31/01/2018. Installed equipment being essential for generating emission reductions run reliably. The monitoring system is in place and the CPA is generating GHG emission reductions.

Bureau Veritas India Pvt Ltd has determined that the GHG emission reductions are calculated without material misstatements, applying most conservative approach. The emission reductions verified totalize 1,996 tCO₂e for the monitoring period 08/05/2014 to 31/12/2016, for the CPA included in the monitoring report number 02.

Our opinion relates to the PoA's resulting GHG emission reductions for the second monitoring report (report number 02) comprising the single CPA mentioned above; related to the valid baseline, the monitoring plan and as provided in the revised validated CPA-DD.

Monitoring report number: 02
Reporting period: 08/05/2014 to 31/12/2016 (first and last days included)
Baseline emissions: 1,996 tCO₂e
Project emissions: 0 tCO₂e
Leakage emissions: 0 tCO₂e
Emission Reductions: 1,996 tCO₂e

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Onsongo	Samuel	Bureau Veritas (India) Pvt Ltd	x	x	x	x

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Chirchir	James	Bureau Veritas (India) Pvt Ltd
2.	Support Technical Reviewer	IR	Patankar	Sanjay	Bureau Veritas (India) Pvt Ltd
3.	Approver	IR	Pednekar	Sapana	Bureau Veritas (India) Pvt Ltd

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	<i>Human error in the quantification of emissions</i>	<i>medium</i>	<p>Likelihood – may occur if personnel are not trained on monitoring requirements.</p> <p>Impact – Unreliable data, hence ERs claimed may not be verifiable</p>	Through an onsite assessment the DOE will check information flow, retracing the reported information to source. The DOE will also evaluate the CME's proposed QA/QC procedures.
2.	<i>Reliance on a poorly designed information system</i>	<i>Medium</i>	<p>Likelihood – may occur due to the use of excel spreadsheet without adequate controls</p> <p>Impact – over estimation of ERs claimed.</p>	The DOE will carry out an independent calculation using the verified data and following the formulae indicated in the included in the respective CPA-DDs and monitoring methodologies

C.2. Consideration of materiality in conducting the verification

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In line with the CDM PoA-VVS version 02.0, the DOE has verified the PoA, applying the concept of materiality. Consideration of materiality began by determining the materiality threshold to be applied. The DOE used a threshold of 10% as provided for, in paragraph 308 (e) of the standard. The DOE assessed the risks indicated in section C.1 above, and applied the materiality threshold of 10% for the CPA as follows:

Risk no 1: The DOE had already carried out a risk based audit during the onsite assessment conducted on 22/04/2017. The site visit had been planned and conducted together with the first batch of the monitoring report already submitted for request for issuance. During the onsite audit, the DOE was able to retrace the reported values to plant logs. The DOE was also provided with evidence of training of CPA implementers, on CDM, monitoring requirements and records keeping. All sets of data were traceable to the plant logs and no error was noted.

Risk 2: The DOE has carried out an independent calculation of the ER claimed by the CPA and confirms that the calculation has been done without material miss statement or omissions.

SECTION D. Means of verification**D.1. Desk/document review**

The assessment of the PoA documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to the DOE. Qualitative information comprises information on internal management controls, calculation procedures, and procedures for transfer of data, frequency of emissions reports, review and internal audit of calculations.

The monitoring report (MR) version 01 dated 17/10/2017 (refer to doc 1 in Appendix 3) submitted by the project participant was web hosted on the UNFCCC-CDM web site on 27/11/2017 and thus, was available in the public domain. The publication of the report was due to the CME's desire to submit request for issuance in two separate batches.

In addition to the monitoring documentation provided by the project participants, the DOE reviewed:

- (a) The registered PoA (refer to doc 3 Appendix 3), including the monitoring plan and the corresponding validation report for the PoA (doc 4 in Appendix 3);

- (b) the applied methodologies (refer to doc 5 Appendix 3 and doc 6 Appendix 3)
- (c) the revised approved CPA-DD and the corresponding validation reports (docs 7, doc 8 and doc 9 in Appendix 3)
- (d) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- (e) Emission reduction calculation spreadsheet version 01 dated 17/10/2017 (refer to doc 2 in Appendix 3).
- (f) Any other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, data on electricity generation and calibration).

A full list of documents and records reviewed is provided in Appendix 3

D.2. On-site inspection

Duration of on-site inspection: 22/04/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	a) Interview with CME representative on CPA implementation, operation, monitoring and reporting b) Interview the manager of Yovi Hydro power plant, c) Tour of Yovi Power Plant d) Assessment of data logging e) Assessment of data transmission and reporting f) assessment of meter calibration	Yovi, Morogoro region, Tanzania	22/04/2017	Samuel Onsongo

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Krishnan	Balasankari	The World Bank Group (PP)	Various dates	- Compliance with CDM rules. - PoA implementation, operation - Monitoring Plan and management procedures - Data collection - QA/QC - ER calculations - Monitoring reports - Changes to PoA/CPAs	Samuel Onsongo
1.	Kolowoga	Fr. Augustino	Yovi Hydro Power Company Ltd.	22/04/2017	- CPA implementation - Operation of the power plant - Technology	Samuel Onsongo
2.	Rusule	Duncan	REA (CME)	22/04/2017	PoA implementation	Samuel Onsongo
3.	Mbwilo	Sayuni	REA/The World Bank Group	22/04/2017	- Assessment of data transmission and reporting - Assessment of meter calibration - QA/QC	Samuel Onsongo

D.4. Sampling approach

Not applicable

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form			
Remaining forward action requests from validation and/or previous verification			
CPA(s) considered for verification and covered in this report			
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD			
Implementation and operation of the management system			
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline 			
<ul style="list-style-type: none"> Corrections 			
<ul style="list-style-type: none"> Inclusion of a monitoring plan 			
<ul style="list-style-type: none"> Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools 			
<ul style="list-style-type: none"> Changes to the programme design or project design 			
<ul style="list-style-type: none"> Change of coordinating/managing entity 			
<ul style="list-style-type: none"> Changes specific to afforestation and reforestation activities 			

Component project activities			
Compliance of the CPA implementation with the included CPA design document			
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline 			
<ul style="list-style-type: none"> Corrections 			
<ul style="list-style-type: none"> Changes to the start date of the crediting period of component project activities 			
<ul style="list-style-type: none"> Inclusion of a monitoring plan 			
<ul style="list-style-type: none"> Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools 			
<ul style="list-style-type: none"> Changes to the programme design of project design 			
<ul style="list-style-type: none"> Changes specific to afforestation and reforestation component project activities 			
Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline			
Compliance of monitoring activities with the registered monitoring plan			
<ul style="list-style-type: none"> Data and parameters fixed ex ante or at renewal of crediting period 			
<ul style="list-style-type: none"> Data and parameters monitored 			
<ul style="list-style-type: none"> Implementation of sampling plan 			
Compliance with the calibration frequency requirements for measuring instruments			
Assessment of data and calculation of emission reductions or net removals			
<ul style="list-style-type: none"> Calculation of baseline GHG emissions or baseline net GHG removals by sinks 			
<ul style="list-style-type: none"> Calculation of project GHG emissions or actual net GHG removals by sinks 			
<ul style="list-style-type: none"> Calculation of leakage GHG emissions 			
<ul style="list-style-type: none"> Summary of calculation of GHG emission reductions or net GHG removals by sinks 			
<ul style="list-style-type: none"> Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA 			
<ul style="list-style-type: none"> Remarks on difference from estimated value in included CPA 			
Assessment of reported sustainable development co-benefits			
Global stakeholder consultation			
Others (please specify)			
Total	0	0	0

SECTION E. Verification findings

E.1. General

E.1.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Document reviewed: The monitoring report version 01 dated 17/10/2017 and subsequent revisions of the report was reviewed against the current valid forms in the UNFCCC CDM website and compliance with instructions for filling in monitoring report forms contained therein.
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Findings	Compliant
Conclusion	Bureau Veritas India Pvt Ltd hereby confirms that the final Monitoring report version 02, dated 07/02/2019, provided by the CME, complies with the latest form and the guidelines therein. (CDM PoA-VVS 339)

E.1.2. Remaining forward action requests from validation and/or previous verifications

No FARs were raised at validation (refer to validation reports - doc 8 and 9 in Appendix 3)

E.1.3. CPAs considered for verification and covered in this report

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
9904-0001	No	08/05/2014	Version 08	N/A
9904-0002	No	05/08/2014	Version 08	N/A
9904-0003	No	06/11/2015	Version 08	N/A
9904-0004	Yes	06/11/2015	Version 08	N/A
9904-0005	No	06/11/2015	Version 08	N/A
9904-0006	No	07/07/2016	Version 08	N/A
9904-0007	No	11/08/2016	Version 08	N/A
9904-0008	No	14/10/2016	Version 08	N/A

E.2. Programme of activities

E.2.1. Compliance of the programme implementation with the registered programme design document

Means of verification	Document review, Onsite inspection and interview with stakeholders: The DOE reviewed the registered PoA-DD version 08, the Monitoring Report, CPA-DD for included CPAs (including revised approved CPA-DDs). While performing verification for monitoring report number 01 and number 02, the DOE, between 19/04/2017 to 28/04/2017, held interviews with the CME representatives, the PP representatives and the CPA implementers to confirm the implementation structure, the management and operation plan; and reporting structure of the PoA. It is this onsite assessment that culminated into the preparation of a separate monitoring report, covering only CPA no. 9904-0004, so that request for issuance is submitted in batches. No separate onsite assessment was performed for monitoring report number 02.	
Findings	Compliant	
Conclusion	Bureau Veritas India Pvt Ltd hereby confirms that the program has been implemented in accordance with the registered PoA-DD. The implementation status of the PoA is that, it was registered on 08/05/2014 and since registration up until the end of the monitoring period 31/12/2016, 8 CPAs have been included into the PoA in accordance with the established PoA management structure. CPAs have been included as follows:	
	Description of CPA Category	Title and reference number of included CPA
	CPA Category 1: This comprises CPAs that install these are CPAs comprising installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the	Up to the end of the monitoring period no category 1 CPA had been included.

	generated electricity to the main national grid. The CPAs are required to comply with the requirements of methodology AMS-I.D version 17. The following CPAs have been included in this category:	
	CPA Category 2: This comprises CPAs that install one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to an existing mini-grids being operated by the national utility (TANESCO), or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of methodology AMS-I.F version 02. The following CPAs have been included in this category:	<ul style="list-style-type: none"> - NextGen Solar Project, Kigoma Region, CPA 9904-0002 - Mbinga Hydroelectric Project, CPA 9904-0003 - Ngombeni Biomass Power Plant Project, CPA 9904-0007
	CPA Category 3: This comprises CPAs that install one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity the main national grid and an existing mini-grids being operated by the national utility (TANESCO), and/or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of both methodology AMS-I.D version 17 and AMS-I.F version 02. The following CPAs have been included in this category:	<ul style="list-style-type: none"> - Mapembasi Hydro Power Project, Njombe District, CPA 9904-0001 - Yovi Small Hydro Power Project, CPA 9904-0004 (<i>the CPA was included as category 2 however due to post registration change, it is now a category 3 CPA</i>) - Tulila Hydro-electric Plant, CPA 9904-0005 - Maguta Small Hydro Power Project, CPA 9904-0006 - Ikondo Micro Hydro Power Plant, CPA 9904-0008
Bureau Veritas India Pvt Ltd hereby confirms that the CME has implemented the PoA as described in the registered PoA-DD		
(CDM PoA-VVS 342)		

E.2.2. Implementation and operation of the management system

Means of verification	<p>Document review, Onsite inspection and interview with stakeholders:</p> <p>The DOE reviewed documents including the registered PoA-DD version 08, validation reports for the PoA, the CPA-DD version 04, revised approved CPA-DD version 05 for the CPA and corresponding validation reports</p> <p>Between 18/04/2017 and 28/04/2017, the DOE had held interviews with the CME representatives, the PP representatives and CPA implementers; to confirm the implementation structure, the management and operation plan; and reporting structure of the PoA. This was done together with verification of monitoring report no 01, as indicated in E.2.1 above.</p>
Findings	Compliant
Conclusion	<p>The management system in the registered PoA-DD has been implemented as follows:</p> <p>a) Since the registration of the PoA on 08/05/2014, eight (8) CPAs have been included into the PoA in accordance with the established Operational and management plan. This was confirmed through the validation reports. Further, during onsite assessment, it was confirmed that the operation structure is implemented; where REA is the CME and the implemented CPAs, each has a manager with responsibilities as described in the registered PoA-DD. Records are kept as proposed in the PoA-DD</p> <p>b) REA (the CME) has carried out training and kept relevant records which were made available onsite including: CDM operators manual and Powerpoint slides</p>

	<p>used for training, of CPA level CDM Operations. The CPA managers also confirmed they had received training on CDM and CPA operation and monitoring.</p> <p>c) It was also confirmed through interviews with the CME, PP representatives and the CPA implementers, that the meetings for the purpose of improving the management system had been conducted for the CPAs.</p> <p>Bureau Veritas India Pvt Ltd hereby confirms that the CME has implemented and operated the management system described in the registered PoA-DD.</p> <p>(CDM PoA-VVS para 332)</p>
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E.2.3. Post-registration changes

E.2.3.1. Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline

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There were no post registration changes for the PoA

E.2.3.2. Corrections

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There were no post registration changes for the PoA

E.2.3.3. Inclusion of a monitoring plan

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There were no post registration changes for the PoA

E.2.3.4. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools

>>

There were no post registration changes for the PoA

E.2.3.5. Changes to the programme design or project design

>>

There were no post registration changes for the PoA

E.2.3.6. Change of coordination/managing entity

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There were no post registration changes for the PoA

E.2.3.7. Changes specific to afforestation and reforestation activities

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There were no post registration changes for the PoA

E.3. Component project activities

E.3.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	<p>Onsite inspection (on 22/04/2017) and interview with stakeholders for the CPA 9904-0004 was done to ascertain that all physical features (technology, project equipment, and monitoring and metering equipment) of the included CPA were in place.</p> <p>Since the CME had identified that the CPA 9904-0004 had changed in design, and requested for a post registration change validation, review of the implementation and operation of the CPA was done based on the revised and validated CPA-PDD version 05 dated 31/01/2018, in place of CPA-DD version 04.</p>
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Findings	Compliant
Conclusion	<p>Bureau Veritas India Pvt Ltd hereby confirms that the CPA 9904-0004, has been implemented in accordance with the revised approved CPA-DD as follows:</p> <p>a) The implementation status of the CPA 9904-0004 is as follows: the CPA was included into the PoA on 06/11/2015 as a category 2 CPA. It was proposed to be implemented in two phases. Phase 1 was the installation of 1 MW hydro-power plant and Phase 2 was to increase the capacity by 1.3 MW. Phase 1 has been implemented fully but phase 2 is yet to start. The commissioning of phase 1 was done on 06/11/2015. The commissioning of phase 2 was expected to be on 01/04/2016. However, implementation of phase 2 has been delayed, due to the unavailability of funds. The CPA implementer has indicated that the second phase will be commissioned in 2019. This monitoring period thus covers the implemented phase only. The CPA had been designed to supply electricity to an isolated mini-grid; however, during implementation the designed has been changed. The purpose of the CPA is now to supply electricity to the national grid and also an isolated mini-grid. This has effectively moved the CPA from a category 2 CPA to a category 3 CPA. A post registration change request has been made and validated with a positive opinion. The post registration change request is being submitted and approved (refer to PRC-9904-003). Reporting of the implementation status of the other seven CPAs, in the PoA, is provided in monitoring report number 01.</p> <p>b) The operation of the CPA 9904-0004, has been such that, it has supplied electricity only to the national grid operated by TANESCO for the entire first monitoring period. With the exception of a downtime in July 2016, the CPA has produced and supplied electricity to the national grid from the start of the crediting period 01/12/2015 to the end of this monitoring period 31/12/2016. The CPA has not supplied electricity to a mini-grid during this period. Even though no electricity has been supplied to a mini-grid by the CPA during this monitoring period, it is planned that once the mini-grid has been constructed, a portion of the electricity generated will be supplied to the mini-grid. The operation of the other seven CPAs is reported in monitoring report number 01.</p> <p>c) For CPA 9904-0004, Information (data and variables) reported, is lower than projected in the revised approved CPA-DD version 05 dated 31/01/2018. The appropriate emission factor (grid emission factor), 0.530 tCO₂e/MWh has been used in place of the default 0.8 tCO₂e/MWh for mini-grids. This has been done because the CPA has supplied electricity to the national grid only, during the monitoring period. The DOE considers this to be appropriate.</p> <p>d) There is no increase in the actual GHG emission reductions achieved by the CPA in the current monitoring period as compared to the ex-ante estimates in the revised approved CPA-DD version 05 dated 31/01/2018.</p> <p>(CDM PoA-VVS 342)</p>

E.3.2. Post-registration changes

E.3.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

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There were no related post registration changes.

E.3.2.2. Corrections

>>

There were no related post registration changes.

E.3.2.3. Changes to the start date of the crediting period of component project activities

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There were no post registration changes in start date of crediting period.

E.3.2.4. Inclusion of a monitoring plan

>>

There were no post registration changes involving inclusion of a monitoring plan.

E.3.2.5. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline, or other applied standards or tools

Due to the change in design of the CPA 9904-0004, a change in the monitoring plan was required in order to meet the monitoring requirement of Category 3 CPAs. This has been validated with a positive validation opinion. A post registration notification has been submitted and approved (refer to [PRC-9904-003](#)).

E.3.2.6. Changes to the programme design or project design

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There was a design change in the CPA 9904-0004. In summary, the change is that, at time of inclusion, the CPA was proposed to supply electricity to an isolated mini-grid only. After the change, the CPA will now be supplying electricity to both the national grid operated by TANESCO and to a min-grid. This change in design has been validated with a positive validation opinion. A post registration notification has been submitted and approved (refer to [PRC-9904-003](#)).

E.3.2.7. Changes specific to afforestation and reforestation component project activities

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This is not applicable.

E.3.3. Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline

Means of verification	Document review Review of the revised approved CPA-DD for CPA 9904-0004 (refer to doc 7) and the applied methodologies (refer to doc 5 and 6 in Appendix 3), to establish whether the monitoring plan in the CPA is in line with the monitoring methodologies.
Findings	Compliant with reference to the revised monitoring plan
Conclusion	Bureau Veritas India Pvt Ltd has verified the monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QC/QA procedures as described in the revised approved CPA-DD version 05 dated 31/01/2018 and concludes that the monitoring plan is in accordance with the applied methodologies AMS-I.D version 17 and AMS-I.F version 02 Corresponding to the paragraph 345 of CDM PoA-VVS version 02.0, the Bureau Veritas India Pvt Ltd confirms that the monitoring plan in the revised approved CPA-DD is in accordance with the approved methodologies. (CDM PoA-VVS 345)

E.3.4. Compliance of monitoring activities with the registered monitoring plan**E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period**

Means of verification	Document review: For the parameters determined and fixed ex ante, the DOE has crosschecked the values as reported in the monitoring report (ref doc 1 in Appendix 3) with values provided in the revised approved CPA-DD for CPA 9904-0004. The DOE also assessed the application of the values in calculation of emission reductions (refer to doc 13 in Appendix 3).
Findings	Compliant
Conclusion	The following parameters are fixed ex ante in accordance with the monitoring requirements of Category 3 CPAs, under which the redesigned CPA 9904-0004 now falls:

- $EF_{CO_2,grid,y}$ (CO₂ emission factor of the grid in year y). The value reported in the monitoring report version 02 dated 07/02/2019 and applied in ER calculations has been crosschecked with the value in the revised approved CPA-DD and found to be correct. The value 0.530 tCO₂e/MWh is reported correctly.

- $EF_{CO_2,m,i,y}$ (CO₂ emissions factor of fossil fuel type i used in power unit m in year y). The values reported in the monitoring report version 02 dated 07/02/2019 have been crosschecked with the value in the revised approved CPA-DD and found to be correct. The parameter is not used for direct ER calculation but rather for the determination of the grid emission factor ($EF_{CO_2,grid,y}$), determined and fixed ex-ante for the first crediting period. The following values are reported correctly: Gas Oil/Diesel Oil – 0.0726 tCO₂/GJ and Natural Gas – 0.0543 tCO₂/GJ

- $EF_{EL,m,y}$ (CO₂ emissions factor of power unit m considered in grid emission factor calculation in year). The values reported in the monitoring report version 02 dated 07/02/2019 have been crosschecked with the value in the revised approved CPA-DD and found to be correct. The parameter is not used for direct ER calculation but rather for the determination of the grid emission factor ($EF_{CO_2,grid,y}$). The following values are reported:

Plants	Emission Factor $EF_{EL,m,y}$ (tCO ₂ /MWh)
Zuzu	0.69
Tegeta Gas Plant (TGP)	0.46
Ubungo Gas Plant (UGP)	0.45
SONGAS UGT 1 & 2	0.57
SONGAS UGT 3, 4, 5 & 6	0.54
IPTL	0.70
NYAKATO	0.69
AGR (TG)	0.66
AGR (UB)	0.66
UGP 2	0.53
SYMB UB GP	0.49
SYMB UB JET A	0.66
SYMB (AR)	0.66
SYMB (DD)	0.66

- $\eta_{m,y}$ (Average net energy conversion efficiency of power unit m in year y). The values reported in the monitoring report version 02 dated 07/02/2019 have been crosschecked with the value in the revised approved CPA-DD and found to be correct. The parameter is not used for direct ER calculation but rather for the determination of the grid emission factor ($EF_{CO_2,grid,y}$). The following values have been reported correctly:

Plants	Type of fuel	Technology used	Efficiency (%)
Zuzu	Diesel & Industrial oil	Open cycle	37.8%
Tegeta Gas Plant (TGP)	Natural Gas	Open cycle	42.4%
Ubungo Gas Plant (UGP)	Natural Gas	Open cycle	43.0%
SONGAS UGT1&2	Natural Gas	Open cycle	34.1%
SONGAS UGT3,4,5&6	Natural Gas	Open cycle	36.4%
IPTL	HFO	Open cycle	39.0%
NYAKATO	Diesel & Industrial oil	Open cycle	38.0%
AGR (TG)	Diesel & Industrial oil	Open cycle	39.5%
AGR (UB)	Diesel & Industrial oil	Open cycle	39.5%
UGP 2	Natural Gas	Open cycle	37.0%
SYMB UB GP	Natural Gas	Open cycle	39.5%
SYMB UB JET A	Diesel & Industrial oil	Open cycle	39.5%
SYMB (AR)	Diesel & Industrial oil	Open cycle	39.5%
SYMB (DD)	Diesel & Industrial oil	Open cycle	39.5%

	<p>- EG_{m,y} (Net quantity of electricity generated and delivered to the grid by power unit m in year y). The parameter has been reported in the monitoring report version 02 dated 07/02/2019 in accordance with the revised approved CPA-DD and found to be correct. Values are in the Excel spreadsheet and have been reviewed and found to be correct. Refer to the excel sheet “<i>Grid emission factor</i>”.</p> <p>- EG_{k,y} (Net quantity of electricity generated and delivered to the grid by power unit k in year y (by low-cost/must-run power plants). The parameter has been reported in the monitoring report version 02 dated 07/02/2019 in accordance with the revised approved CPA-DD and found to be correct. Values are in the Excel spreadsheet and have been reviewed and found to be correct. Refer to the excel sheet “<i>Grid emission factor</i>”</p> <p>- EF_{CO2,y} (CO₂ emission factor for displacement of electricity in the grid, the mini-grid and/or the captive power plant). The value reported in the monitoring report version 02 dated 07/02/2019 is 0.8 tCO₂e/MWh in accordance with the revised approved CPA-DD. The value has not been used in ER calculations since no electricity was supplied to a mini-grid in this monitoring period.</p> <p>Bureau Veritas India Pvt Ltd confirms that the parameters fixed ex ante have been correctly reported and applied in emission reductions calculation</p>
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E.3.4.2. Data and parameters monitored

Means of verification	<u>The following monitored parameters have been verified as follows:</u>												
	Parameter 1: $EG_{actual,y}/EG_{BL,y}$ (Quantity of net electricity supplied to the national grid in year y)												
	MoV: Verification involved onsite review of records (i.e. plant logs) and monthly energy reports for the entire monitoring period. The DOE also crosschecked the data against invoices to TANESCO for electricity that was supplied (refer to 10 in Appendix 3). The CPA has produced electricity throughout the period, with the exception of a downtime in July 2016. The table below shows the amount of electricity supplied to the national grid for the entire monitoring period:												
	<table><tr><th rowspan="2">CPA reference number</th><th colspan="3">Power supplied to the grid (MWh/year)</th></tr><tr><th>2014</th><th>2015</th><th>2016</th></tr><tr><td>9904-0004</td><td>NA</td><td>123.452</td><td>3,647.630</td></tr></table>			CPA reference number	Power supplied to the grid (MWh/year)			2014	2015	2016	9904-0004	NA	123.452
CPA reference number	Power supplied to the grid (MWh/year)												
	2014	2015	2016										
9904-0004	NA	123.452	3,647.630										
	Parameter 2: $EG_{BL,y}$ (Quantity of net electricity supplied to the mini-grid in year y)												
	MoV: Verification involved onsite review of records (i.e. plant logs) and monthly energy reports for the entire monitoring period. There was no electricity supplied to a mini-grid during the monitoring period.												
Findings	Compliant												
Conclusion	Corresponding to the paragraph 349 of CDM PoA-VVS version 02.0, Bureau Veritas India Pvt Ltd can confirm that: - The monitoring has been carried out in accordance with the monitoring plan contained in the revised approved CPA-PDD. - All parameters required by the monitoring plan have been sufficiently monitored and correctly listed as indicated above. The monitored data for required parameters have been verified by checking the whole information flow as indicated above. In line with paragraph 350 of CDM PoA-VVS version 02.0, the parameters are listed and the means of verification indicated, as in row 1 of this table.												

E.3.4.3. Implementation of sampling plan

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.3.4.4. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Verification was done through review of documents (revised approved CPA-DD), including onsite review of additional records (including calibration records), to determine whether the CME has calibrated the monitoring equipment at the required frequency.																					
Findings	Compliant																					
Conclusion	<p>Bureau Veritas India Pvt Ltd confirms that calibration has been conducted. Calibration of measuring equipment for the CPA, was done in 2016 by the Authorized entity (TANESCO). This was further confirmed through interviews with the CPA implementer during onsite assessment. The entity authorized to perform the calibration (TANESCO) provided a letter dated 03/03/2017 indicating the results of the calibration exercise but did not indicate the exact date each meter was calibrated.</p> <p>The CME has opted to apply the date on the letter as the calibration date; and based on this date, it is considered that the calibration of the measuring equipment for this CPA has been delayed.</p> <p>The CME has applied the maximum permissible error for the delayed calibration as provided for in paragraph 352 a) and the Appendix to the CDM validation and verification standard for programmes of activities Version 02.0</p> <p>The Bureau Veritas India Pvt has assessed this approach and considered it to be a conservative approach and in line with the provisions of the standard. The calibration of the monitoring equipment for the CPA is as follows:</p> <table><tr><td>CPA reference</td><td>Main meter SN</td><td>Check meter SN</td></tr><tr><td>Measuring Equipment</td><td>208304008</td><td>208302546</td></tr><tr><td>Initial Calibration date</td><td>06/11/2015</td><td>06/11/2015</td></tr><tr><td>Re-calibration date</td><td>03/03/2017</td><td>03/03/2017</td></tr><tr><td>Delayed?</td><td>Yes</td><td>Yes</td></tr><tr><td>Calibration results</td><td>0.01%</td><td>0.59%</td></tr><tr><td>Error applied in ER calculation</td><td>0.5%</td><td>N/A</td></tr></table>	CPA reference	Main meter SN	Check meter SN	Measuring Equipment	208304008	208302546	Initial Calibration date	06/11/2015	06/11/2015	Re-calibration date	03/03/2017	03/03/2017	Delayed?	Yes	Yes	Calibration results	0.01%	0.59%	Error applied in ER calculation	0.5%	N/A
CPA reference	Main meter SN	Check meter SN																				
Measuring Equipment	208304008	208302546																				
Initial Calibration date	06/11/2015	06/11/2015																				
Re-calibration date	03/03/2017	03/03/2017																				
Delayed?	Yes	Yes																				
Calibration results	0.01%	0.59%																				
Error applied in ER calculation	0.5%	N/A																				

E.3.5. Assessment of data and calculation of emission reductions or net removals**E.3.5.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks**

Means of verification	Document review: Verification was done by crosschecking information in the revised approved CPA-DD, the values reported in the monitoring report as indicated in section E.3.4 above and following up the CME’s calculations in the ER calculation spread sheets.				
Findings	Compliant				
Conclusion	The baseline emission for the electricity displaced from the grid by the CPA is calculated as: Baseline Emissions = Net electricity supplied to the grid x grid emission factor The following value are reported:				
	CPA reference	Net electricity supplied to the grid (MWh)	Net electricity after calibration error (MWh)	Grid emission factor (tCO2/MWh)	Baseline emissions
	9904-0004	3,771	3,766	0.53	1,996
	Bureau Veritas India Pvt Ltd hereby confirms that a complete set of verifiable data was available and the CME has applied the appropriate methods and formulae for calculating baseline GHG emissions.				

E.3.5.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	<p>Document review:</p> <p>Verification was done by crosschecking information in the revised approved CPA-DD, the values reported in the monitoring report as indicated in section E.3.4 above</p>
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	and following up the CME's calculations in the ER calculation spread sheets. Also, during site visit, assessment had been done to determine if there were any possible sources of project emissions
Findings	Compliant
Conclusion	<p>The CPA, as designed and operated does not have any project emissions. Project emissions in the revised approved CPA-DD are reported to be zero. During onsite assessment, the DOE did not come across any indication that deviates from the conclusions in the validation report for the CPA, that is, no project emissions were identified.</p> <p>Bureau Veritas India Pvt Ltd hereby confirms that the conclusion on project GHG emissions has been applied correctly.</p>

E.3.5.3. Calculation of leakage GHG emissions

Means of verification	<p>Document review:</p> <p>Verification was done by crosschecking information in the revised approved CPA-DD for the CPA and the values reported in the monitoring report</p> <p>An onsite assessment had been done, to determine if there are any possible sources of leakage emissions</p>
Findings	Compliant
Conclusion	<p>The CPA, as designed and operated does not have any leakage emissions. Leakage emissions in the CPA-DD are reported to be zero. During onsite assessment, the DOE did not come across any indication that deviates from the conclusions in the validation report for the revised approved CPA, that is, no leakage emissions were identified.</p> <p>Bureau Veritas India Pvt Ltd hereby confirms that the conclusion on project GHG emissions has been applied correctly.</p>

E.3.5.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	Verification was done by crosschecking information in the revised approved CPA-DD for the CPA, the values reported in the monitoring report as indicated in section E.3.4 above and following up the CME's application of the values in the formulae for calculating emission reductions.										
Findings	Compliant										
Conclusion	<p>The emission reductions have been calculated as follows:</p> <p>Emission reduction = baseline emissions – project emissions – leakage</p> <table><tr><td>CPA reference</td><td>baseline emissions</td><td>project emissions</td><td>leakage</td><td>Emission reduction</td></tr><tr><td>9904-0004</td><td>1,996</td><td>0</td><td>0</td><td>1,996</td></tr></table> <p>Bureau Veritas India Pvt Ltd hereby confirms that :</p> <p>(a) All data for the CPA was available for this monitoring period</p> <p>(b) Crosschecks have been done on the values used in ER calculation with the respective sources of the data (refer to section E.3.4 above).</p> <p>(c) Appropriate methods and formulae for calculating GHG emission reductions have been followed;</p> <p>(d) Assumptions, emission factors and default values that have been applied in the calculations have been justified;</p> <p>(e) No pro-rata approach was necessary in calculations of GHG emission reductions;</p> <p>(f) The first day, for the CPA, in which CERs are being claimed has been correctly specified.</p>	CPA reference	baseline emissions	project emissions	leakage	Emission reduction	9904-0004	1,996	0	0	1,996
CPA reference	baseline emissions	project emissions	leakage	Emission reduction							
9904-0004	1,996	0	0	1,996							

Title and UNFCCC reference	Baseline emissions or	Project emissions or actual	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)
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number of the CPA	baseline net GHG removals by sinks (tCO ₂ e)	net GHG removals by sinks (tCO ₂ e)		Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
CPA 9904-0004	1,996	0	0	0	1,996	1,996
Total	1,996	0	0	0	1,996	1,996

E.3.5.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	Document review Comparison of emission reductions in the revised approved CPA-DD for the monitoring period against the actual emission reduction realised and reported in the monitoring period.
Findings	Compliant
Conclusion	The emission reductions for this monitoring period, according to the revised approved CPA-DD, are 5,372 tCO ₂ e. The corresponding actual emission reduction in the monitoring period as reported in the monitoring report and verified by the DOE is 1,996 tCO ₂ e. This represents 62.8 % less emission reductions than projected in the revised approved CPA-DD.

Title and UNFCCC reference number of the CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the CPAs during this monitoring period
CPA 9904-0004	5,372	1,996
Total	5,372	1,996

E.3.5.6. Remarks on difference from estimated value in included CPA

Means of verification	Document review Review of CME's remarks in the monitoring report
Findings	Compliant
Conclusion	Bureau Veritas India Pvt Ltd considers the reason provided for the difference in the actual ERs achieved and the estimates in the respective CPA-DDs to be justifiable.

E.3.6. Assessment of reported sustainable development co-benefits

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.3.7. Global stakeholder consultation

Means of verification	Not applicable since no comments were submitted to the DOE for review.
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

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The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the CPA.

The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas India Pvt Ltd procedures.

The Lead Verifier provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that: The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the program which includes program design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the CME as well as the component project activities, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier; and Verification Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the CME/PP(s) the finalized verification report is accepted for further processing such as uploading on the UNFCCC webpage.

SECTION G. Verification opinion

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Bureau Veritas India Pvt Ltd has conducted the 1st periodic verification of the PoA "Tanzania Renewable Energy Programme"; UNFCCC reference number 9904. The PoA is coordinated and managed by the Rural Energy Agency (REA) and is located in United Republic of Tanzania. The PoA aims to increase access to modern energy services in Tanzania by promoting both the off-grid (isolated mini-grid) and national grid renewable energy projects within the country using photovoltaic, wind, hydro and biomass technologies for electricity generation. The PoA Applies the following two methodologies: AMS.I-D "Grid connected renewable electricity generation", Version 17 and AMS.I-F "Renewable electricity generation for captive use and mini-grid", Version 02. CPAs can be included into the PoA in any one of the following three categories, by fulfilling the requirements therein:

a) CPA Category 1: this comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to the main national grid. The CPAs are required to comply with the requirements of methodology AMS-I.D version 17.

b) CPA Category 2: this comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity to an existing mini-grids being operated by the national utility (TANESCO), or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of methodology AMS-I.F version 02.

c) CPA Category 3: This comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity the main national grid and an existing mini-grids being operated by the national utility (TANESCO), and/or to new isolated mini-grids to serve new areas. The CPAs are required to comply with the requirements of both methodology AMS-I.D version 17 and AMS-I.F version 02.

Reporting of the PoA's monitoring activities for this first monitoring period 08/05/2014 to 31/12/2016, has been done in batches. This verification and certification report covers the second batch consisting of monitoring report number 02, version 02 dated 07/02/2019. The monitoring report comprises a single CPA reference number 9904-0004.

The verification consists of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The Rural Energy Agency (the CME) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the CPA in the PoA; on the basis set out within the PoA and the CPA's Monitoring Plan as indicated in the revised approved CPA-DD version 05 dated 31/01/2018. The development and maintenance of records and reporting procedures are in accordance with that plan, including the calculation and determination of GHG emission reductions from the CPA, and is the responsibility of the management of the project.

Bureau Veritas India Pvt Ltd confirms that the project is implemented as described in validated and registered PoA design document and with the revised approved CPA-DD version 05 dated 31/01/2018. Installed equipment being essential for generating emission reduction run reliably. The monitoring system is in place and the CPA is generating GHG emission reductions.

Bureau Veritas India Pvt Ltd confirms that, in this PoA there was a post registration change to the CPA 9904-0004 (Yovi Small Hydro Power Project). The post registration change has been validated by Bureau Veritas India Pvt Ltd, and has resulted in a positive validation opinion. A notification for post registration change has been submitted and approved (refer to [PRC-9904-003](#)).

It is Bureau Veritas India Pvt Ltd opinion that the GHG emission reductions are calculated without material misstatements, applying most conservative approach. The emission reductions verified totalize **1996 tCO₂e**. Our opinion here relates to the PoA's resulting GHG emission reductions for the single CPA mentioned above (as reported in monitoring report number 02, version 02 dated 07/02/2019); and related to the valid and registered baseline, revised monitoring plan and its associated documents for the CPA.

SECTION H. Certification statement

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Bureau Veritas India Pvt Ltd has conducted the 1st periodic verification of the PoA "Tanzania Renewable Energy Programme"; UNFCCC reference number 9904. The PoA is coordinated and managed by the Rural Energy Agency (REA) and is located in United Republic of Tanzania. The PoA aims to increase access to modern energy services in Tanzania by promoting both the off-grid (isolated mini-grid) and national grid renewable energy projects within the country using photovoltaic, wind, hydro and biomass technologies for electricity generation. The PoA applies the following two methodologies: AMS.I-D "Grid connected renewable electricity generation", Version 17 and AMS.I-F "Renewable electricity generation for captive use and mini-grid", Version 02. CPAs can be included into the PoA in any one of the following three categories, by fulfilling the requirements therein:

- i) Category 1 involves CPAs with Renewable energy technology (hydro, wind, biomass or PV) connected to the national utility main grid
- ii) Category 2 involves CPAs with Renewable energy technology (hydro, wind, biomass or PV) connected to existing or new isolated mini-grids
- iii) Category 3 involves CPAs with Renewable energy technology (hydro, wind, biomass or PV) supplying electricity to both national grid and existing or new isolated mini-grids.

This verification and certification report covers the second batch of monitoring report (i.e. monitoring report number 02, version 02 dated 07/02/2019), that comprises a single CPA 9904-0004, included in the PoA. The monitoring period is from 08/05/2014 to 31/12/2016.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The Rural Energy Agency (the CME) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the CPA in the PoA, on the basis set out within the PoA and the CPA's Monitoring Plan as indicated in the revised approved CPA-DD. The development and maintenance of records and reporting procedures are in accordance with that plan, including the calculation and determination of GHG emission reductions from the CPA, and is the responsibility of the management of the project.

Bureau Veritas India Pvt Ltd confirms that the project is implemented as described in validated and registered PoA design document and with the revised approved CPA-DD version 05 dated 31/01/2018. Installed equipment being essential for generating emission reduction run reliably. The monitoring system is in place and the CPA is generating GHG emission reductions.

It is Bureau Veritas India Pvt Ltd opinion that the GHG emission reductions are calculated without material misstatements, applying most conservative approach. The emission reductions verified totalize **1996 tCO₂e**. Our opinion relates to the PoA's resulting GHG emission reductions for the single CPA mentioned above (as reported in monitoring report number 02, version 02 dated 07/02/2019); and related to the valid and registered baseline, revised monitoring plan and its associated documents for the CPA.

Based on the evidence and information that is considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas India Pvt Ltd confirms the following:

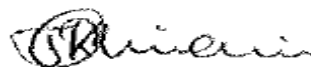
Monitoring report:	02
Reporting period:	08/05/2014 to 31/12/2016 (first and last days included)
Baseline emissions:	1,996 tCO₂e
Project emissions:	0 tCO₂e
Leakage emissions:	0 tCO₂e
Emission Reductions:	1,996 tCO₂e



Mr. Samuel Mayieko

Team Leader

08/02/2019



Mr. James Chirchir

Internal Technical Reviewer

08/02/2019

Appendix 1. Abbreviations

Abbreviations	Full texts
BVI	Bureau Veritas India Pvt Ltd
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM POA-PCP	CDM project cycle procedure for programmes of activities
CDM-PS	CDM project standard for programmes of activities
CDM PoA-VVS	CDM validation and verification standard for programmes of activities
CER	Certified Emission Reductions
CL	Clarification Request
CME	Coordinating / Managing Entity
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOC/doc	Document
DOE	Designated Operational Entity
ERs	Emission Reductions
FAR	Forward Action Request
GHG	Green House Gas(es)
MoV	Means of Verification
MR	Monitoring report
PDD	Project design document
PP	Project Participant
PRC	Post-Registration Change
REA	Rural Energy Agency
SSC	Small Scale
TANESCO	Tanzania Electric Supply Company Limited
UNFCCC	United Nations Framework Convention on Climate Change

Appendix 2. Competence of team members and technical reviewers

Mr. Samuel Onsongo	Bureau Veritas Certification, Kenya	Team Leader, Climate Change Lead Verifier, He has a degree in Physics with over 7 years experience in renewable energy and climate change out of which 5 years have been in CDM. He has been trained on CDM verification, QMS (ISO 9001) and EMS (ISO 14001), as Lead auditor. He has been involved in validation and verification of CDM and Gold Standard projects covering sectoral scope 1 and 3.
Mr. James Chirchir	Bureau Veritas Certification, Kenya	Technical Reviewer, Climate Change Lead Verifier, James Chirchir – holds a Bachelor's degree in Chemical and Process Engineering and had 4 years experience in manufacturing before joining Bureau Veritas. He is an ISO 9001 and ISO 14000 Lead Auditor and a trained CDM Verifier. He has been involved in validation and verification of over 5 projects.

Mr. Sanjay Patankar	Bureau Veritas Certification, India	<p>Technical Specialist supporting Technical Reviewer, Climate Change Lead Verifier.</p> <p>Educational qualifications: B.E. (Mech.) M.E. (Mech.) He has over 20 years of experience in engineering manufacturing industry covering various functions like enterprise management, product design, engineering, tool & die design, improvements in the production shop, quality assurance & control and systems planning and implementation, including ISO 9001 based quality management systems.</p> <p>Working for the last 6 years in Bureau Veritas Certification (India) Pvt. Ltd. As Lead Auditor for ISO 9001, 14001 and OHSAS 18001 standards/specifications. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities.</p>
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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	REA	Monitoring report version 01	17/10/2017	CME
2	REA	ER calculation Yovi MR version 01	17/10/2017	CME
3	REA	Tanzania Renewable Energy Programme Version 08	23/04/2014	Other
4	AENOR	Small-Scale PoA CDM Validation Report: "Tanzania Renewable Energy Programme"	06/05/2014	Other
5	EB 61	AMS I.D. Grid connected renewable electricity generation, Version 17	03/06/2011	Other
6	EB 61	AMS I.F. Renewable electricity generation for captive use and mini-grid, Version 02	03/06/2011	Other
7	REA	CPA-DD: Yovi Small Hydro Power Project version 05	31/01/2018	CME
8	REA	CPA-DD: Post Registration Change Validation report version 01.1	23/04/2018	Other
9	AENOR	Validation report 2015/018/CDM/18 version 02	26/10/2015	Other
10	Yovi	Invoices: HPC002, HPC004, HPC005, HPC006, HPC007, HPC008, HPC009, HPC010, HPC011, HPC012	Various dates	Other
11	REA	Monitoring report version 02	07/02/2019	CME
12	DOE	Clarification request	11/05/2017	Other
13	REA	ER calculation Yovi MR version 02	07/02/2019	CME

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FARs from validation and/or previous verification

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
CME response			Date: DD/MM/YYYY

Documentation provided by the CME	
DOE assessment	Date: DD/MM/YYYY

Table 2. CLs from this verification

CL ID	xx	Section no.		Date: DD/MM/YYYY
Description of CL				
CME response				Date: DD/MM/YYYY
Documentation provided by the CME				
DOE assessment				Date: DD/MM/YYYY

Table 3. CARs from this verification

CAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of CAR				
CME response				Date: DD/MM/YYYY
Documentation provided by the CME				
DOE assessment				Date: DD/MM/YYYY

Document information

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